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**REPORT OF THE MARITIME SAFETY COMMITTEE ON
ITS NINETY-FIRST SESSION**

Attached are annexes 1 to 21 to the report of the Maritime Safety Committee on its ninety-first session (MSC 91/22).



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ANNEX 1

**RESOLUTION MSC.337(91)
(adopted on 30 November 2012)**

ADOPTION OF THE CODE ON NOISE LEVELS ON BOARD SHIPS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolutions A.343(IX) and A.468(XII) by which the Assembly of the Organization adopted the Recommendation on methods of measuring noise levels at listening posts and the Code on noise levels on board ships, respectively,

RECOGNIZING the need to establish mandatory noise level limits for machinery spaces, control rooms, workshops, accommodation and other spaces on board ships, taking into account experience gained with regard to noise control and allowable exposure levels since the adoption of resolution A.468(XII),

NOTING regulation II-1/3-12 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (hereinafter referred to as "the Convention"), adopted by resolution MSC.338(91), concerning protection against noise,

NOTING ALSO that the aforementioned regulation II-1/3-12 provides that ships shall be constructed to reduce onboard noise and to protect personnel from noise in accordance with the Code on noise levels on board ships (hereinafter referred to as "the Code"),

HAVING CONSIDERED, at its ninety-first session, the recommendation made by the Sub-Committee on Ship Design and Equipment, at its fifty-sixth session,

1. ADOPTS the Code on noise levels on board ships, the text of which is set out in the annex to the present resolution;
2. INVITES Contracting Governments to the Convention to note that the Code will take effect on 1 July 2014 upon entry into force of regulation II-1/3-12 of the Convention;
3. REQUESTS the Secretary-General to transmit certified copies of this resolution and the text of the Code, contained in the annex, to all Contracting Governments to the Convention;
4. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and the annex to all Members of the Organization which are not Contracting Governments to the Convention.

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CODE ON NOISE LEVELS ON BOARD SHIPS

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PREAMBLE

1 The Code on noise levels on board ships (hereinafter referred to as "the Code") has been developed to provide international standards for protection against noise regulated by regulation II-1/3-12 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended. Although the Code is legally treated as a mandatory instrument under the SOLAS Convention, certain provisions of the Code remain recommendatory or informative (see paragraph 1.1.3).

2 These regulations, recommendations and advice are intended to provide Administrations with the tools to promote "hearing saving" environments on board ships. This is, however, a dynamic topic, dealing with the human and technical environments in which they interface. Rules and recommendations will necessarily evolve, on a case-by-case basis, as a result of various technological as well as safety management practice developments. For this reason Administrations are encouraged to pass on experience and information received from recognized organizations, ship operators and equipment designers to improve this Code.

3 The Code has been developed having regard to conventional passenger and cargo ships. While certain types and sizes of ships have been excluded from its application, it should be recognized that full application to ships which differ appreciably from the conventional types of ships regarding design or operations might need specific consideration.

4 The Organization adopted a Recommendation on methods of measuring noise levels at listening posts (resolution A.343(IX)), which this Code is not intended to supersede. That Recommendation relates to interference by shipborne noise with the proper reception of external audible navigation signals and although the methods of measuring noise levels in accordance with the Recommendation and with the Code differ, these documents are to be considered compatible inasmuch as this Code is concerned primarily with the effect of noise on health and comfort. Care will be needed to ensure that there is compatibility between the general requirements and the requirements for audibility of navigation signals.

CHAPTER 1 – GENERAL

1.1 Scope

1.1.1 The Code is intended to provide standards to prevent the occurrence of potentially hazardous noise levels on board ships and to provide standards for an acceptable environment for seafarers. These standards were developed to address passenger and cargo ships. Since some sizes and certain service types of ships have been exempted from these requirements, it should be recognized that full application of the Code to ships that differ appreciably from conventional ships will require special considerations. The Code is intended to provide the basis for a design standard, with compliance based on the satisfactory conclusion of sea trials that result in issuance of a Noise Survey Report. Ongoing operational compliance is predicated on the crew being trained in the principles of personal protection and maintenance of mitigation measures. These would be enforced under the dynamic processes and practices put in place under SOLAS chapter IX.

1.1.2 Requirements and recommendations are made for:

- .1 measurement of noise levels and exposure;
- .2 protecting the seafarer from the risk of noise-induced hearing loss under conditions where at present it is not feasible to limit the noise to a level which is not potentially harmful;
- .3 limits on acceptable maximum noise levels for all spaces to which seafarers normally have access; and
- .4 verification of acoustic insulation between accommodation spaces.

1.1.3 Although this Code is legally treated as a mandatory instrument under the SOLAS Convention, the following provisions of this Code remain recommendatory, options for compliance, or informative in nature:

Paragraphs 1.3.2 and 1.3.3
Paragraphs 3.4.2 and 3.4.3
Chapter 5
Section 6.3
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1.2 Purpose

The purpose of the Code is to limit noise levels and to reduce seafarers' exposure to noise, in order to:

- .1 provide for safe working conditions by giving consideration to the need for speech communication and for hearing audible alarms, and to an environment where clear-headed decisions can be made in control stations, navigation and radio spaces and manned machinery spaces;
- .2 protect the seafarer from excessive noise levels which may give rise to a noise-induced hearing loss; and

- .3 provide the seafarer with an acceptable degree of comfort in rest, recreation and other spaces and also provide conditions for recuperation from the effects of exposure to high noise levels.

1.3 Application

1.3.1 The Code applies to new ships of a gross tonnage of 1,600 and above.

1.3.2 The specific provisions relating to potentially hazardous noise levels, mitigation and personal protective gear contained in the Code may be applied to existing ships of a gross tonnage of 1,600 and above, as far as reasonable and practical, to the satisfaction of the Administration.

1.3.3 The Code may be applied to new ships of a gross tonnage of less than 1,600 as far as reasonable and practical, to the satisfaction of the Administration.

1.3.4 The Code does not apply to:

- .1 dynamically supported craft;
- .2 high-speed craft;
- .3 fishing vessels;
- .4 pipe-laying barges;
- .5 crane barges;
- .6 mobile offshore drilling units;
- .7 pleasure yachts not engaged in trade;
- .8 ships of war and troopships;
- .9 ships not propelled by mechanical means;
- .10 pile driving vessels; and
- .11 dredgers.

1.3.5 The Code applies to ships in port or at sea with seafarers on board.

1.3.6 Dispensations from certain requirements may in special circumstances be granted by the Administration, if it is documented that compliance will not be possible despite relevant and reasonable technical noise reduction measures. Such dispensation shall not include cabins, unless exceptional circumstances prevail. If dispensation is granted, it shall be ensured that the goal of this Code is achieved, and the noise exposure limits shall be considered in conjunction with chapter 5.

1.3.7 For ships designed for and employed on voyages of short duration, or on other services involving short periods of operation of the ship, to the satisfaction of the Administration, paragraphs 4.2.3 and 4.2.4 may be applied only with the ship in the port condition, provided that the periods under such conditions are adequate for seafarers' rest and recreation.

1.3.8 The Code is not intended to apply to passenger cabins and other passenger spaces, except in so far as they are work spaces and are covered by the provisions of the Code.

1.3.9 In case of repairs, alterations and modifications of a major character and outfitting related thereto of existing ships, it shall be ensured that areas, in which changes have been made, meet the requirements of this Code for new ships, insofar as the Administration deems reasonable and practicable.

1.3.10 The Code covers only noise sources related to the ship such as machinery and propulsion but does not include wind/wave/ice noise, alarms, public address systems, etc.

1.4 Definitions

For the purpose of the Code the following definitions apply. Additional definitions are given elsewhere in the Code.

1.4.1 *Accommodation spaces*: Cabins, offices (for carrying out ship's business), hospitals, messrooms, recreation rooms (such as lounges, smoke rooms, cinemas, gymnasiums, libraries and hobbies and games rooms) and open recreation areas to be used by seafarers.

1.4.2 *Apparent weighted sound reduction index R'_w* : A single number value expressed in decibels (dB) which describes the overall sound insulation performance in situ of walls, doors or floors provides (see ISO 717-1:1996 as amended by 1:2006).

1.4.3 *A-weighted equivalent continuous sound level $L_{Aeq}(T)$* : A-weighted sound pressure level of a continuous steady sound that, within a measurement time interval, T, has the same mean square sound pressure as a sound under consideration which varies with time. It is expressed in decibels A (dB(A)) and is given by the following equation:

$$L_{Aeq,T} = 10 \log \frac{1}{T} \int_0^T \frac{p_a(t)^2}{p_0^2} . dt$$

where: T = measurement time
 $p_a(t)$ = A-weighted instantaneous sound pressure
 p_0 = 20 μ Pa (the reference level).

1.4.4 *A-weighted sound pressure level or noise level*: The quantity measured by a sound level meter in which the frequency response is weighted according to the A-weighting curve (see IEC 61672-1).

1.4.5 *C-weighted equivalent continuous sound level $L_{Ceq}(T)$* : C-weighted sound pressure level of a continuous steady sound that within a measurement time interval, T, has the same mean square sound pressure as a sound under consideration which varies with time. It is expressed in decibels C (dB(C)) and is given by the following equation:

$$L_{Ceq,T} = 10 \log \frac{1}{T} \int_0^T \frac{p_c(t)^2}{p_0^2} . dt$$

where: T = measurement time
 $p_c(t)$ = C-weighted instantaneous sound pressure
 p_0 = 20 μ Pa (the reference level).

1.4.6 *C-weighted peak sound level* L_{Cpeak} : C-weighted maximum instantaneous sound pressure level. It is expressed in decibels C (dB(C)) and is given by the following equation:

$$L_{Cpeak} = 10 \log \frac{p_{peak}^2}{p_0^2}$$

where: p_{peak} = C-weighted maximum instantaneous sound pressure
 p_0 = 20 μ Pa (the reference level).

1.4.7 *C-weighted sound pressure level or noise level*: The quantity measured by a sound level meter in which the frequency response is weighted according to the C-weighting curve (see IEC 61672-1 (2002-05)).

1.4.8 *Continuously manned spaces*: Spaces in which the continuous or prolonged presence of seafarers is necessary for normal operational periods.

1.4.9 *Crane barge*: A vessel with permanently installed cranes designed principally for lifting operations.

1.4.10 *Daily noise exposure level* ($L_{ex,24h}$) represents the equivalent noise exposure level for a period of 24 hours.

$$L_{ex,24h} = L_{Aeq,T} + 10 \log(T/T_0)$$

where: T is the effective duration on board
 T_0 is the reference duration 24 h.

The total equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$), shall be calculated by using the different noise levels (L_{Aeq,T_i}) and associated time periods with the following equation:

$$L_{Aeq,T} = 10 \lg \left[\frac{1}{T} \sum_{i=1}^n (T_i \times 10^{0,1L_{Aeq,T_i}}) \right]$$

where

L_{Aeq,T_i} is the equivalent continuous A-weighted sound pressure level, in decibels, averaged over time interval T_i ;

$$T = \sum_{i=1}^n T_i$$

$L_{ex,24h} = L_{Aeq,24h}$ when seafarers are on board over a period of 24 hours.

1.4.11 *Dredger*: A vessel undertaking operations to excavate bottom sediment, where the vessel has permanently installed excavation equipment.

1.4.12 *Duty stations*: Those spaces in which the main navigating equipment, the ship's radio or the emergency source of power are located or where the fire recording or fire control equipment is centralized and also those spaces used for galleys, main pantries, stores (except isolated pantries and lockers), mail and specie rooms, workshops other than those forming part of the machinery spaces and similar such spaces.

1.4.13 *Dynamically supported craft*: A craft which is operable on or above water and which has characteristics different from those of conventional displacement ships. Within the aforementioned generality, a craft which complies with either of the following characteristics:

- .1 the weight, or a significant part thereof, is balanced in one mode of operation by other than hydrostatic forces;
- .2 the craft is able to operate at speeds such that the function $\frac{v}{\sqrt{gL}}$ is equal to or greater than 0.9, where "v" is the maximum speed, "L" is the water-line length and "g" is the acceleration due to gravity, all in consistent units.

1.4.14 *Existing ship*: A ship which is not a new ship.

1.4.15 *Fishing vessel*: A vessel used commercially for catching fish, whales, seals, walrus or other living resources of the sea.

1.4.16 *Hearing loss*: Hearing loss is evaluated in relation to a reference auditory threshold defined conventionally in ISO Standard 389-1(1998). The hearing loss corresponds to the difference between the auditory threshold of the subject being examined and the reference auditory threshold.

1.4.17 *Hearing protector*: A device worn to reduce the level of noise reaching the ears. Passive noise-cancelling headsets block noise from reaching the ear. Active noise-cancelling headphones generate a signal that cancels out the ambient noise within the headphone.

1.4.18 *Integrating sound level meter*: A sound level meter designed or adapted to measure the level of the mean squared time averaged A-weighted and C-weighted sound pressure.

1.4.19 *Machinery spaces*: Any space which contains steam or internal-combustion machinery, pumps, air compressors, boilers, oil fuel units, major electrical machinery, oil filling stations, thrusters, refrigerating, stabilizing, steering gear, ventilation and air conditioning machinery, etc., and trunks to such spaces.

1.4.20 *Mobile offshore drilling unit*: A vessel capable of engaging in drilling operations for the exploration for, or exploitation of, resources beneath the seabed, such as liquid or gaseous hydrocarbons, sulphur or salt.

1.4.21 *Navigating bridge wings*: Those parts of the ship's navigating bridge extending towards the ship's sides.

1.4.22 *New ship*: means a ship to which this Code applies in accordance with SOLAS regulation II-1/3-12.1.

1.4.23 *Noise*: For the purpose of the Code all sound which can result in hearing impairment, or which can be harmful to health or be otherwise dangerous or disruptive.

1.4.24 *Noise induced hearing loss*: A hearing loss, originating in the nerve cells within the cochlea, attributable to the effects of sound.

1.4.25 *Noise level*: See A-weighted sound pressure level (paragraph 1.4.4).

1.4.26 *Occasional exposures*: Those exposures typically occurring once per week, or less frequently.

1.4.27 *Pile driving vessel*: A vessel undertaking operations to install pilings in the seabed.

1.4.28 *Pipe-laying barge*: A vessel specifically constructed for, or used in conjunction with, operations associated with the laying of submarine pipelines.

1.4.29 *Port condition*: The condition in which all machinery solely required for propulsion is stopped.

1.4.30 *Potentially hazardous noise levels*: Those levels at and above which persons exposed to them without protection are at risk of sustaining a noise induced hearing loss.

1.4.31 *Repairs, alterations and modifications of a major character*: means a conversion of a ship which substantially alters the dimensions, carrying capacity or engine power of the ship, which change type of the ship, which otherwise so alters the ship that, if it were a new ship, it would become subject to the relevant provisions.

1.4.32 *Sound*: Energy that is transmitted by pressure waves in air or other materials and is the objective cause of the sensation of hearing.

1.4.33 *Sound pressure level L_p or SPL*: Sound pressure level expressed in decibel (dB), of a sound or noise given by the following equation:

$$L_p = 10 \log \frac{p^2}{p_0^2}$$

where: p = sound pressure, in Pascal
 p_0 = 20 μ Pa (the reference level).

1.4.34 *Voyages of short duration*: Voyages where the ship is not generally underway for periods long enough for seafarers to require sleep, or long off-duty periods, during the voyages.

1.4.35 *Weighted sound reduction index, R_w* : A single number value expressed in decibels (dB) which describes the overall sound insulation performance (in laboratory) of walls, doors or floors provides (see ISO 717-1:1997 as amended by 1:2006).

CHAPTER 2 – MEASURING EQUIPMENT

2.1 Equipment specifications

2.1.1 Sound level meters

Measurement of sound pressure levels shall be carried out using precision integrating sound level meters subject to the requirements of this chapter. Such meters shall be manufactured to IEC 61672-1(2002-05)¹ type/class 1 standard as applicable, or to an equivalent standard acceptable to the Administration².

¹ Recommendation for sound level meters.

² Sound level meters class/type 1 manufactured according to IEC 651/IEC 804 may be used until 1 July 2016.

2.1.2 Octave filter set

When used alone, or in conjunction with a sound level meter, as appropriate, an octave filter set shall conform to IEC 61260 (1995)³ or an equivalent standard acceptable to the Administration.

2.2 Use of equipment

2.2.1 Calibration

Sound calibrators shall comply with the standard IEC 60942 (2003-01) and shall be approved by the manufacturer of the sound level meter used.

2.2.2 Check of measuring instrument and calibrator

Calibrator and sound level meter shall be verified at least every two years by a national standard laboratory or a competent laboratory accredited according to ISO 17025 (2005) as corrected by (Cor 1:2006).

2.2.3 Microphone wind screen

A microphone wind screen shall be used when taking readings outside, e.g. on navigating bridge wings or on deck, and below deck where there is any substantial air movement. The wind screen should not affect the measurement level of similar sounds by more than 0.5 dB(A) in "no wind" conditions.

CHAPTER 3 – MEASUREMENT

3.1 General

3.1.1 On completion of the construction of the ship, or as soon as practicable thereafter, measurement of noise levels in all spaces specified in chapter 4 shall take place under the operating conditions specified in sections 3.3 and 3.4 and shall be suitably recorded as required by section 4.3.

3.1.2 Measurements of the A-weighted equivalent continuous sound level, $L_{Aeq}(T)$ shall be made for the purpose of ensuring compliance with chapter 4.

3.1.3 Measurements of the C-weighted equivalent continuous sound level $L_{Ceq}(T)$ and the C-weighted peak sound level L_{Cpeak} shall be made in spaces where $L_{Aeq}(T)$ exceeds 85 dB(A) for the purpose of determining appropriate hearing protection according to the HML-method, see chapter 7 and appendix 2.

3.2 Personnel requirements

3.2.1 In order to ensure an acceptable and comparable quality of the measurement results and the reports the measuring institutes or experts shall prove their competence with view to noise measurements.

³ Octave-band and fractional-octave-band filters.

3.2.2 This person conducting measurements shall have⁴:

- .1 knowledge in the field of noise, sound measurements and handling of used equipment;
- .2 training concerning the procedures specified in this Code.

3.3 Operating conditions at sea trials

3.3.1 Measurements should be taken with the ship in the loaded or ballast condition. The course of the ship shall be as straight as possible. The actual conditions during the measurements shall be recorded on the survey report.

3.3.2 Noise measurements shall be taken at normal service speed and, unless otherwise addressed in the provisions below, no less than 80% of the maximum continuous rating (MCR). Controllable pitch and Voith-Schneider propellers, if any, shall be in the normal seagoing position. For special ship types and for ships with special propulsion and power configurations, such as diesel-electric systems, the Administration may, in cooperation with the shipyard and shipowners, give due consideration to actual ship design or operating parameters when applying the requirements of paragraphs 3.3.1 and 3.3.2.

3.3.3 All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch shall operate throughout the measurement period. However, neither energized fog signals nor helicopter operations shall take place during the taking of these measurements.

3.3.4 Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, shall be taken with the equipment operating. Measurements are not intended for determining compliance with maximum noise level limits, but as a reference for personal protection of seafarers carrying out maintenance, repair and test activities in such spaces.

3.3.5 Mechanical ventilation, heating and air-conditioning equipment shall be in normal operation, taking into account that the capacity shall be in accordance with the design conditions.

3.3.6 Doors and windows should in general be closed.

3.3.7 Spaces should be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance should be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.

3.3.8 Ships fitted with bow thrusters, stabilizers, etc., may be subject to high noise levels when this machinery is in operation. For thrusters, measurements shall be made at 40% thruster power and the ship's speed shall be appropriate for thruster operation. Measurements shall be taken at positions around such machinery when in operation and in adjacent accommodation spaces and duty stations. If such equipment is intended for continuous operation, e.g. stabilizers, measurements shall be made for ensuring compliance with chapter 4. If such systems are intended for short temporary use only, for instance during port manoeuvres, measurements are only relevant for ensuring compliance with chapter 5 on noise exposure.

⁴ Testing institutions which support a quality management system according to ISO 17020/25 are considered to fulfil these requirements.

3.3.9 In case of ships with Dynamical Positioning (DP), which is intended for use in normal working condition, additional noise measurements at DP mode shall be made at control stations, duty stations, and accommodation spaces to ensure that the maximum noise level limits in these spaces are not exceeded. The Administration, classification societies, shipyard and DP designers, as appropriate, shall agree on a process to simulate the operation of the DP thruster system under conditions which would approximate station-holding at or above 40 per cent of maximum thruster power for design environmental conditions that the ship operates in.

3.4 Operating conditions in port

3.4.1 Measurements as specified in paragraphs 3.4.2, 3.4.3 and 3.4.4 relate to the ship in port condition.

3.4.2 When the noise from the ship's cargo handling equipment may lead to noise above maximum levels in duty stations and accommodation spaces affected by its operation, measurements should be taken. Noise originating from sources external to the ship should be discounted as indicated in paragraph 3.5.3.

3.4.3 Where the ship is a vehicle carrier and noise during loading and discharging originates from vehicles, the noise level in the cargo spaces and the duration of the exposure should be considered in conjunction with chapter 5. Such noise levels originating from vehicles may be estimated theoretically by the shipyard and shipowners in cooperation with the Administration.

3.4.4 Measurements shall be taken in machinery spaces with the machinery operating in the port condition if the provisions of paragraph 5.3.5 in respect of hearing protection shall be met in lieu of the provisions of paragraph 4.2.1 during maintenance, overhaul or similar port conditions.

3.5 Environmental conditions

3.5.1 The readings obtained may be affected if the water depth is less than five times the draught or if there are large reflecting surfaces in the ship's vicinity. Such conditions shall therefore be noted in the noise survey report.

3.5.2 The meteorological conditions such as wind and rain, as well as sea state, should be such that they do not influence the measurements. Wind force 4 and 1 m wave height should not be exceeded. If this cannot be achieved, the actual conditions shall be reported.

3.5.3 Care shall be taken to see that noise from extraneous sound sources, such as people, entertainment, construction and repair work, does not influence the noise level on board the ship at the positions of measurement. If necessary, measured values may be corrected for steady state background noise according to the energy summation principle.

3.6 Measurement procedures

3.6.1 During noise level measurement, only seafarers necessary for the operation of the ship and persons taking the measurements shall be present in the space concerned.

3.6.2 Sound pressure level readings shall be taken in decibels using an A-weighting (dB(A)) and C-weighting (dB(C)) filter and if necessary also in octave bands between 31.5 and 8,000 Hz.

3.6.3 The noise level measurements shall be taken with the integrating sound level meter using spatial averaging (as described in paragraph 3.13.1) and over a time period until stable readings are found or at least 15 s in order to represent the average value from variations due to irregular operation or variations in the sound field. Readings shall be made only to the nearest decibel. If first decimal of the dB reading is 5 or higher, the reading shall be made to nearest higher integer.

3.7 Determination of noise exposure

In addition to the continuous sound level measurements the noise exposure level of seafarers (see chapter 5) shall be determined based upon ISO 9612:2009. A simplified procedure based on ISO 9612 and a work place related noise exposure is given in appendix 4.

3.8 Calibration

The sound level meter shall be calibrated with the calibrator referred to in paragraph 2.2.1 before and after measurements are taken.

3.9 Measurement uncertainties

The uncertainty of measurements on board vessels depends on several factors, for example, measurement techniques and environmental conditions. Measurements made in conformity with this Code with few exceptions results in reproducibility standard deviation of the equivalent continuous A-weighted sound pressure level equal to or less than 1.5 dB.

3.10 Points of measurement

3.10.1 *Measurement positions*

If not otherwise stated, measurements shall be taken with the microphone at a height of between 1.2 m (seated person) and 1.6 m (standing person) from the deck. The distance between two measurement points should be at least 2 m, and in large spaces not containing machinery, measurements should be taken at intervals not greater than 10 m throughout the space including positions of maximum noise level. In no case shall measurements be taken closer than 0.5 m from the boundaries of a space. The microphone positions shall be as specified in paragraphs 3.10.3 and sections 3.11 to 3.14. Measurements shall be taken at positions where the personnel work, including at communication stations.

3.10.2 *Duty stations*

The noise level shall be measured at all points where the work is carried out. Additional measurements shall be performed in spaces containing duty stations if variations in noise level are thought to occur in the vicinity of the duty stations.

3.10.3 *Intake and exhaust openings*

When measuring noise levels, the microphone should, where possible, not be placed within a 30° angle away from the direction of the gas stream and not less than a distance of 1 m from the edge of the intake or exhaust opening of engines, ventilation, air conditioning and cooler systems, and as far as possible from reflecting surfaces.

3.11 Measurements in machinery spaces

3.11.1 Measurements shall be taken at the principal working and control stations of the seafarers in the machinery spaces and in the adjacent control rooms, if any, special attention being paid to telephone locations and to positions where voice communication and audible signals are important.

3.11.2 Measurements should not normally be taken closer than 1 m from operating machinery, or from decks, bulkheads or other large surfaces, or from air inlets. Where this is not possible, measurement shall be taken at a position midway between the machinery and adjacent reflecting surface.

3.11.3 Measurements from machinery which constitutes a sound source should be taken at 1 m from the machinery. Measurement should be made at a height of between 1.2 m to 1.6 m above the deck, platform or walkway as follows:

- .1 at a distance of 1 m from, and at intervals not greater than 3 m around, all sources such as:
 - main turbines or engines at each level
 - main gearing
 - turbo-blowers
 - purifiers
 - electrical alternators and generators
 - boiler firing platform
 - forced and/or induced draught fans
 - compressors
 - cargo pumps (including their driving motors or turbines)

In order to avoid an unnecessarily large and impractical number of measurements and recordings in the case of large engines and of machinery spaces where the measured sound pressure level in dB(A) at the intervals above does not vary significantly, it will not be necessary to record each position. Full measurement at representative positions and at the positions of maximum sound pressure level shall, however, be made and recorded, subject to at least four measurements being recorded at each level;

- .2 at local control stations, e.g. the main manoeuvring or emergency manoeuvring stand on the main engine and the machinery control rooms;
- .3 at all other locations not specified in .1 and .2 which would normally be visited during routine inspection, adjustment and maintenance;
- .4 at points on all normally used access routes, unless covered by positions already specified above, at intervals not greater than 10 m; and
- .5 in rooms within the machinery space, e.g. workshops. In order to restrict the number of measurements and recordings, the number of recordings can be reduced as in .1, subject to a total of at least four measurements (including those specified in this paragraph) being recorded at each machinery space level up to upper deck.

3.12 Measurements in navigation spaces

Measurements shall be taken on both navigating bridge wings but should only be taken when the navigating bridge wing to be measured is on the lee side of the ship.

3.13 Measurements in accommodation spaces

3.13.1 One measurement shall be taken in the middle of the space. The microphone shall be moved slowly horizontally and/or vertically over a distance of 1 m (+/- 0.5 m, taking into account the measurement criteria in paragraph 3.10.1). Additional measurements should be performed at other points if appreciable differences, i.e. greater than 10 dB(A), in the level of sound inside the room occur, especially near the head positions of a sitting or lying person.

3.13.2 The number of measurement cabins shall be not less than 40 per cent of total number of cabins. Cabins which are obviously affected by noise, i.e. cabins adjacent to machinery or casings, must be considered in any case.

3.13.3 For ships with a large number of crew cabins, such as passenger/cruise ships, it will be acceptable to reduce the number of measurement positions. The selection of cabins to be tested shall be representative for the group of cabins being tested by selecting those cabins in closer proximity to noise sources, to the satisfaction of the Administration.

3.13.4 On open deck, measurements shall be taken in any areas provided for the purpose of recreation.

3.14 Measurements in normally unoccupied spaces

3.14.1 In addition to the spaces referred to in sections 3.10 to 3.13, measurements shall be taken in all locations with unusually high noise levels where seafarers may be exposed, even for relatively short periods, and at intermittently used machinery locations.

3.14.2 In order to restrict the number of measurements and recordings, noise levels need not be measured for normally unoccupied spaces, holds, deck areas and other spaces which are remote from sources of noise.

3.14.3 In cargo holds, at least three microphone positions in parts of holds where personnel are likely to carry out work shall be used.

CHAPTER 4 – MAXIMUM ACCEPTABLE SOUND PRESSURE LEVELS

4.1 General

4.1.1 The limits specified in this section shall be regarded as maximum levels and not as desirable levels. Where reasonably practicable, it is desirable for the noise level to be lower than the maximum levels specified.

4.1.2 Before the ship is put in service, the limits specified in section 4.2 shall be assessed by the equivalent continuous sound level measurement for that space. In large rooms with many measurement positions the individual positions shall be compared to the limits.

4.1.3 Personnel entering spaces with nominal noise levels greater than 85 dB(A) should be required to wear hearing protectors while in those spaces (see chapter 5). The limit of 110 dB(A) given in paragraph 4.2.1 assumes that hearing protectors giving protection meeting the requirements for hearing protectors in chapter 7 are worn.

4.1.4 Limits are specified in terms of A-weighted sound pressure levels (see paragraphs 1.4.4 and 1.4.24).

4.2 Noise level limits

Limits for noise levels (dB(A)) are specified for various spaces as follows:

Designation of rooms and spaces	Ship size	
	1,600 up to 10,000 GT	≥10,000 GT
4.2.1 Work spaces (see 5.1)		
Machinery spaces ⁵	110	110
Machinery control rooms	75	75
Workshops other than those forming part of machinery spaces	85	85
Non-specified work spaces ⁶ (other work areas)	85	85
4.2.2 Navigation spaces		
Navigating bridge and chartrooms	65	65
Look-out posts, incl. navigating bridge wings ⁷ and windows	70	70
Radio rooms (with radio equipment operating but not producing audio signals)	60	60
Radar rooms	65	65
4.2.3 Accommodation spaces		
Cabin and hospitals ⁸	60	55
Messrooms	65	60
Recreation rooms	65	60
Open recreation areas (external recreation areas)	75	75
Offices	65	60

⁵ If the maximum noise levels are exceeded when machinery is operating (only permitted if dispensation is granted in accordance with paragraph 1.3.6), stay should be limited to very short periods or not allowed at all. The area should be marked according to section 7.4.

⁶ Examples are open deck workspaces that are not machinery spaces, and open deck workspaces where communication is relevant.

⁷ Reference is made to the *Recommendation on methods of measuring noise levels at listening posts* (resolution A.343(IX)) which also applies.

⁸ Hospitals: treatment rooms with beds.

Designation of rooms and spaces	Ship size	
	1,600 up to 10,000 GT	≥10,000 GT
4.2.4 Service spaces		
Galleys, without food processing equipment operating	75	75
Serveries and pantries	75	75
4.2.5 Normally unoccupied spaces		
Spaces referred to in section 3.14	90	90

4.3 Survey report

4.3.1 A noise survey report shall be made for each ship. The report shall comprise information on the noise levels in the various spaces on board. The report shall show the reading at each specified measuring point. The points shall be marked on a general arrangement plan, or on accommodation drawings attached to the report, or shall otherwise be identified.

4.3.2 The format for noise survey reports is set out in appendix 1.

4.3.3 The noise survey report shall always be carried on board and be accessible for the crew.

CHAPTER 5 – NOISE EXPOSURE LIMITS

5.1 General

5.1.1 The noise level limits as set out in chapter 4 are designed so that if they are complied with seafarers will not be exposed to an $L_{ex}(24)$ exceeding 80 dB(A), i.e. within each day or 24-hour period the equivalent continuous noise exposure would not exceed 80 dB(A). For a new ship, compliance with these criteria should be verified on the basis of sea trial measurements of noise levels by calculation of the expected noise exposure of each category of crew members in accordance with the method prescribed in section 3.7.

5.1.2 In spaces with sound pressure levels exceeding 85 dB(A), suitable hearing protection should be used, or to apply time limits for exposure, as set out in this section, to ensure that an equivalent level of protection is maintained.

5.1.3 Each ship to which these regulations apply should include in their Safety Management System a section on the company's policy regarding hearing protection, exposure limits and conduct training on those matters, which will be logged in their training records.

5.1.4 Consideration should be given to the instruction of seafarers on these aspects, as recorded in appendix 2. No crew member should be exposed unprotected to peak values exceeding 135 dB(C).

5.2 Conservation of hearing and use of hearing protectors

In order to comply with the exposure criteria of this section, the use of hearing protectors complying with chapter 7 is permitted. Even when hearing protectors are required for compliance with the Code, risk assessments, a hearing conservation programme and other measures may be implemented by the Administration.

5.3 Limits of exposure of seafarers to high-noise levels

Seafarers should not be exposed to noise in excess of the levels and durations shown in figure 5.1 and described in paragraphs 5.3.1 to 5.3.5.

5.3.1 *Maximum exposure with protection (zone A, Figure 1)*

No seafarer, even when wearing hearing protectors, should be exposed to levels exceeding 120 dB(A) or to an $L_{eq}(24)$ exceeding 105 dB(A).

5.3.2 *Occasional exposure (zone B, Figure 1)*

Only occasional exposures should be allowed in zone B and hearing protectors with an attenuation between 25 and 35 dB(A) should be used.

5.3.3 *Occasional exposure (zone C, Figure 1)*

In zone C only occasional exposures should be allowed and hearing protectors with an attenuation of at least 25 dB(A) should be used.

5.3.4 *Daily exposure (zone D, Figure 1)*

If seafarers routinely work (daily exposure) in spaces with noise levels within zone D hearing protectors with an attenuation up to at least 25 dB(A) should be used and risk assessment and a hearing conservation programme may be considered.

5.3.5 *Maximum exposure without protection (zone E, Figure 1)*

For exposures of less than eight hours, seafarers without hearing protection should not be exposed to noise levels exceeding 85 dB(A). When seafarers remain for more than eight hours in spaces with a high noise level, an $L_{eq}(24)$ of 80 dB(A) should not be exceeded. Consequently, for at least a third of each 24 hours each seafarer should be subject to an environment with a noise level below 75 dB(A).

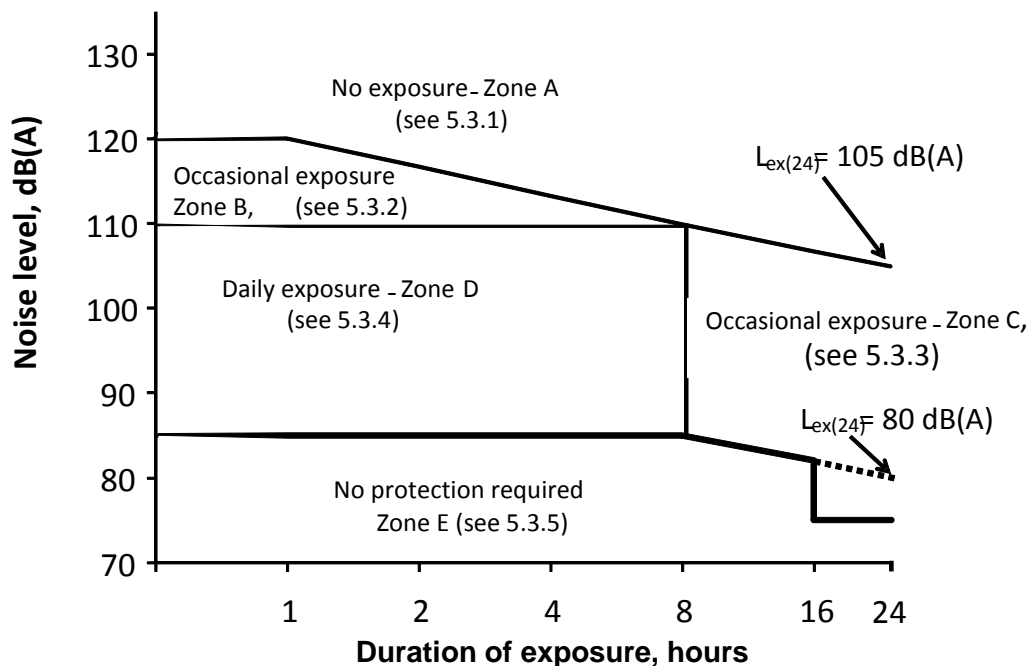


Figure 1: Allowable daily and occasionally occupational zones

Note: To work in Zone A – D hearing protectors attenuating the sound to the ear down to below 85 dB(A) are required. To work in Zone E hearing protectors are not required but should be accessible if the sound level is over 80 dB(A) for more than eight hours.

5.4 24-hour equivalent continuous sound level limit

As an alternative to compliance with the provisions of section 5.3 (figure 1), no unprotected seafarer should be exposed to a 24-hour equivalent continuous sound level greater than 80 dB(A). Each individual's daily exposure duration in spaces requiring the use of hearing protectors should not exceed four hours continuously or eight hours in total.

5.5 Hearing conservation programme

5.5.1 A hearing conservation programme may be provided for seafarers working in spaces with $L_{Aeq} > 85 \text{ dB(A)}$ in order to train them in the hazards of noise and use of hearing protection, and to monitor hearing acuity. Some elements of a hearing conservation programme are as follows:

- .1 Initial and periodic audiometric tests administered by a trained and appropriately qualified person, to the satisfaction of the Administration.
- .2 Instruction of exposed persons on the hazards of high and long duration noise exposures and on the proper use of ear protectors (see appendix 2).
- .3 Maintenance of audiometric test records.
- .4 Periodic analysis of records and hearing acuity of individuals with high hearing loss.

5.5.2 An optional element of a hearing conservation programme is to control the 24-hour equivalent continuous sound level to which individuals working in high noise level spaces are exposed. Such control requires calculation of the 24-hour equivalent continuous sound level. If this 24-hour level does not meet the limits, the duration of exposure should be controlled or hearing protectors used at appropriate times to bring the individual's exposure within the limit.

CHAPTER 6 – ACOUSTIC INSULATION BETWEEN ACCOMMODATION SPACES

6.1 General

Consideration shall be given to the acoustic insulation between accommodation spaces in order to make rest and recreation possible even if activities are going on in adjacent spaces, e.g. music, talking, cargo handling, etc.

6.2 Sound insulation index

6.2.1 The airborne sound insulation properties for bulkheads and decks within the accommodation shall comply at least with the following weighted sound reduction index (R_w) according to ISO Standard 717-1:1996 as amended (1:2006), part 1⁹:

Cabin to cabin	$R_w = 35$
Messrooms, recreation rooms, public spaces and entertainment areas to cabins and hospitals	$R_w = 45$
Corridor to cabin	$R_w = 30$
Cabin to cabin with communicating door	$R_w = 30$.

6.2.2 The airborne sound insulation properties shall be determined by laboratory tests in accordance with ISO 10140-2:2010, to the satisfaction of the Administration.

6.3 Erection of materials

6.3.1 Care should be taken in the erection of materials and in the construction of accommodation spaces. During sea trial testing, if the erection of materials is in doubt then measurements should be taken on board ships for a representative selection of each type of partition, floors, doors as requested in paragraph 6.2.1 and to the satisfaction of the Administration.

6.3.2 The apparent weighted sound reduction index R'_w should comply with the requirements of the paragraph 6.2.1 with tolerance of up to 3 dB.

Note: Field measurements should be performed according to ISO 140-4:1998¹⁰. When the area of the materials tested is $<10 \text{ m}^2$, a minimum value of 10 m^2 should be considered for the calculation of the R'_w index.

⁹ ISO Standard 717-1 – Acoustics – Rating of sound insulation in buildings and of building elements – part 1: Airborne sound insulation, and its amendment published in 2006.

¹⁰ ISO 140-4 Acoustics – Measurement of sound insulation in buildings and of building elements – part 4: field measurements of airborne sound insulation between rooms.

CHAPTER 7 – HEARING PROTECTION AND WARNING INFORMATION

7.1 General

When the application of means for controlling sound at source does not reduce the noise level in any space to that specified in paragraph 4.1.3, seafarers who are required to enter such spaces shall be supplied with effective hearing protection on an individual basis. The provision of hearing protectors shall not be considered to be a substitute for effective noise control. Appendix 3 summarizes current noise abatement methods which may be applied on new ships.

7.2 Requirements for hearing protectors

7.2.1 The individual hearing protectors shall be so selected as to eliminate the risk to hearing or to reduce the risk to an acceptable level as specified in paragraph 7.2.2. The ship operator shall make every effort to ensure the wearing of hearing protectors and shall be responsible for checking the effectiveness of measures taken in compliance of this Code.

7.2.2 Hearing protectors shall be of a type such that they can reduce sound pressure levels to 85 dB(A) or less (see section 5.1). Selection of suitable hearing protectors should be in accordance with the HML-method described in ISO 4869-2:1994 (see explanation and example in appendix 2). Noise-cancelling technology may be used if the headset(s) have equivalent performance to hearing protectors in their unpowered condition.

7.2.2.1 Noise-cancelling headsets specifications should be as per confirmed manufacturer specifications.

7.3 Selection and use of hearing protectors

Seafarers should be instructed in the proper use of hearing protectors as provided or used on board in accordance with appendix 2.

7.4 Warning notices

Where the noise level in machinery spaces (or other spaces) is greater than 85 dB(A), entrances to such spaces shall carry a warning notice comprising symbol and supplementary sign in the working language of the ship as prescribed by the Administration (see below an example of the warning notice and signs in English). If only a minor portion of the space has such noise levels the particular location(s) or equipment shall be identified at eye level, visible from each direction of access.

Signs at the entrance to noisy rooms (example in English)	
80-85 dB(A)	HIGH-NOISE LEVEL – USE HEARING PROTECTORS
85-110 dB(A)	DANGEROUS NOISE – USE OF HEARING PROTECTORS MANDATORY
110-115 dB(A)	CAUTION: DANGEROUS NOISE – USE OF HEARING PROTECTORS MANDATORY – SHORT STAY ONLY
>115 dB(A)	CAUTION: EXCESSIVELY HIGH-NOISE LEVEL – USE OF HEARING PROTECTORS MANDATORY – NO STAY LONGER THAN 10 MINUTES



Appendix 1

FORMAT FOR NOISE SURVEY REPORT

1 Ship particulars

- .1 Name of ship
- .2 Port of registry
- .3 Name and address of shipowner, managing owner or agent
- .4 Name and address of shipbuilder
- .5 Place of build
- .6 IMO number
- .7 Gross tonnage
- .8 Type of ship
- .9 Ship's dimensions – length
breadth
depth
maximum draught (summer load line)
- .10 Displacement at maximum draught
- .11 Date of keel laying
- .12 Date of delivery

2 Machinery particulars

- .1 Propulsion machinery

Manufacturer:	Type:	Number of units:
Maximum cont. rating – power		kW
Normal designed service shaft speed:		rpm
Normal service rating – power:		kW
- .2 Auxiliary diesel engines

Manufacturer:	Type:
Output:	kW
	Number of units:
- .3 Main reduction gear:
- .4 Type of propeller (fixed propeller, controllable pitch propeller, Voith-Schneider propeller)

Number of propellers:	Number of blades:
Designed propeller shaft speed:	rpm
- .5 Other (in case of special propulsion and power configurations)
- .6 Engine room ventilation

Manufacturer:	Type:		
Number of units:			
Fan diameter:	m	Fan speed:	rpm /variable speed (Y/N)
Airflow capacity:	m ³ /h	Total pressure:	Pa

3 Measuring instrumentation and personnel

.1	Instrumentation Sound level meter Microphone Filter Windscreen Calibrator Other equipment	Make	Type	Serial No.
.2	Calibration of sound level meter - at survey by competent authority	Date	Calibration Start	Finish
.3	Identification of persons/organizations carrying out measurements			

4 Conditions during measurement

.1	Date of measurement:	Starting time:	Completion time:
.2	Ship's position during measurement		
.3	Loading condition of the ship		
.4	Conditions during measurement - Draught forward - Draught aft - Depth of water under keel		
.5	Weather conditions - Wind force - Sea state		
.6	Ship speed		
.7	Actual propeller shaft speed:	rpm	
.8	Propeller pitch:		
.9	Propulsion machinery speed:	rpm	
.10	Propulsion machinery power:	kW	
.11	Number of propulsion machinery units operating:		
.12	Number of diesel auxiliary engines operating:		
.13	Number of turbogenerators operating:		
.14	Engine room ventilation speed mode (high/low/variable)		
.15	Engine load (%MCR)		
.16	Other auxiliary equipment operating: Ventilation, heating and air conditioning equipment in operation		

5 Measuring data

Noise limits	Measured sound pressure levels
dB(A)	L _{Aeq} dB(A)
	L _{Ceq} dB(C)
	L _{Cpeak} dB(C)

Note: Measurement of sound pressure level L_{Ceq} and L_{Cpeak} should be done only in the case of exceeding 85dB(A) and hearing protectors are required.

Work spaces

- Machinery spaces
- Machinery control rooms
- Workshops
- Non-specified workspaces

Navigation spaces

- Navigating bridge and chartrooms
- Look-out posts, including navigating bridge wings and windows
- Radio rooms
- Radar rooms

Accommodation spaces

- Cabins and hospitals
- Messrooms
- Recreation rooms
- Open recreation areas
- Offices

Service spaces

- Galleys, without food processing equipment operating
- Serveries and pantries

Normally unoccupied spaces

6 Main noise abatement measures (list measures taken)

7 Remarks (list any exceptions to the Code)

.....

Name

Address

.....

.....
Place Date Signature

ATTACHMENT

PAGES OF FREQUENCY ANALYSIS

Frequency analysis for certain areas may result in more accurate and precise noise level predictions and will aide in the detection of specific frequency bands which exceed the established limits in chapter 4. Further guidance may be found in ISO 1996-2:2007.

Appendix 2

GUIDANCE ON THE INCLUSION OF NOISE ISSUES IN SAFETY MANAGEMENT SYSTEMS

1 Instruction to seafarers

1.1 Seafarers should be instructed in the hazards of high and long duration noise exposures and the risk of noise-induced hearing loss. Instruction should be given to all seafarers on initial employment and periodically thereafter to those regularly working in spaces with noise levels in excess of 85 dB(A). Instruction in the provisions of the Code should include:

- .1 noise exposure limits and the use of warning notices;
- .2 the types of hearing protectors provided, their approximate attenuation and their proper use, fitting, and the effects on normal communications when first wearing such protection;
- .3 company policies and procedures related to hearing protection and where appropriate any monitoring programme which may be available for seafarers working in spaces covered by warning notices; and
- .4 guidance on the possible signs of hearing loss such as ringing in the ear, dead ear, or fullness in the ear and mitigating techniques to be effected when those signs occur.

1.2 Appropriate seafarers should receive such instruction as is necessary in the correct use and maintenance of machinery and silencers or attenuators in order to avoid the production of unnecessary noise.

2 Responsibility of ship operators

2.1 The ship operator should be responsible for ensuring that means for noise reduction and control are applied and maintained such that the requirements of the Code are met.

2.2 Where noise levels in any space exceed the limit of 85 dB(A), shipowners should ensure that:

- .1 the space is identified and relevant provisions of the Code are complied with;
- .2 the master and senior officers of the ship are aware of the importance of controlling entry into the space and the importance of the use of suitable hearing protection;
- .3 suitable and sufficient hearing protection is provided for distribution on an individual basis to all relevant crew members; and
- .4 the master, senior officers and any safety officer on board a ship are aware of the need for the relevant training and information to be provided on board.

2.3 Where hand tools, galley and other portable equipment produce noise levels above 85 dB(A) in normal working conditions, shipowners should ensure that warning information should be provided.

3 Responsibility of seafarers

Seafarers should be made aware of the need to ensure that:

- .1 all measures adopted for noise control are utilized;
- .2 any defective noise control equipment is reported to responsible persons under the ship's safety management system;
- .3 suitable hearing protectors are always worn when entering areas in which their use is required by warning notices and that those protectors are not removed in those spaces, even for short periods; and
- .4 the hearing protectors provided for their use are not damaged or misused and are maintained in a sanitary condition.

4 Selection of hearing protectors

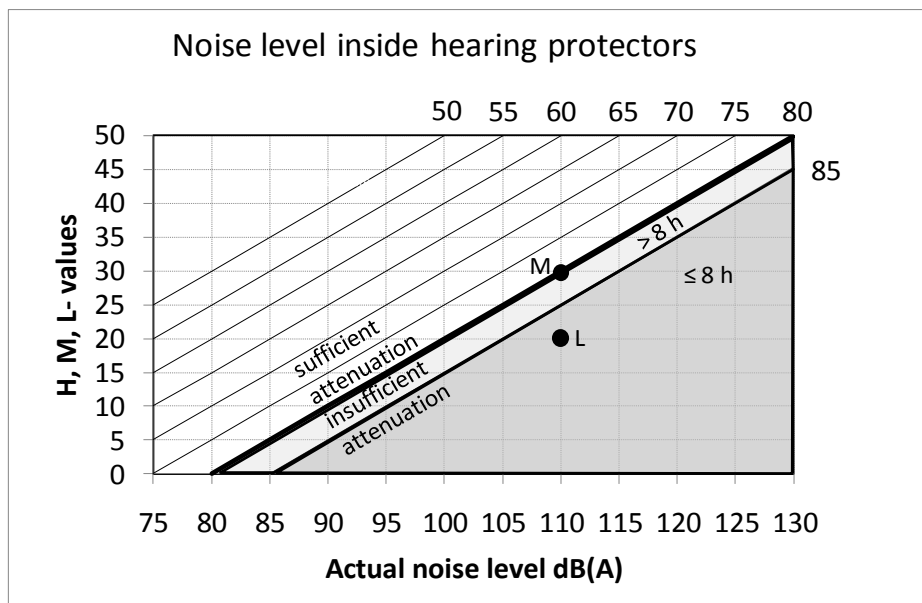
4.1 Selection of suitable hearing protectors should be carried out according to the HML-method described in ISO 4869-2:1994. In order to give guidance to ship operators and seafarers in choosing proper hearing protection, a short description of the HML-method and its use is given below.

4.2 The HML-method is a rating which is calculated in accordance with ISO 4869-2:1994, "Estimation of effective A-weighted sound pressure levels when hearing protectors are worn". Using the H, M, and L ratings requires both A-weighted (L_{Aeq}) and C-weighted (L_{Ceq}) sound pressure levels of the noise and the HML values for the hearing protector in question, which will be provided by the manufacturer.

4.2.1 The HML values for a hearing protector are related to the attenuation that the protector offers in noise of high, medium and low frequencies. These H and M values are used in the calculation of the protected exposure level for noises which have primary energy in the middle and high frequencies. This is considered the case if the measured L_{Ceq} and L_{Aeq} levels differ by 2 dB or less.

4.2.2 The M and L values for the hearing protector are used in the calculation of the protected exposure level for noises which have appreciable low-frequency components and for which the measured L_{Ceq} and L_{Aeq} levels differ by more than 2 dB in those spaces where the protector is intended to be used.

4.3 An example of simple use of the HML method:



On a given ship, the measured sound level in the machinery room is 110 dB(A), 115 dB(C). The chosen hearing protectors have the following attenuation according to the manufacturer: H= 35 dB, M=30 dB, L=20 dB.

- .1 Mark the hearing protectors' L and M values on the vertical line starting at the actual noise level (110 dB(A)).
- .2 Settle if the noise has low or high/medium frequency. If the difference $L_{Ceq} - L_{Aeq}$ is more than 2 dB the noise has low frequency (L) and if $L_{ceq} - L_{Aeq}$ is less than 2 dB the noise has high or medium frequency (M).
- .3 If the sound is of high/medium frequency ($L_{Ceq} - L_{Aeq} \leq 2$), follow the diagonal line from the M-value and take a reading of the noise level inside the hearing protectors. In this case the noise level inside the hearing protectors is 80 dB(A) which means that the attenuation of the hearing protectors are sufficient for work over 8 hours a day.
- .4 If the sound has low frequency ($L_{Ceq} - L_{Aeq} > 2$), follow the diagonal lines from the L-value and take a reading of the noise level inside the hearing protectors. In this case, the noise level inside the hearing protectors is >85 dB(A) which means that the hearing protectors are not good enough even for a working day of 8 hours. Choose a hearing protector that has an L-value above 25 dB instead.

4.4 **Calculation by the HML-method – Principle and example**

Determination of feasibility of a particular protector in a specific noise environment can also be calculated. The values H, M and L may be used to estimate L'A (total A-weighted noise level at the ear) for a particular protector in specific noise situation.

- .1 Calculate $L_{Ceq} - L_{Aeq}$ (This requires measurements of L_{Aeq} and L_{Ceq} . All class 1 sound level meter can apply A-weighted or C-weighted.)

- .2 If $L_{Ceq} - L_{Aeq}$ is ≤ 2 dB, the Predicted Noise Reduction level (PNR) is calculated using the equation:

$$PNR = M - \left(\frac{H - M}{4} * (L_{Ceq} - L_{Aeq} - 2) \right)$$

If $L_{Ceq} - L_{Aeq}$ is > 2 dB, PNR is calculated using the equation:

$$PNR = M - \left(\frac{M - L}{8} * (L_{Ceq} - L_{Aeq} - 2) \right)$$

- .3 The PNR is then subtracted from the total A-weighted noise level to give the effective A-weighted level at the ear under the protector L'A:

$$L'A = L_{Aeq} - PNR$$

Example: Hearing protector H = 35 dB, M = 25 dB, L = 20 dB

Noise level in engine-room:

$$L_{Aeq} = 108.7 \text{ dB(A)}$$

$$L_{Ceq} = 109.0 \text{ dB(C)}$$

$$L_{Ceq} - L_{Aeq} = 0.3 \text{ dB}$$

$$PNR = 25 - ((35-25)/4)*(0.3-2) = 29.3 \text{ dB}$$

$$L'A = 108.7 - 29.3 = 79.4 \text{ dB(A)}$$

In this case, the noise level inside the hearing protectors is below 80 dB(A) which means that the attenuation of the hearing protectors is sufficient for work over eight hours a day.

Appendix 3

SUGGESTED METHODS OF ATTENUATING NOISE

1 General

1.1 In order to obtain a noise reduction on board ships to comply with the limits given in chapters 4 and 5 of the Code, careful consideration should be given to means of such reduction. This appendix is intended to provide information for the design of a ship in this respect.

1.2 Design and construction of noise control measures should be supervised by persons skilled in noise control techniques.

1.3 Some of the measures which can be taken to control the noise level or reduce the exposure of seafarers to potentially harmful noise are indicated in sections 2 to 10 of this appendix. It is emphasized that it will not be necessary to implement all or any of the measures recommended in this appendix on all ships. This Code does not provide detailed technical information needed for putting constructional noise control measures into effect, or for deciding which measures are appropriate in particular circumstances.

1.4 In applying noise control measures, care should be taken to ensure that rules and regulations concerning ship structure, accommodation and other safety matters are not infringed and the use of sound reduction materials should not introduce fire, safety or health hazards nor should such material, by virtue of flimsy construction or attachment, introduce hazards that may tend to impede either evacuation or de-watering of the spaces.

1.5 The need for noise control should be taken into account at the design stage when deciding which of different designs of engines and machinery are to be installed, the method of installation and the siting of machinery in relation to other spaces, and the acoustic insulation and siting of the accommodation spaces.

1.6 Due to the normal method of ship construction, it is most probable that noise originating from machinery and propellers reaching the accommodation and other spaces outside the machinery spaces will be of the structure-borne type.

1.7 When designing efficient and economic measures for noise control of machinery installations in existing ships, the measurement of sound produced in terms of A-weighted sound level may need to be supplemented by some form of frequency analysis.

2 Isolation of sources of noise

2.1 Where practicable, any engines or machinery producing noise levels in excess of the limits set out in section 4.2 of the Code should be installed in compartments which do not require continuous attendance (see also paragraph 6.1 of this appendix).

2.2 Accommodation should be sited both horizontally and vertically as far away as is practicable from sources of noise such as propellers and propulsion machinery.

2.3 Machinery casings should, where practicable, be arranged outside superstructures and deckhouses containing accommodation spaces. Where this is not feasible, passageways should be arranged between the casings and accommodation spaces, if practicable.

2.4 Consideration should be given, where practicable, to the placing of accommodation spaces in deck houses not in superstructures extending to the ship's side.

2.5 Consideration may also be given, where applicable, to the separation of accommodation spaces from machinery spaces by unoccupied spaces, sanitary and washing rooms.

2.6 Suitable partitions, bulkheads, decks, etc., may be needed to prevent the spread of sound. It is important that these be of the correct construction and location in relation to the source of sound and the frequency of the sound to be attenuated.

2.7 Where a space, such as a machinery space, is being divided into noisy (not continually manned) and less noisy (capable of being continually manned) spaces, it is preferable to have complete separation¹¹.

2.8 It may be advisable to provide sound absorbing material in certain spaces in order to prevent increase of noise level due to reflection from partitions, bulkheads, decks, etc.

3 Exhaust and intake silencing

3.1 Exhaust systems from internal combustion engines, air-intake systems to machinery spaces, accommodation spaces and other spaces should be so arranged that the inflow or discharge orifices are remote from places frequented by seafarers.

3.2 Silencers, noise-cancelling equipment or attenuators should be fitted when necessary.

3.3 To minimize accommodation noise levels it is normally necessary to reduce structure-borne noise by isolating exhaust systems and certain pipe work and duct work from casings, bulkheads, etc.

4 Machinery enclosure

4.1 In continuously manned spaces or spaces where seafarers might reasonably be expected to spend lengthy periods of time on maintenance or overhaul work, and where separation as detailed in section 2 of this appendix is not practicable, consideration should be given to the fitting of sound insulating enclosures or partial enclosures to engines or machinery producing sound pressure levels in excess of the limits set out in section 4.2 of the Code.

4.2 Where the noise level produced by engines or machinery installed in spaces as in paragraph 4.1 above falls within the criteria of paragraph 5.3.1 of the Code and zone A of figure 5.1, it is essential that noise reduction measures are provided.

4.3 When sound insulating enclosures are fitted, it is important that they entirely enclose the noise source.

5 Reduction of noise in the aft body

To reduce the noise influence in the aft body of the ship, especially to the accommodation spaces, consideration may be given to noise emission problems during the design procedures relating to the aft body, propeller, etc.

¹¹ In these cases it may be necessary to ensure the supervision of the plant by installing alarms in the less noisy compartments and to arrange means of escape so that seafarers may leave these compartments without danger.

6 Enclosure of the operator

6.1 In most machinery spaces it would be desirable and advisable to protect operating or watchkeeping seafarers by providing a sound reducing control room or other similar space (see paragraph 2.1 of this appendix).

6.2 In continuously manned machinery spaces of small ships and of existing ships where noise levels are in excess of 85 dB(A), it would be desirable to provide a noise refuge at the control station or manoeuvring platform where the watch keeper might be expected to spend the major part of the time.

7 Control of noise accentuation into accommodation spaces

7.1 To reduce noise levels in accommodation spaces it may be necessary to consider the isolation of deckhouses containing such spaces from the remaining structure of the ship by resilient mountings.

7.2 Consideration may also be given to the provision of flexible connections to bulkheads, linings and ceilings and the installation of floating floors within accommodation spaces.

7.3 The provision of curtains to side scuttles and windows and the use of carpets within accommodation spaces assist in absorbing noise.

8 Selection of machinery

8.1 The sound produced by each item of machinery to be fitted should be taken into account at the design stage. It may be possible to control noise by using a machine producing less airborne, fluid-borne or structure-borne sound.

8.2 Manufacturers should be requested to supply information on the sound produced by their machinery and also to provide recommended methods of installation in order to keep noise levels to a minimum.

9 Inspection and maintenance

All items of machinery, equipment and associated working spaces should be periodically inspected as part of the onboard safety management system with respect to any noise control/reduction features. Should such inspection reveal defects in the means for noise control, or other defects causing excessive noise, these should be rectified as soon as is practical.

10 Vibration isolation

10.1 Where necessary, machines should be supported on carefully selected resilient mountings. To ensure the effectiveness of the isolation, the mountings should be installed on a sufficient stiff foundation.

10.2 Where structure-borne sound from auxiliary machinery, compressors, hydraulic units, generating sets, vents, exhaust pipes and silencers produces unacceptable noise levels in accommodation spaces or on the navigating bridge, use of resilient mountings should be considered.

10.3 When sound insulating enclosures are fitted consideration may be given to the machine being resiliently mounted and pipe, trunk and cable connections to it being flexible.

11 Noise prediction

11.1 In the design phase of new ships, the designer/yard may predict by calculations, qualified assessments or the like, the expected noise levels in areas of the ship likely to have noise levels over acceptable levels from chapter 4.

11.2 The noise predictions referred to in paragraph 11.1 should be used in the design phase to identify possible areas in the ship where special consideration must be given to noise reduction measures in order to observe the noise level limits stipulated in section 4.2 of the Code.

11.3 The noise predictions and any noise reduction measures planned in the design phase should be documented, especially in cases where, according to the noise predictions, it must be expected that compliance with any of the noise level limits of section 4.2 of the Code will be difficult to achieve, despite reasonable technical initiatives.

12 Noise-cancelling equipment

12.1 Noise cancellation, also known as anti-noise, is the process whereby mostly low-frequency (below 500 Hz) repetitive noises such as made by engines and rotating machinery, is cancelled out by introducing a cancelling anti-noise signal which is equal to but 180 degrees out of phase with the noise. This anti-noise is introduced to the environment in a way that it matches the noise in the region of interest. The two signals then cancel each other out, effectively removing a significant portion of the noise energy from the environment.

12.2 Several applications for this technology exist. They include:

- .1 Active mufflers – have been shown in other modes of transportation to reduce exhaust noise from internal combustion engines, compressors, and vacuum pumps without the inefficiencies caused by back pressure.
- .2 Active mounts – these can contain vibration from rotating machines to improve comfort, decrease wear on moving parts, and reduce secondary acoustic noise from vibration.
- .3 Noise-cancelled quiet zones – currently silent seats and (automobile) cabin quieting systems for various modes of transportation exist. The possibility exists for producing active-quieted bunks of other spaces for seafarer comfort and recovery.
- .4 Noise-cancelling headsets – these can extend hearing protection beyond passive ear defenders to include low frequencies. Active headsets can also allow communication, by permitting normal conversation, and improve work place safety.

12.3 It is suggested that information concerning experience from these active noise-reducing systems be provided to the Organization to better evaluate the performance parameters of these systems.

13 Noise recovery areas

13.1 Incorporation of noise recovery areas may be used as an alternative design approach for the construction of ships under 1,600 GT or ice-breaking vessels. Noise recovery areas may also be considered for incorporation in ship-specific applications where noisy operations (examples are extended air/helicopter operations or heavy weather operation of dynamic positioning equipment) are undertaken for time periods over and above those of normal, routine seagoing practices. The use of these spaces should be integrated into ship safe operations policies under the ISM Code.

13.2 Noise recovery areas should be provided if no other technical or organizational solutions are feasible to reduce excessive noise from sound sources.

Appendix 4

SIMPLIFIED PROCEDURE FOR DETERMINING NOISE EXPOSURE

1 General

1.1 In order to ensure that seafarers will not be exposed to an $L_{ex}(24)$ exceeding 80 dB(A), this appendix is providing information on a simplified procedure for determining the related noise exposure.

1.2 The determination of noise exposure should be usually carried out based on ISO 9612:2009.

1.3 A simplified method based on the noise measurements during sea trial/harbour stay and a job profile for crew members is described in the following:

2 Work analysis/Job profiling and off-duty hours

2.1 With the help of a crew list, different job categories (groups) will be defined.

Example:

- Master
- Chief engineer
- Electrician
- Cook
- etc.

2.2 For each job category, a job profile has to be defined individually. The job profile is related to the work spaces on board the vessel.

Example:

- Wheelhouse
- Ship office
- Machinery control room
- Workshop
- Engine-room
- Galley
- etc.

2.3 For each job category, the working shift is to be divided into partitions (i) related to the work spaces. A similar assessment should be made for off-duty hours (the partitions are based on estimations by the owner/operator/employer).

Example:

A full day for an electrician may be divided into the following partitions:

i = 1	Workshop	=	$T_i = 5$ hours
i = 2	Machinery control room	=	$T_i = 2$ hours
i = 3	Ship office	=	$T_i = 2$ hours
i = 4	Engine-room	=	$T_i = 1$ hour
i = 5	Off-duty	=	$T_i = 14$ hours
	Total	=	$T_{total} = 24$ hours

3 Determination of estimated noise exposure levels

3.1 Based on the noise report and the estimated working times and off-duty hours for each job category, the noise exposure level can be calculated. It is assumed that the noise limits for cabins and recreation spaces according to this Code will not be exceeded. Using well-selected hearing protectors is recommendatory according to this Code. It is assumed that the maximum noise level of workers wearing hearing protectors does not exceed 85 dB(A).

3.2 The noise contribution from each space is calculated as follows:

$$L_{ex,24h,i} = L_{Aeq,i} + 10 \log(T_i/T_0)$$

where: T_i is the effective duration on board for each space

T_0 is the reference duration 24 h

$L_{Aeq,i}$ is the A-weighted equivalent continuous sound level for each space

3.3 The A-weighted noise exposure level is calculated from the noise contribution from each space as follows:

$$L_{ex,24h} = 10 \log \left(\sum_{i=1}^n 10^{\frac{L_{ex,24h,i}}{10}} \right)$$

Example: Result Sheet

Job category	Electrician	Location/Space						
		Navigating bridge	Ship Office	Machinery Control Room	Workshops	Engine-room	Galley	Off-duty
Measured A-weighted equivalent continuous sound level $L_{Aeq,i}$ [dB(A)]		64	63	75	84	85	72	60
Duration/Stay T_i [h]		0	2	2	5	1	0	14
Noise contribution $L_{ex,24h,i}$ [dB]		0	52.2	64.2	77.2	71.2	0	57.7
A-weighted noise exposure level $L_{ex,24h}$ [dB]	78.3							

ANNEX 2

**RESOLUTION MSC.338(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CONVENTION
FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO Article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I thereof,

HAVING CONSIDERED, at its ninety-first session, amendments to the Convention, proposed and circulated in accordance with Article VIII(b)(i) thereof,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with Article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2014 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR
THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

**CHAPTER II-1
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY,
MACHINERY AND ELECTRICAL INSTALLATIONS**

**Part A-1
Structure of ships**

- 1 The following new regulation 3-12 is added after the existing regulation 3-11:

"Regulation 3-12 – Protection against noise

- 1 This regulation shall apply to ships of 1,600 gross tonnage and above:
- .1 for which the building contract is placed on or after 1 July 2014; or
 - .2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2015; or
 - .3 the delivery of which is on or after 1 July 2018,

unless the Administration deems that compliance with a particular provision is unreasonable or impractical.

- 2 On ships delivered before 1 July 2018 and:
- .1 contracted for construction before 1 July 2014 and the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009 but before 1 January 2015; or
 - .2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009 but before 1 January 2015,

measures* shall be taken to reduce machinery noise in machinery spaces to acceptable levels as determined by the Administration. If this noise cannot be sufficiently reduced the source of excessive noise shall be suitably insulated or isolated or a refuge from noise shall be provided if the space is required to be manned. Ear protectors shall be provided for personnel required to enter such spaces, if necessary.

- 3 Ships shall be constructed to reduce onboard noise and to protect personnel from the noise in accordance with the *Code on noise levels on board ships*, adopted by the Maritime Safety Committee by resolution MSC.337(91), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of Article VIII of the present Convention concerning the amendment procedures

applicable to the annex other than chapter I. For the purpose of this regulation, although the Code on noise levels on board ships is treated as a mandatory instrument, recommendatory parts as specified in chapter I of the Code shall be treated as non-mandatory, provided that amendments to such recommendatory parts are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure.

4 Notwithstanding the requirements of paragraph 1, this regulation does not apply to types of ships listed in paragraph 1.3.4 of the Code on noise levels on board ships.

* Refer to the *Code on Noise levels on board ships*, adopted by the Organization by resolution A.468(XII)."

Part C Machinery installations

2 The existing regulation 36 is deleted and left blank.

CHAPTER II-2 CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION

Part A General

Regulation 1 – Application

3 The following footnote is added to the title of Regulation 1:

"* The application date of 1 July 2012 was introduced by resolution MSC.308(88). However, this resolution amended, under chapter II-2, regulations II-2/3.23 (definition of "Fire Test Procedures Code") and II-2/7.4.1 (new subparagraph .3) only, and all other regulations with the original application date of 1 July 2002 were not amended."

4 In the existing paragraph 2.4, the following new subparagraphs are added after the existing subparagraph .6:

".7 cargo ships of 500 gross tonnage and upwards and passenger ships constructed on or after 1 February 1992 but before 1 July 2002 need not comply with regulation 19.3.3 provided that they comply with regulation 54.2.3 as adopted by resolution MSC.13(57); and

".8 cargo ships of 500 gross tonnage and upwards and passenger ships constructed on or after 1 September 1984 but before 1 July 2002 need not comply with regulations 19.3.1, 19.3.5, 19.3.6, 19.3.9, provided that they comply with regulations 54.2.1, 54.2.5, 54.2.6, 54.2.9 as adopted by resolution MSC.1(XLV)."

5 The following new paragraph 2.5 is added:

"2.5 Ships constructed before 1 July 2012 shall also comply with regulation 10.1.2, as adopted by resolution MSC.338(91)."

Part C Suppression of fire

Regulation 9 – Containment of fire

6 In table 9.3, column (11) (Special category and ro-ro spaces), row (2) (Corridors), the symbol "A-15" is replaced by the symbol "A-30^g".

7 In table 9.3, column (11) (Special category and ro-ro spaces), row (4) (Stairways), the symbol "A-15" is replaced by the symbol "A-30^g".

8 In table 9.3, column and row (11) (Special category and ro-ro spaces), the symbol "A-0" is replaced by the symbol "A-30^g".

9 In table 9.4, column (11) (Special category and ro-ro spaces), row (1) (Control stations), the symbol "A-30" is replaced by the symbol "A-60^g".

10 In table 9.4, column (11) (Special category and ro-ro spaces), row (2) (Corridors), the symbol "A-0" is replaced by the symbol "A-30^g".

11 In table 9.4, column (11) (Special category and ro-ro spaces), row (4) (Stairways), the symbol "A-0" is replaced by the symbol "A-30^g".

12 In table 9.4, column and row (11) (Special category and ro-ro spaces), the symbol "A-0" is replaced by the symbol "A-30^g".

13 In table 9.4, column (2) (Corridors), row (11) (Special category and ro-ro spaces), the symbol "A-15" is replaced by the symbol "A-30^g".

14 In table 9.4, column (4) (Stairways), row (11) (Special category and ro-ro spaces), the symbol "A-15" is replaced by the symbol "A-30^g".

15 In table 9.4, column (6) (Machinery spaces of category A), row (11) (Special category and ro-ro spaces), the symbol "A-30" is replaced by the symbol "A-60^g".

16 In table 9.4, a new note is added as follows:

"^g Ships constructed before 1 July 2014 shall comply, as a minimum, with the previous requirements applicable at the time the ship was constructed, as specified in regulation 1.2."

17 In table 9.5, column and row (11) (Ro-ro and vehicle spaces), the symbol "A-0" is replaced by the symbol "A-30^j".

18 In table 9.6, column (11) (Ro-ro and vehicle spaces), row (10) (Open decks), the symbol "*" is replaced by the symbol "A-0^j".

19 In table 9.6, column and row (11) (Ro-ro and vehicle spaces), the symbol "**h" is replaced by the symbol "A-30^j".

20 In table 9.6, column (10) (Open decks), row (11) (Ro-ro and vehicle spaces), the symbol "*" is replaced by the symbol "A-0^j".

21 In table 9.6, the existing text of note "h" is replaced with the word "deleted".

22 In table 9.6, a new note is added as follows:

"^j Ships constructed before 1 July 2014 shall comply, as a minimum, with the previous requirements applicable at the time the ship was constructed, as specified in regulation 1.2."

23 Paragraphs 6.2 and 6.3 are deleted and the subsequent paragraphs are renumbered accordingly.

Regulation 10 – Fire fighting

24 In paragraph 5.6.3, the existing subparagraph .1 is replaced by the following:

".1 the fire hazard portions of internal combustion machinery or, for ships constructed before 1 July 2014, the fire hazard portions of internal combustion machinery used for the ship's main propulsion and power generation;"

25 The existing paragraph 10.1 is replaced by the following:

"10.1 Types of firefighter's outfits

.1 Fire-fighter's outfits shall comply with the Fire Safety Systems Code; and

.2 Self-contained compressed air breathing apparatus of fire-fighter's outfits shall comply with paragraph 2.1.2.2 of chapter 3 of the Fire Safety Systems Code by 1 July 2019."

26 After the existing paragraph 10.3, the following new paragraph is added:

"10.4 Fire-fighter's communication

For ships constructed on or after 1 July 2014, a minimum of two two-way portable radiotelephone apparatus for each fire party for fire-fighter's communication shall be carried on board. Those two-way portable radiotelephone apparatus shall be of an explosion-proof type or intrinsically safe. Ships constructed before 1 July 2014 shall comply with the requirements of this paragraph not later than the first survey after 1 July 2018."

Part E **Operational requirements**

Regulation 15 – Instructions, onboard training and drills

27 After the existing paragraph 2.2.5, the following new paragraph is added:

"2.2.6 An onboard means of recharging breathing apparatus cylinders used during drills shall be provided or a suitable number of spare cylinders shall be carried on board to replace those used."

Part G **Special requirements**

Regulation 20 – Protection of vehicle, special category and ro-ro spaces

28 The existing paragraph 6.1, including paragraphs 6.1.1 and 6.1.2, are replaced by the following:

"6.1 Fixed fire-extinguishing systems

(The requirements of paragraphs 6.1.1 and 6.1.2 shall apply to ships constructed on or after 1 July 2014. Ships constructed before 1 July 2014 shall comply with the previously applicable requirements of paragraphs 6.1.1 and 6.1.2.)

6.1.1 Vehicle spaces and ro-ro spaces, which are not special category spaces and are capable of being sealed from a location outside of the cargo spaces, shall be fitted with one of the following fixed fire-extinguishing systems:

- .1 a fixed gas fire-extinguishing system complying with the provisions of the Fire Safety Systems Code;
- .2 a fixed high-expansion foam fire-extinguishing system complying with the provisions of the Fire Safety Systems Code; or
- .3 a fixed water-based fire fighting system for ro-ro spaces and special category spaces complying with the provisions of the Fire Safety Systems Code and paragraphs 6.1.2.1 to 6.1.2.4.

6.1.2 Vehicle spaces and ro-ro spaces not capable of being sealed and special category spaces shall be fitted with a fixed water-based fire-fighting system for ro-ro spaces and special category spaces complying with the provisions of the Fire Safety Systems Code which shall protect all parts of any deck and vehicle platform in such spaces. Such a water-based fire-fighting system shall have:

- .1 a pressure gauge on the valve manifold;
- .2 clear marking on each manifold valve indicating the spaces served;
- .3 instructions for maintenance and operation located in the valve room; and
- .4 a sufficient number of drainage valves to ensure complete drainage of the system."

**CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

**Part B
Requirements for ships and life-saving appliances**

29 After existing regulation 17, the following new regulation 17-1 is inserted:

**"Regulation 17-1
Recovery of persons from the water**

1 All ships shall have ship-specific plans and procedures for recovery of persons from the water, taking into account the guidelines developed by the Organization.* The plans and procedures shall identify the equipment intended to be used for recovery purposes and measures to be taken to minimize the risk to shipboard personnel involved in recovery operations. Ships constructed before 1 July 2014 shall comply with this requirement by the first periodical or renewal safety equipment survey of the ship to be carried out after 1 July 2014, whichever comes first.

2 Ro-ro passenger ships which comply with regulation 26.4 shall be deemed to comply with this regulation.

* Refer to the Guidelines for the development of plans and procedures for recovery of persons from the water (MSC.1/Circ.1412)."

**APPENDIX
CERTIFICATES**

30 All the forms of certificates and records of equipment contained in the appendix to the annex are replaced by the following:

FORM OF SAFETY CERTIFICATE FOR PASSENGER SHIPS

PASSENGER SHIP SAFETY CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Passenger Ship Safety (Form P)

(Official seal)

(State)

for *an/a short*¹ international voyage

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as amended

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship²

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
Sea areas in which ship is certified to operate (regulation IV/2)
IMO Number³
Date of build:
 Date of building contract
 Date on which keel was laid or ship was at similar stage of construction
 Date of delivery
 Date on which work for a conversion or an alteration or modification of a major
 character was commenced (where applicable)

All applicable dates shall be completed.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/7 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards:
 - .1 the structure, main and auxiliary machinery, boilers and other pressure vessels;
 - .2 the watertight subdivision arrangements and details;
 - .3 the following subdivision load lines:

Subdivision load lines assigned and marked on the ship's side amidships (regulation II-1/18) ⁴	Freeboard	To apply when the spaces in which passengers are carried include the following alternative spaces
P1
P2
P3

¹ Delete as appropriate.
² Alternatively, the particulars of the ship may be placed horizontally in boxes.
³ In accordance with *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).
⁴ For ships constructed before 1 January 2009, the applicable subdivision notation "C.1, C.2 and C.3" should be used.

- 2.2 the ship complied with the requirements of the Convention as regards structural fire protection, fire safety systems and appliances and fire control plans;
 - 2.3 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
 - 2.4 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
 - 2.5 the ship complied with the requirements of the Convention as regards radio installations;
 - 2.6 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention;
 - 2.7 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
 - 2.8 the ship was provided with lights, shapes, means of making sound signals and distress signals, in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
 - 2.9 in all other respects the ship complied with the relevant requirements of the Convention;
 - 2.10 the ship was/was not¹ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2/17 / III/38¹ of the Convention;
 - 2.11 a Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection/life-saving appliances and arrangements¹ is/is not¹ appended to this Certificate.
- 3 That an Exemption Certificate has/has not¹ been issued.

This certificate is valid until

Completion date of the survey on which this certificate is based: (*dd/mm/yyyy*)

Issued at
(*Place of issue of certificate*)

.....
(*Date of issue*)

.....
(*Signature of authorized official issuing the certificate*)

(*Seal or stamp of the issuing authority, as appropriate*)

¹ Delete as appropriate.

RECORD OF EQUIPMENT FOR PASSENGER SHIP SAFETY (FORM P)

RECORD OF EQUIPMENT FOR COMPLIANCE WITH
THE INTERNATIONAL CONVENTION FOR THE SAFETY
OF LIFE AT SEA, 1974, AS AMENDED

1 Particulars of ship

Name of ship
Distinctive number or letters
Number of passengers for which certified
Minimum number of persons with required qualifications to operate the radio installations

2 Details of life-saving appliances

1	Total number of persons for which life-saving appliances are provided		
		Port Side	Starboard side
2	Total number of lifeboats	.....	.....
2.1	Total number of persons accommodated by them	.....	.....
2.2	Number of partially enclosed lifeboats (regulation III/21 and LSA Code, section 4.5)	.....	.....
2.3	Number of self-righting partially enclosed lifeboats (regulation III/43 ¹)	.....	.....
2.4	Number of totally enclosed lifeboats (regulation III/21 and LSA Code, section 4.6)	.....	.....
2.5	Other lifeboats		
2.5.1	Number	.....	.....
2.5.2	Type	.....	.....
3	Number of motor lifeboats (included in the total lifeboats shown above)	.....	.....
3.1	Number of lifeboats fitted with searchlights	.....	.....
4	Number of rescue boats	.....	.....
4.1	Number of boats which are included in the total lifeboats shown above	.....	.....
4.2	Number of boats which are fast rescue boats	.....	.....
5	Liferafts		
5.1	Those for which approved launching appliances are required		
5.1.1	Number of liferafts	.....	.....
5.1.2	Number of persons accommodated by them	.....	.....
5.2	Those for which approved launching appliances are not required		
5.2.1	Number of liferafts	.....	.....
5.2.2	Number of persons accommodated by them	.....	.....
6	Number of Marine Evacuation Systems (MES)	.....	.....
6.1	Number of liferafts served by them	.....	.....
6.2	Number of persons accommodated by them	.....	.....
7	Buoyant apparatus		
7.1	Number of apparatus	.....	.....
7.2	Number of persons capable of being supported	.....	.....

¹ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998.

2 **Details of life-saving appliances (continued)**

8	Number of lifebuoys	.....
9	Number of lifejackets (total)	.....
9.1	Number of adult lifejackets	.....
9.2	Number of child lifejackets	.....
9.3	Number of infant lifejackets	.....
10	Immersion suits	.....
10.1	Total number	.....
10.2	Number of suits complying with the requirements for lifejackets	.....
11	Number of anti-exposure suits	.....
12	Number of thermal protective aids ²	.....
13	Radio installations used in life-saving appliances	.....
13.1	Number of search and rescue locating devices	.....
13.1.1	Radar search and rescue transponders (SART)	.....
13.1.2	AIS search and rescue transmitters (AIS-SART)	.....
13.2	Number of two-way VHF radiotelephone apparatus	.....

3 **Details of radio facilities**

Item		Actual provision
1	Primary systems	
1.1	VHF radio installation	
1.1.1	DSC encoder	.....
1.1.2	DSC watch receiver	.....
1.1.3	Radiotelephony	.....
1.2	MF radio installation	
1.2.1	DSC encoder	.....
1.2.2	DSC watch receiver	.....
1.2.3	Radiotelephony	.....
1.3	MF/HF radio installation	
1.3.1	DSC encoder	.....
1.3.2	DSC watch receiver	.....
1.3.3	Radiotelephony	.....
1.3.4	Direct-printing radiotelegraphy	.....
1.4	Inmarsat ship earth station	.....
2	Secondary means of alerting	.....
3	Facilities for reception of maritime safety information	.....
3.1	NAVTEX receiver	.....
3.2	EGC receiver	.....
3.3	HF direct-printing radiotelegraph receiver	.....
4	Satellite EPIRB	.....
4.1	COSPAS-SARSAT	.....
5	VHF EPIRB	.....
6	Ship's search and rescue locating device	.....
6.1	Radar search and rescue transponder (SART)	.....
6.2	AIS search and rescue transmitter (AIS- SART)	.....

² Excluding those required by the LSA Code, paragraphs 4.1.5.1.24, 4.4.8.31 and 5.1.2.2.13.

4 **Methods used to ensure availability of radio facilities** (regulations IV/15.6 and 15.7)

- 4.1 Duplication of equipment
- 4.2 Shore-based maintenance
- 4.3 At-sea maintenance capability.....

5 **Details of navigational systems and equipment**

Item	Actual provision
1.1	Standard magnetic compass ³
1.2	Spare magnetic compass ³
1.3	Gyro-compass ³
1.4	Gyro-compass heading repeater ³
1.5	Gyro-compass bearing repeater ³
1.6	Heading or track control system ³
1.7	Pelorus or compass bearing device ³
1.8	Means of correcting heading and bearings
1.9	Transmitting heading device (THD) ³
2.1	Nautical charts/Electronic chart display and information system (ECDIS) ⁴
2.2	Back-up arrangements for ECDIS
2.3	Nautical publications
2.4	Back-up arrangements for electronic nautical publications
3.1	Receiver for a global navigation satellite system/terrestrial radionavigation system ^{3,4}
3.2	9 GHz radar ³
3.3	Second radar (3 GHz/9 GHz ⁴) ³
3.4	Automatic radar plotting aid (ARPA) ³
3.5	Automatic tracking aid ³
3.6	Second automatic tracking aid ³
3.7	Electronic plotting aid ³
4.1	Automatic identification system (AIS)
4.2	Long-range identification and tracking system
5	Voyage data recorder (VDR)
6.1	Speed and distance measuring device (through the water) ³
6.2	Speed and distance measuring device (over the ground in the forward and athwartships direction) ³
7	Echo-sounding device ³
8.1	Rudder, propeller, thrust, pitch and operational mode indicator ³
8.2	Rate-of-turn indicator ³
9	Sound reception system ³
10	Telephone to emergency steering position ³
11	Daylight signalling lamp ³
12	Radar reflector ³
13	International Code of Signals
14	IAMSAR Manual, Volume III
15	Bridge navigational watch alarm system (BNWAS)

³ Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means they shall be specified.
⁴ Delete as appropriate.

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at
(Place of issue of the Record)

.....
(Date of issue)

.....
(Signature of duly authorized official issuing the Record)

(Seal or stamp of the issuing authority, as appropriate)

FORM OF SAFETY CONSTRUCTION CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY CONSTRUCTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, as amended
under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship
Distinctive number or letters.....
Port of registry
Gross tonnage
Deadweight of ship (metric tons)²
IMO Number³

Type of ship⁴

- Bulk carrier
- Oil tanker
- Chemical tanker
- Gas carrier
- Cargo ship other than any of the above

Date of build:

Date of building contract
Date on which keel was laid or ship was at similar stage of construction
Date of delivery
Date on which work for a conversion or an alteration or modification of a major character
was commenced (where applicable)

All applicable dates shall be completed.

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² For oil tankers, chemical tankers and gas carriers only.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

⁴ Delete as appropriate.

THIS IS TO CERTIFY:

1. That the ship has been surveyed in accordance with the requirements of regulation I/10 of the Convention.
2. That the survey showed that the condition of the structure, machinery and equipment as defined in the above regulation was satisfactory and the ship complied with the relevant requirements of chapters II-1 and II-2 of the Convention (other than those relating to fire safety systems and appliances and fire control plans).
3. That an Exemption Certificate has/has not⁴ been issued.
4. That the ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2/17⁴ of the Convention.
5. That a Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection⁴ is/is not⁴ appended to this Certificate.

This certificate is valid until

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁴ Delete as appropriate.

FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY EQUIPMENT CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Cargo Ship Safety (Form E)

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, as amended
under the authority of the Government of

(name of the State)

by

(person or organization authorized)

Particulars of ship¹

Name of ship
Distinctive number or letters
Port of registry.....
Gross tonnage.....
Deadweight of ship (metric tons)²
Length of ship (regulation III/3.12)
IMO Number³

Type of ship⁴

- Bulk carrier
- Oil tanker
- Chemical tanker
- Gas carrier
- Cargo ship other than any of the above

Date on which keel was laid or ship was at a similar stage of construction or, where applicable, date on which work for a conversion or an alteration or modification of a major character was commenced

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/8 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards fire safety systems and appliances and fire control plans;

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² For oil tankers, chemical tankers and gas carriers only.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

⁴ Delete as appropriate.

- 2.2 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
- 2.3 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
- 2.4 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
- 2.5 the ship was provided with lights, shapes and means of making sound signals and distress signals in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
- 2.6 in all other respects the ship complied with the relevant requirements of the Convention;
- 2.7 the ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-2/17 / III/38⁴ of the Convention;
- 2.8 a Document of approval of alternative design and arrangements for fire protection/ life-saving appliances and arrangements⁴ is/is not⁴ appended to this Certificate.
- 3 That the ship operates in accordance with regulation III/26.1.1.1⁵ within the limits of the trade area
- 4 That an Exemption Certificate has/has not⁴ been issued.

This certificate is valid until.....

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at.....
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁴ Delete as appropriate.

⁵ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998 in the case of self-righting partially enclosed lifeboat(s) on board.

RECORD OF EQUIPMENT FOR CARGO SHIP SAFETY (FORM E)

RECORD OF EQUIPMENT FOR COMPLIANCE WITH
THE INTERNATIONAL CONVENTION FOR THE SAFETY
OF LIFE AT SEA, 1974, AS AMENDED

1 Particulars of ship

Name of ship

Distinctive number or letters

2 Details of life-saving appliances

1	Total number of persons for which life-saving appliances are provided		
		Port side	Starboard side
2	Total number of lifeboats	.....	.....
2.1	Total number of persons accommodated by them	.....	.....
2.2	Number of self-righting partially enclosed lifeboats (regulation III/43 ¹)	.....	.....
2.3	Number of totally enclosed lifeboats (regulation III/31 and LSA Code, section 4.6)	.....	.....
2.4	Number of lifeboats with a self-contained air support system (regulation III/31 and LSA Code, section 4.8)	.....	.....
2.5	Number of fire-protected lifeboats (regulation III/31 and LSA Code, section 4.9)	.....	.....
2.6	Other lifeboats		
2.6.1	Number	.....	.....
2.6.2	Type	.....	.....
2.7	Number of free-fall lifeboats	.....	.....
2.7.1	Totally enclosed (regulation III/31 and LSA Code, section 4.7)	.....	.....
2.7.2	Self-contained (regulation III/31 and LSA Code, section 4.8)	.....	.....
2.7.3	Fire-protected (regulation III/31 and LSA Code, section 4.9)	.....	.....
3	Number of motor lifeboats (included in the total lifeboats shown above)	.....	.....
3.1	Number of lifeboats fitted with searchlights	.....	.....
4	Number of rescue boats	.....	.....
4.1	Number of boats which are included in the total lifeboats shown above	.....	.....
5	Liferafts		
5.1	Those for which approved launching appliances are required		
5.1.1	Number of liferafts	.....	.....
5.1.2	Number of persons accommodated by them	.....	.....

¹ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998.

2 **Details of life-saving appliances (continued)**

5.2	Those for which approved launching appliances are not required	
5.2.1	Number of liferafts	.....
5.2.2	Number of persons accommodated by them	.....
5.3	Number of liferafts required by regulation III/31.1.4	.....
6	Number of lifebuoys	.....
7	Number of lifejackets	.....
8	Immersion suits	
8.1	Total number	.....
8.2	Number of suits complying with the requirements for lifejackets	.....
9	Number of anti-exposure suits	.....
10	Radio installations used in life-saving appliances	
10.1	Number of search and rescue locating devices	
10.1.1	Radar search and rescue transponders (SART)	.....
10.1.2	AIS search and rescue transmitters (AIS-SART)	.....
10.2	Number of two-way VHF radiotelephone apparatus	.....

3 **Details of navigational systems and equipment**

Item	Actual provision
1.1 Standard magnetic compass ²
1.2 Spare magnetic compass ²
1.3 Gyro-compass ²
1.4 Gyro-compass heading repeater ²
1.5 Gyro-compass bearing repeater ²
1.6 Heading or track control system ²
1.7 Pelorus or compass bearing device ²
1.8 Means of correcting heading and bearings
1.9 Transmitting heading device (THD) ²
2.1 Nautical charts/Electronic chart display and information system (ECDIS) ³
2.2 Back-up arrangements for ECDIS
2.3 Nautical publications
2.4 Back-up arrangements for electronic nautical publications
3.1 Receiver for a global navigation satellite system/terrestrial radionavigation system ^{2, 3}
3.2 9 GHz radar ²
3.3 Second radar (3 GHz/9 GHz ³) ²
3.4 Automatic radar plotting aid (ARPA) ²
3.5 Automatic tracking aid ²
3.6 Second automatic tracking aid ²
3.7 Electronic plotting aid ²

² Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means, they shall be specified.

³ Delete as appropriate.

3 **Details of navigational systems and equipment** (continued)

Item	Actual provision
4.1 Automatic identification system (AIS)
4.2 Long-range identification and tracking system
5.1 Voyage data recorder (VDR) ³
5.2 Simplified voyage data recorder (S-VDR) ³
6.1 Speed and distance measuring device (through the water) ²
6.2 Speed and distance measuring device (over the ground in the forward and athwartships direction) ²
7 Echo-sounding device ²
8.1 Rudder, propeller, thrust, pitch and operational mode indicator ²
8.2 Rate-of-turn indicator ²
9 Sound reception system ²
10 Telephone to emergency steering position ²
11 Daylight signalling lamp ²
12 Radar reflector ²
13 International Code of Signals
14 IAMSAR Manual, Volume III
15 Bridge navigational watch alarm system (BNWAS)

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at
(Place of issue of the Record)

.....
(Date of issue)

.....
(Signature of duly authorized official issuing the Record)

(Seal or stamp of the issuing authority, as appropriate)

² Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means, they shall be specified.

³ Delete as appropriate.

FORM OF SAFETY RADIO CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY RADIO CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment
for Cargo Ship Safety Radio (Form R)

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as amended

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
Sea areas in which ship is certified to operate (regulation IV/2)
IMO Number²
Date on which keel was laid or ship was at a similar stage of construction or,
where applicable, date on which work for a conversion or an alteration or
modification of a major character was commenced

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/9 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards radio installations;
 - 2.2 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention.
- 3 That an Exemption Certificate has/has not³ been issued.

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

³ Delete as appropriate.

This certificate is valid until.....

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

RECORD OF EQUIPMENT FOR CARGO SHIP SAFETY RADIO (FORM R)

RECORD OF EQUIPMENT FOR COMPLIANCE
WITH THE INTERNATIONAL CONVENTION FOR THE SAFETY
OF LIFE AT SEA, 1974, AS AMENDED

1 Particulars of ship

Name of ship
Distinctive number or letters
Minimum number of persons with required
qualifications to operate the radio installations

2 Details of radio facilities

Item		Actual provision
1	Primary systems	
1.1	VHF radio installation	
1.1.1	DSC encoder	.....
1.1.2	DSC watch receiver	.....
1.1.3	Radiotelephony	.....
1.2	MF radio installation	
1.2.1	DSC encoder	.....
1.2.2	DSC watch receiver	.....
1.2.3	Radiotelephony	.....
1.3	MF/HF radio installation	
1.3.1	DSC encoder	.....
1.3.2	DSC watch receiver	.....
1.3.3	Radiotelephony	.....
1.3.4	Direct-printing telegraphy	.....
1.4	Inmarsat ship earth station	.....
2	Secondary means of alerting	.....
3	Facilities for reception of maritime safety information	
3.1	NAVTEX receiver	.....
3.2	EGC receiver	.....
3.3	HF direct-printing radiotelegraph receiver	.....
4	Satellite EPIRB	.....
4.1	COSPAS-SARSAT	.....
5	VHF EPIRB	.....
6	Ship's search and rescue locating device	
6.1	Radar search and rescue transponder (SART)	.....
6.2	AIS search and rescue transmitter (AIS-SART)	.....

- 3 **Methods used to ensure availability of radio facilities** (regulations IV/15.6 and 15.7)
- 3.1 Duplication of equipment
- 3.2 Shore-based maintenance
- 3.3 At-sea maintenance capability

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at
(Place of issue of the Record)

.....
(Date of issue)

.....
(Signature of duly authorized official issuing the Record)

(Seal or stamp of the issuing authority, as appropriate)

FORM OF EXEMPTION CERTIFICATE

EXEMPTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as amended

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
IMO Number²

THIS IS TO CERTIFY:

That the ship is, under the authority conferred by regulation.....
of the Convention, exempted from the requirements of
..... of the Convention.

Conditions, if any, on which the Exemption Certificate is granted:

.....
.....

Voyages, if any, for which the Exemption Certificate is granted:

.....
.....

This certificate is valid until..... subject
to the Certificate,
to which this certificate is attached, remaining valid.

Issued at.....
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

FORM OF NUCLEAR PASSENGER SHIP SAFETY CERTIFICATE

NUCLEAR PASSENGER SHIP SAFETY CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Passenger Ship Safety (Form P)

(Official seal)

(State)

for an/a short¹ international voyage

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as amended

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship²

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
Sea areas in which ship is certified to operate (regulation IV/2)
IMO Number³

Date of build:

Date of building contract
Date on which keel was laid or ship was at similar stage of construction
Date of delivery
Date on which work for a conversion or an alteration or modification of a major character
was commenced (where applicable)

All applicable dates shall be completed.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation VIII/9 of the Convention.
- 2 That the ship, being a nuclear ship, complied with all the requirements of chapter VIII of the Convention and conformed to the Safety Assessment approved for the ship; and that:
 - 2.1 the ship complied with the requirements of the Convention as regards:
 - .1 the structure, main and auxiliary machinery, boilers and other pressure vessels, including the nuclear propulsion plant and the collision protective structure;

¹ Delete as appropriate.

² Alternatively, the particulars of the ship may be placed horizontally in boxes.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

- .2 the watertight subdivision arrangements and details;
.3 the following subdivision load lines:

Subdivision load lines assigned and marked on the ship's side amidships (regulation II-1/18) ⁴	Freeboard	To apply when the spaces in which passengers are carried include the following alternative spaces
P1
P2
P3

- 2.2 the ship complied with the requirements of the Convention as regards structural fire protection, fire safety systems and appliances and fire control plans;
- 2.3 the ship complied with the requirements of the Convention as regards radiation protection systems and equipment;
- 2.4 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
- 2.5 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
- 2.6 the ship complied with the requirements of the Convention as regards radio installations;
- 2.7 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention;
- 2.8 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
- 2.9 the ship was provided with lights, shapes, means of making sound signals and distress signals, in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
- 2.10 in all other respects the ship complied with the relevant requirements of the Convention;
- 2.11 the ship was/was not¹ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2 /17 / III/38¹ of the Convention;
- 2.12 a Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection/life-saving appliances and arrangements¹ is/is not¹ appended to this Certificate.

This certificate is valid until.....

Completion date of the survey on which this certificate is based:(dd/mm/yyyy)

Issued at.....
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

¹ Delete as appropriate.

⁴ For ships constructed before 1 January 2009, the applicable subdivision notation "C.1, C.2 and C.3" should be used.

FORM OF NUCLEAR CARGO SHIP SAFETY CERTIFICATE

NUCLEAR CARGO SHIP SAFETY CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Cargo Ship Safety (Form C)

(Official seal)

(State)

Issued under the provisions of the

INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as amended

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
Deadweight of ship (metric tons)²
Length of ship (regulation III/3.12)
Sea areas in which ship is certified to operate (regulation IV/2)
IMO Number³

Type of ship⁴

Bulk carrier
Oil tanker
Chemical tanker
Gas carrier
Cargo ship other than any of the above

Date of build:

Date of building contract
Date on which keel was laid or ship was at similar stage of construction
Date of delivery
Date on which work for a conversion or an alteration or modification of a major character
was commenced (where applicable)

All applicable dates shall be completed.

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² For oil tankers, chemical tankers and gas carriers only.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

⁴ Delete as appropriate.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation VIII/9 of the Convention.
- 2 That the ship, being a nuclear ship, complied with all the requirements of chapter VIII of the Convention and conformed to the Safety Assessment approved for the ship; and that:
 - 2.1 the condition of the structure, machinery and equipment as defined in regulation I/10 (as applicable to comply with regulation VIII/9), including the nuclear propulsion plant and the collision protective structure, was satisfactory and the ship complied with the relevant requirements of chapter II-1 and chapter II-2 of the Convention (other than those relating to fire safety systems and appliances and fire control plans);
 - 2.2 the ship complied with the requirements of the Convention as regards fire safety systems and appliances and fire control plans;
 - 2.3 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
 - 2.4 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
 - 2.5 the ship complied with the requirements of the Convention as regards radio installations;
 - 2.6 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention;
 - 2.7 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
 - 2.8 the ship was provided with lights, shapes, means of making sound signals and distress signals, in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
 - 2.9 in all other respects the ship complied with the relevant requirements of the regulations, so far as these requirements apply thereto;
 - 2.10 the ship was/was not³ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2/17 / III/38³ of the Convention;
 - 2.11 a Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection/life-saving appliance and arrangements³ is/is not³ appended to this Certificate.

This certificate is valid until

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

³ Delete as appropriate.

RECORD OF EQUIPMENT FOR CARGO SHIP SAFETY (FORM C)

RECORD OF EQUIPMENT FOR COMPLIANCE WITH
THE INTERNATIONAL CONVENTION FOR THE SAFETY OF
LIFE AT SEA, 1974, AS AMENDED

1 Particulars of ship

Name of ship.....
Distinctive number or letters.....
Minimum number of persons with required qualifications to operate the radio installations

2 Details of life-saving appliances

1 Total number of persons for which life-saving appliances are provided:		
	Port side	Starboard side
2 Total number of lifeboats
2.1 Total number of persons accommodated by them
2.2 Number of self-righting partially enclosed lifeboats (regulation III/43 ¹)
2.3 Number of totally enclosed lifeboats (regulation III/31 and LSA Code, section 4.6)
2.4 Number of lifeboats with a self-contained air support system (regulation III/31 and LSA Code, section 4.8)
2.5 Number of fire-protected lifeboats (regulation III/31 and LSA Code, section 4.9)
2.6 Other lifeboats		
2.6.1 Number
2.6.2 Type
2.7 Number of free-fall lifeboats
2.7.1 Totally enclosed (regulation III/31 and LSA Code, section 4.7)
2.7.2 Self-contained (regulation III/31 and LSA Code, section 4.8)
2.7.3 Fire-protected (regulation III/31 and LSA Code, section 4.9)
3 Number of motor lifeboats (included in the total lifeboats shown above)
3.1 Number of lifeboats fitted with searchlights
4 Number of rescue boats
4.1 Number of boats which are included in the total lifeboats shown above

¹ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998.

2 **Details of life-saving appliances** (continued)

5	Liferafts	
5.1	Those for which approved launching appliances are required	
5.1.1	Number of liferafts	.....
5.1.2	Number of persons accommodated by them	.....
5.2	Those for which approved launching appliances are not required	
5.2.1	Number of liferafts	.....
5.2.2	Number of persons accommodated by them	.....
5.3	Number of liferafts required by regulation III/31.1.4	.....
6	Number of lifebuoys	.....
7	Number of lifejackets	.....
8	Immersion suits	
8.1	Total number	.....
8.2	Number of suits complying with the requirements for lifejackets	.....
9	Number of anti-exposure suits	.....
10	Radio installations used in life-saving appliances	
10.1	Number of search and rescue locating devices	
10.1.1	Radar search and rescue transponders (SART)	.....
10.1.2	AIS search and rescue transmitters (AIS-SART)	.....
10.2	Number of two-way VHF radiotelephone apparatus	.....

3 **Details of radio facilities**

Item	Actual provision
1 Primary systems	
1.1 VHF radio installation	
1.1.1 DSC encoder
1.1.2 DSC watch receiver
1.1.3 Radiotelephony
1.2 MF radio installation	
1.2.1 DSC encoder
1.2.2 DSC watch receiver
1.2.3 Radiotelephony
1.3 MF/HF radio installation	
1.3.1 DSC encoder
1.3.2 DSC watch receiver
1.3.3 Radiotelephony
1.3.4 Direct-printing telegraphy
1.4 Inmarsat ship earth station
2 Secondary means of alerting
3 Facilities for reception of maritime safety information	
3.1 NAVTEX receiver
3.2 EGC receiver
3.3 HF direct-printing radiotelegraph receiver
4 Satellite EPIRB	
4.1 COSPAS-SARSAT
5 VHF EPIRB
6 Ship's search and rescue locating device	
6.1 Radar search and rescue transponder (SART)
6.2 AIS search and rescue transmitter (AIS-SART)

4 **Methods used to ensure availability of radio facilities** (regulations IV/15.6 and 15.7)

- 4.1 Duplication of equipment
- 4.2 Shore-based maintenance
- 4.3 At-sea maintenance capability

5 **Details of navigational systems and equipment**

Item		Actual provision
1.1	Standard magnetic compass ²	.....
1.2	Spare magnetic compass ²	.....
1.3	Gyro-compass ²	.....
1.4	Gyro-compass heading repeater ²	.....
1.5	Gyro-compass bearing repeater ²	.....
1.6	Heading or track control system ²	.....
1.7	Pelorus or compass bearing device ²	.....
1.8	Means of correcting heading and bearings	.....
1.9	Transmitting heading device (THD) ²	.....
2.1	Nautical charts/Electronic chart display and information system (ECDIS) ³	.....
2.2	Back-up arrangements for ECDIS	.....
2.3	Nautical publications	.....
2.4	Back-up arrangements for electronic nautical publications	.....
3.1	Receiver for a global navigation satellite system/terrestrial radionavigation system ^{2, 3}	.....
3.2	9 GHz radar ²	.....
3.3	Second radar (3 GHz/9 GHz ³) ²	.....
3.4	Automatic radar plotting aid (ARPA) ²	.....
3.5	Automatic tracking aid ²	.....
3.6	Second automatic tracking aid ²	.....
3.7	Electronic plotting aid ²	.....
4.1	Automatic identification system (AIS)	.....
4.2	Long-range identification and tracking system	.....
5.1	Voyage data recorder (VDR) ³	.....
5.2	Simplified voyage data recorder (S-VDR) ³	.....
6.1	Speed and distance measuring device (through the water) ²	.....
6.2	Speed and distance measuring device (over the ground in the forward and athwartships direction) ²	.....
7	Echo-sounding device ²	.....

² Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means they shall be specified.
³ Delete as appropriate.

5 **Details of navigational systems and equipment** (continued)

8.1	Rudder, propeller, thrust, pitch and operational mode indicator ²	.....
8.2	Rate-of-turn indicator ²	.....
9	Sound reception system ²	.....
10	Telephone to emergency steering position ²	.....
11	Daylight signalling lamp ²	.....
12	Radar reflector ²	.....
13	International Code of Signals	.....
14	IAMSAR Manual, Volume III	.....
15	Bridge navigational watch alarm system (BNWAS)	.....

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at
(Place of issue of the Record)

.....
(Date of issue) (Signature of duly authorized official issuing the Record)

(Seal or stamp of the issuing authority, as appropriate)

² Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means they shall be specified.

ANNEX 3

**RESOLUTION MSC.339(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL
CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.98(73), by which it adopted the International Code for Fire Safety Systems (hereinafter referred to as "the FSS Code"), which has become mandatory under chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO Article VIII(b) and regulation II-2/3.22 of the Convention concerning the procedure for amending the FSS Code,

HAVING CONSIDERED, at its ninety-first session, amendments to the FSS Code, proposed and circulated in accordance with Article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention, amendments to the International Code for Fire Safety Systems, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with Article VIII(b)(vii)(2) of the Convention the amendments shall enter into force on 1 July 2014, upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

AMENDMENTS TO THE INTERNATIONAL CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)

CHAPTER 3 PERSONNEL PROTECTION

- 1 The existing paragraph 2.1.2 is replaced by the following two new paragraphs:
- "2.1.2.1 Breathing apparatus shall be a self-contained compressed air breathing apparatus for which the volume of air contained in the cylinders shall be at least 1,200 l, or other self-contained breathing apparatus which shall be capable of functioning for at least 30 min. All air cylinders for breathing apparatus shall be interchangeable.
- 2.1.2.2 Compressed air breathing apparatus shall be fitted with an audible alarm and a visual or other device which will alert the user before the volume of the air in the cylinder has been reduced to no less than 200 l."

CHAPTER 5 FIXED GAS FIRE-EXTINGUISHING SYSTEMS

- 2 In paragraph 2.1.1.1, after the second sentence, the following new sentence is added:
- "Adjacent spaces with independent ventilation systems not separated by at least A-0 class divisions should be considered as the same space."
- 3 In paragraph 2.1.1.3, after the first sentence, the following new sentence is added:
- "It shall not be necessary to move the containers completely from their fixing position for this purpose. For carbon dioxide systems, hanging bars for a weighing device above each bottle row, or other means shall be provided. For other types of extinguishing media, suitable surface indicators may be used."
- 4 In paragraph 2.1.3.2, the first sentence is replaced by the following:
- "Means shall be provided for automatically giving audible and visual warning of the release of fire-extinguishing medium into any ro-ro spaces, container holds equipped with integral reefer containers, spaces accessible by doors or hatches, and other spaces in which personnel normally work or to which they have access."
- 5 The following new paragraph 2.2.1.2 is added after the existing paragraph 2.2.1.1 and the subsequent paragraphs are renumbered accordingly, including references to those paragraphs:
- "2.2.1.2 For vehicle spaces and ro-ro spaces which are not special category spaces, the quantity of carbon dioxide available shall be at least sufficient to give a minimum volume of free gas equal to 45% of the gross volume of the largest such cargo space which is capable of being sealed, and the arrangements shall be such as to ensure that at least two thirds of the gas required for the relevant space shall be

introduced within 10 min. Carbon dioxide systems shall not be used for the protection of special category spaces."

6 The following new paragraph 2.2.1.7 is added after the renumbered paragraph 2.2.1.6:

"2.2.1.7 For container and general cargo spaces (primarily intended to carry a variety of cargoes separately secured or packed) the fixed piping system shall be such that at least two thirds of the gas can be discharged into the space within 10 min. For solid bulk cargo spaces the fixed piping system shall be such that at least two thirds of the gas can be discharged into the space within 20 min. The system controls shall be arranged to allow one third, two thirds or the entire quantity of gas to be discharged based on the loading condition of the hold."

7 In paragraph 2.2.2, the first sentence is replaced by the following:

"Carbon dioxide systems for the protection of ro-ro spaces, container holds equipped with integral reefer containers, spaces accessible by doors or hatches, and other spaces in which personnel normally work or to which they have access shall comply with the following requirements:"

8 Section 2.4 is deleted.

9 Section 2.5 is renumbered as "2.4" and the words "in paragraphs 2.2 to 2.4" are replaced with the words "in paragraphs 2.2 and 2.3".

CHAPTER 7 FIXED PRESSURE WATER-SPRAYING AND WATER-MIST FIRE-EXTINGUISHING SYSTEMS

10 The following new paragraph 2.4 is added after the existing paragraph 2.3:

"2.4 Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces

Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces shall be approved by the Administration based on guidelines developed by the Organization .

* Refer to the Revised guidelines for approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces (MSC.1/Circ.1430)."

CHAPTER 8 AUTOMATIC SPRINKLER, FIRE DETECTION AND FIRE ALARM SYSTEMS

11 In paragraph 2.5.2.3, after the first sentence, the following new sentence is added:

"For this purpose, nominal area shall be taken as the gross horizontal projection of the area to be covered."

CHAPTER 9 FIXED FIRE DETECTION AND FIRE ALARM SYSTEMS

12 In paragraph 2.2.1, after the third sentence, the following new sentence is added:

"On ships constructed on or after 1 July 2014, the changeover switch shall be arranged such that a fault will not result in the loss of both power supplies."

13 The following new paragraph is added after paragraph 2.2.1, and the existing paragraph 2.2.2 is renumbered as paragraph 2.2.3:

"2.2.2 On ships constructed on or after 1 July 2014, the operation of the automatic changeover switch or a failure of one of the power supplies shall not result in loss of fire detection capability. Where a momentary loss of power would cause degradation of the system, a battery of adequate capacity shall be provided to ensure continuous operation during changeover."

14 The existing paragraph 2.2.3 is deleted and the following new paragraphs are added after the renumbered paragraph 2.2.3:

"2.2.4 The emergency source of power specified in paragraph 2.2.1 above may be supplied by accumulator batteries or from the emergency switchboard. The power source shall be sufficient to maintain the operation of the fire detection and fire alarm system for the periods required under chapter II-1, regulations 42 and 43, of the Convention and, at the end of that period, shall be capable of operating all connected visual and audible fire alarm signals for a period of at least 30 min.

2.2.5 On ships constructed on or after 1 July 2014, where the system is supplied from accumulator batteries, they shall be located in or adjacent to the control panel for the fire detection system, or in another location suitable for use in an emergency. The rating of the battery charge unit shall be sufficient to maintain the normal output power supply to the fire detection system while recharging the batteries from a fully discharged condition."

15 In paragraphs 2.3.1.2, 2.3.1.3 and 2.3.1.5, the referenced standard "IEC 60092 505:2001" is replaced by "IEC 60092-504".

16 In paragraph 2.5.1.3, after the second sentence, the following new sentence is added:

"In ships constructed on or after 1 July 2014, with a cargo control room, an additional indicating unit shall be located in the cargo control room."

17 In paragraph 2.5.2, after the second sentence, the following new sentence is added:

"On ships constructed on or after 1 July 2014, detectors installed within cold spaces such as refrigerated compartments shall be tested using procedures having due regard for such locations."

Refer to the recommendations of the International Electrotechnical Commission, in particular publication IEC 60068-2-1 – Section one -Test Ab, *Environmental Testing – Part 2-1: Tests – Test A: Cold.*"

CHAPTER 12 FIXED EMERGENCY FIRE PUMPS

- 18 The existing paragraph 2.2.2.1 is replaced by the following:

"2.2.2.1 Starting of diesel engine

Any diesel-driven power source for the pump shall be capable of being readily started in its cold condition down to the temperature of 0°C by hand (manual) cranking. Where ready starting cannot be assured, if this is impracticable, or if lower temperatures are likely to be encountered, and if the room for the diesel driven power source is not heated, electric heating of the diesel engine cooling water or lubricating oil system shall be fitted, to the satisfaction of the Administration. If hand (manual) starting is impracticable, the Administration may permit compressed air, electricity, or other sources of stored energy, including hydraulic power or starting cartridges to be used as a means of starting. These means shall be such as to enable the diesel-driven power source to be started at least six times within a period of 30 min and at least twice within the first 10 min."

CHAPTER 13 ARRANGEMENT OF MEANS OF ESCAPE

- 19 The existing paragraph 2.2.4 is replaced by the following:

"2.2.4 Landings

With the exception of intermediate landings, landings at each deck level shall be not less than 2 m² in area and shall increase by 1 m² for every 10 persons provided for in excess of 20 persons, but need not exceed 16 m², except for those landings servicing public spaces having direct access onto the stairway enclosure. Intermediate landings shall be sized in accordance with paragraph 2.3.1."

CHAPTER 14 FIXED DECK FOAM SYSTEMS

- 20 The existing chapter 14 is replaced by the following:

"1 Application

1.1 This chapter details the specification of fixed deck foam systems which are required to be provided by chapter II-2 of the Convention.

2 Engineering specifications

2.1 General

2.1.1 The arrangements for providing foam shall be capable of delivering foam to the entire cargo tanks deck area as well as into any cargo tank the deck of which has been ruptured.

2.1.2 The deck foam system shall be capable of simple and rapid operation.

2.1.3 Operation of a deck foam system at its required output shall permit the simultaneous use of the minimum required number of jets of water at the required pressure from the fire main. Where the deck foam system is supplied by a common line from the fire main, additional foam concentrate shall be provided for operation of two nozzles for the same period of time required for the foam system. The simultaneous use of the minimum required jets of water shall be possible on deck over the full length of the ship, in the accommodation, service spaces, control stations and machinery spaces.

2.2 Component requirements

2.2.1 Foam solution and foam concentrate

2.2.1.1 For tankers carrying:

- .1 crude oil or petroleum products having a flashpoint not exceeding 60°C (closed cup), as determined by an approved flashpoint apparatus, and a Reid vapour pressure which is below atmospheric pressure or other liquid products having a similar fire hazard, including cargoes in chapter 18 of the IBC Code, having a flashpoint not exceeding 60°C (closed cup) for which a regular foam fire-fighting system is effective (refer to regulations II-2/1.6.1 and 10.8 of the Convention); or
- .2 petroleum products with a flashpoint exceeding 60°C (closed cup), as determined by an approved flashpoint apparatus (refer to regulation II-2/1.6.4 of the Convention); or
- .3 IBC Code chapter 17 products with a flashpoint exceeding 60°C (closed cup) determined by an approved flashpoint apparatus (refer to paragraph 11.1.3 of the IBC Code and regulation II-2/1.6.4 of the Convention),

the rate of supply of foam solution shall be not less than the greatest of the following:

- .1 0.6 //min per square metre of cargo tanks deck area, where cargo tanks deck area means the maximum breadth of the ship multiplied by the total longitudinal extent of the cargo tank spaces;
- .2 6 //min per square metre of the horizontal sectional area of the single tank having the largest such area; or
- .3 3 //min per square metre of the area protected by the largest monitor, such area being entirely forward of the monitor, but in no case should the output of any monitor be less than 1,250 //min.

2.2.1.2 For tankers carrying chemicals in bulk listed in chapter 17 of the IBC Code having a flashpoint not exceeding 60°C (closed cup), the rate of supply of foam solution shall be as required by the IBC Code.

2.2.1.3 Sufficient foam concentrate shall be supplied to ensure at least 20 min of foam generation in tankers fitted with an inert gas installation or 30 min of foam generation in tankers not fitted with an inert gas installation or not required to use an inert gas system.

2.2.1.4 The foam concentrate supplied on board shall be approved by the Administration* for the cargoes intended to be carried. Type B foam concentrates shall be supplied for the protection of crude oil, petroleum products and non-polar solvent cargoes. Type A foam concentrates shall be supplied for polar solvent cargoes, as listed in the table of chapter 17 of the IBC Code. Only one type of foam concentrate shall be supplied, and it shall be effective for the maximum possible number of cargoes intended to be carried. For cargoes for which foam is not effective or is incompatible, additional arrangements to the satisfaction of the Administration shall be provided.

* Refer to the *Guidelines for performance and testing criteria and surveys of foam concentrates for fixed fire-extinguishing systems* (MSC.1/Circ.1312).

2.2.1.5 Liquid cargoes with a flashpoint not exceeding 60°C for which a regular foam fire-fighting system is not effective shall comply with the provisions of regulation II-2/1.6.2.1 of the Convention.

2.2.2 *Monitors and foam applicators*

2.2.2.1 Foam from the fixed foam system shall be supplied by means of monitors and foam applicators. Prototype tests of the monitors and foam applicators shall be performed to ensure the foam expansion and drainage time of the foam produced does not differ more than ± 10 per cent of that determined in paragraph 2.2.1.4. When medium expansion ratio foam (between 21 to 1 and 200 to 1 expansion ratio) is employed, the application rate of the foam and the capacity of a monitor installation shall be to the satisfaction of the Administration. At least 50 per cent of the foam solution supply rate required shall be delivered from each monitor. On tankers of less than 4,000 tonnes deadweight the Administration may not require installation of monitors but only applicators. However, in such a case the capacity of each applicator shall be at least 25 per cent of the foam solution supply rate required.

2.2.2.2 The capacity of any applicator shall be not less than 400 l/min and the applicator throw in still air conditions shall be not less than 15 m.

2.3 **Installation requirements**

2.3.1 *Main control station*

2.3.1.1 The main control station for the system shall be suitably located outside the cargo area, adjacent to the accommodation spaces and readily accessible and operable in the event of fire in the areas protected.

2.3.2 *Monitors*

2.3.2.1 The number and position of monitors shall be such as to comply with paragraph 2.1.1.

2.3.2.2 The distance from the monitor to the farthest extremity of the protected area forward of that monitor shall not be more than 75 per cent of the monitor throw in still air conditions.

2.3.2.3 A monitor and hose connection for a foam applicator shall be situated both port and starboard at the front of the poop or accommodation spaces facing the cargo tanks deck. The monitors and hose connections shall be aft of any cargo tanks, but may be located in the cargo area above pump-rooms, cofferdams, ballast tanks and void spaces adjacent to cargo tanks if capable of protecting the deck below and aft of each other. On tankers of less than 4,000 tonnes deadweight a hose connection for a foam applicator shall be situated both port and starboard at the front of the poop or accommodation spaces facing the cargo tanks deck.

2.3.3 *Applicators*

2.3.3.1 At least four foam applicators shall be provided on all tankers. The number and disposition of foam main outlets shall be such that foam from at least two applicators can be directed on to any part of the cargo tanks deck area.

2.3.3.2 Applicators shall be provided to ensure flexibility of action during fire-fighting operations and to cover areas screened from the monitors.

2.3.4 *Isolation valves*

2.3.4.1 Valves shall be provided in the foam main, and in the fire main when this is an integral part of the deck foam system, immediately forward of any monitor position to isolate damaged sections of those mains."

Footnotes:

In paragraph 2.1.1, subparagraph .4, after the second sentence, the following footnote is added:

"Refer to the recommendations of the International Electrotechnical Commission, in particular publication IEC 60079, Electrical Apparatus for Explosive Gas Atmospheres."

ANNEX 4

**RESOLUTION MSC.340(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CODE FOR THE
CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING DANGEROUS
CHEMICALS IN BULK (IBC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.4(48), by which it adopted the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (hereinafter referred to as "the IBC Code"), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO Article VIII(b) and regulation VII/8.1 of the Convention concerning the procedure for amending the IBC Code,

CONSIDERING that it is highly desirable for the requirements of the IBC Code, which are mandatory under both the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and the Convention, to remain identical,

NOTING that the Marine Environment Protection Committee, at its sixty-fourth session, adopted corresponding amendments to the IBC Code by resolution MEPC.225(64),

HAVING CONSIDERED, at its ninety-first session, amendments to the IBC Code proposed and circulated in accordance with Article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention, amendments to the IBC Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 December 2013 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with Article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 June 2014 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CODE FOR THE
CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING
DANGEROUS CHEMICALS IN BULK (IBC CODE)**

The existing text of chapters 17, 18 and 19 of the IBC Code is replaced by the following:

Chapter 17

Summary of minimum requirements

Mixtures of noxious liquid substances presenting pollution hazards only, and which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II, may be carried under the requirements of the Code applicable to the appropriate position of the entry in this chapter for Noxious Liquid Substances, not otherwise specified (n.o.s.).

EXPLANATORY NOTES

Product name (column a)	The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code
UN Number (column b)	Deleted
Pollution Category (column c)	The letter X, Y, Z means the Pollution Category assigned to each product under MARPOL Annex II
Hazards (column d)	"S" means that the product is included in the Code because of its safety hazards; "P" means that the product is included in the Code because of its pollution hazards; and "S/P" means that the product is included in the Code because of both its safety and pollution hazards
Ship type (column e)	1: ship type 1 (2.1.2.1) 2: ship type 2 (2.1.2.2) 3: ship type 3 (2.1.2.3)
Tank type (column f)	1: independent tank (4.1.1) 2: integral tank (4.1.2) G: gravity tank (4.1.3) P: pressure tank (4.1.4)
Tank vents (column g)	Cont.: controlled venting Open: open venting
Tank environmental control (column h)	Inert: inerting (9.1.2.1) Pad: liquid or gas padding (9.1.2.2) Dry: drying (9.1.2.3) Vent: natural or forced ventilation (9.1.2.4) No: no special requirements under this Code
Electrical equipment (column i)	Temperature classes (i') T1 to T6 – indicates no requirements blank no information Apparatus group (i'') IIA, IIB or IIC: – indicates no requirements blank no information Flashpoint (i''') Yes: flashpoint exceeding 60°C (10.1.6) No: flashpoint not exceeding 60°C (10.1.6) NF: non-flammable product (10.1.6)

Gauging (column j)	O: open gauging (13.1.1.1) R: restricted gauging (13.1.1.2) C: closed gauging (13.1.1.3)
Vapour detection (column k)	F: flammable vapours T: toxic vapours No: indicates no special requirements under this Code
Fire protection (column l)	A: alcohol-resistant foam or multi-purpose foam B: regular foam; encompasses all foams that are not of an alcohol-resistant type, including fluoro-protein and aqueous-film-forming foam (AFFF) C: water-spray D: dry chemical No: no special requirements under this Code
Materials of construction (column m)	Deleted
Emergency equipment (column n)	Yes: see 14.3.1 No: no special requirements under this Code
Specific and operational requirements (column o)	When specific reference is made to chapters 15 and/or 16, these requirements shall be additional to the requirements in any other column

Note: The following pages are numbered according to the database generation.

* * *

Chapter 17 of the IBC Code

2 October 2012

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a	c	d	e	f	g	h	i'	i''	i'''	j	k	l	n	o
Acetic acid	Z	S/P	3	2G	Cont	No	T1	IIA	No	R	F	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9
Acetic anhydride	Z	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6
Acetochlor	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Acetone cyanohydrin	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	A	Yes	15.12, 15.13, 15.17, 15.18, 15.19, 16.6.1, 16.6.2, 16.6.3
Acetonitrile	Z	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.12, 15.19.6
Acetonitrile (Low purity grade)	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	FT	AC	No	15.12.3, 15.12.4, 15.19.6
Acid oil mixture from soyabean, corn (maize) and sunflower oil refining	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Acrylamide solution (50% or less)	Y	S/P	2	2G	Open	No			NF	C	No	No	No	15.12.3, 15.13, 15.19.6, 16.2.9, 16.6.1
Acrylic acid	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.13, 15.17, 15.19, 16.2.9, 16.6.1
Acrylonitrile	Y	S/P	2	2G	Cont	No	T1	IIB	No	C	FT	A	Yes	15.12, 15.13, 15.17, 15.19
Acrylonitrile-Styrene copolymer dispersion in polyether polyol	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Adiponitrile	Z	S/P	3	2G	Cont	No		IIB	Yes	R	T	A	No	16.2.9
Alachlor technical (90% or more)	X	S/P	2	2G	Open	No			Yes	O	No	AC	No	15.19.6, 16.2.9
Alcohol (C9-C11) poly (2.5-9) ethoxylate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C6-C17) (secondary) poly(3-6)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C6-C17) (secondary) poly(7-12)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Alcohol (C12-C16) poly(1-6)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C12-C16) poly(20+)ethoxylates	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C12-C16) poly(7-19)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohols (C13+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Alcohols (C12+), primary, linear	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Alcohols (C8-C11), primary, linear and essentially linear	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Alcohols (C12-C13), primary, linear and essentially linear	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Alcohols (C14-C18), primary, linear and essentially linear	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Alkanes (C6-C9)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Iso- and cyclo-alkanes (C10-C11)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Iso- and cyclo-alkanes (C12+)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	
Alkanes(C10-C26), linear and branched, (flashpoint >60°C)	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6

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n-Alkanes (C10+)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Alkaryl polyethers (C9-C20)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Alkenoic acid, polyhydroxy ester borated	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6
Alkenyl (C11+) amide	X	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Alkenyl (C16-C20) succinic anhydride	Z	S/P	3	2G	Cont	No			Yes	C	T	No	Yes	15.12, 15.17, 15.19
Alkyl acrylate-vinylpyridine copolymer in toluene	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.9
Alkylaryl phosphate mixtures (more than 40% Diphenyl tolyl phosphate, less than 0.02% ortho-isomers)	X	S/P	1	2G	Cont	No	T1	IIA	Yes	C	T	ABC	No	15.12, 15.17, 15.19
Alkylated (C4-C9) hindered phenols	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	BD	No	15.19.6, 16.2.6, 16.2.9
Alkylbenzene, alkylindane, alkylindene mixture (each C12-C17)	Z	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Alkyl benzene distillation bottoms	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Alkylbenzene mixtures (containing at least 50% of toluene)	Y	S/P	3	2G	Cont	No	T1	IIA	No	C	FT	ABC	No	15.12, 15.17, 15.19.6
Alkyl (C3-C4) benzenes	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Alkyl (C5-C8) benzenes	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Alkyl(C9+)benzenes	Y	P	3	2G	Open	No	-	-	Yes	O	No	AB	No	
Alkyl (C11-C17) benzene sulphonic acid	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Alkylbenzene sulphonic acid, sodium salt solution	Y	S/P	2	2G	Open	No	-	-	NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Alkyl (C12+) dimethylamine	X	S/P	1	2G	Cont	No	-	-	Yes	C	T	BCD	Yes	15.12, 15.17, 15.19
Alkyl dithiocarbamate (C19-C35)	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Alkyldithiothiadiazole (C6-C24)	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Alkyl ester copolymer (C4-C20)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Alkyl (C8-C10)/(C12-C14):(40% or less/60% or more) polyglucoside solution (55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Alkyl (C8-C10)/(C12-C14):(60% or more/40% or less) polyglucoside solution(55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	16.2.6, 16.2.9
Alkyl (C7-C9) nitrates	Y	S/P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 15.20, 16.6.1, 16.6.2, 16.6.3
Alkyl(C7-C11)phenol poly(4-12) ethoxylate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Alkyl (C8-C40) phenol sulphide	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Alkyl (C8-C9) phenylamine in aromatic solvents	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6
Alkyl (C9-C15) phenyl propoxylate	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Alkyl (C8-C10) polyglucoside solution (65% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	16.2.6
Alkyl (C8-C10)/(C12-C14):(50%/50%) polyglucoside solution (55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	16.2.6, 16.2.9

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Alkyl (C12-C14) polyglucoside solution (55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.9
Alkyl(C12-C16) propoxyamine ethoxylate	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	AC	Yes	15.12, 15.17, 15.19, 16.2.6
Alkyl(C10-C20, saturated and unsaturated) phosphite	Y	P	2	2G	Open	No			Yes	O	No	A	No	16.2.9
Alkyl sulphonic acid ester of phenol	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Alkyl (C18+) toluenes	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.9
Alkyl(C18-C28)toluenesulfonic acid	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19, 16.2.6, 16.2.9
Alkyl(C18-C28)toluenesulfonic acid, calcium salts, borated	Y	S/P	3	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6
Alkyl (C18-C28) toluenesulfonic acid, calcium salts, low overbase	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6
Alkyl (C18-C28) toluenesulphonic acid, calcium salts, high overbase	Y	S/P	3	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6
Allyl alcohol	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	A	Yes	15.12, 15.17, 15.19
Allyl chloride	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	A	Yes	15.12, 15.17, 15.19
Aluminium chloride/Hydrogen chloride solution	Y	S/P	2	2G	Cont	No	-	-	NF	C	T	No	Yes	15.11, 15.12, 15.17, 15.19
Aluminium sulphate solution	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
2-(2-Aminoethoxy) ethanol	Z	S/P	3	2G	Open	No			Yes	O	No	AD	No	15.19.6
Aminoethyldiethanolamine/Aminoethylethanolamine solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Aminoethyl ethanolamine	Z	S/P	3	2G	Open	No	T2	IIA	Yes	O	No	A	No	
N-Aminoethylpiperazine	Z	S/P	3	2G	Cont	No			Yes	R	T	A	No	15.19.6, 16.2.9
2-Amino-2-methyl-1-propanol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ammonia aqueous (28% or less)	Y	S/P	2	2G	Cont	No			NF	R	T	ABC	Yes	15.19.6
Ammonium chloride solution (less than 25%) (*)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	
Ammonium hydrogen phosphate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ammonium lignosulphonate solutions	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Ammonium nitrate solution (93% or less)	Z	S/P	2	1G	Open	No			NF	O	No	No	No	15.2, 15.11.4, 15.11.6, 15.18, 15.19.6, 16.2.9
Ammonium polyphosphate solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Ammonium sulphate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ammonium sulphide solution (45% or less)	Y	S/P	2	2G	Cont	No	T4	IIB	No	C	FT	A	Yes	15.12, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3
Ammonium thiosulphate solution (60% or less)	Z	P	3	2G	Open	No			NF	O	No	No	No	16.2.9
Amyl acetate (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
n-Amyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
Amyl alcohol, primary	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	

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sec-Amyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
tert-Amyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	
tert-Amyl methyl ether	X	P	2	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6
Aniline	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	A	No	15.12, 15.17, 15.19
Aryl polyolefins (C11-C50)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Aviation alkylates (C8 paraffins and iso-paraffins BPT 95 - 120°C)	X	P	2	2G	Cont	No	T4	IIA	No	R	F	B	No	15.19.6
Barium long chain (C11-C50) alkaryl sulphonate	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.12.3, 15.19, 16.2.6, 16.2.9
Benzene and mixtures having 10% benzene or more (i)	Y	S/P	3	2G	Cont	No	T1	IIA	No	C	FT	AB	No	15.12.1, 15.17, 15.19.6, 16.2.9
Benzene sulphonyl chloride	Z	S/P	3	2G	Cont	No			Yes	R	T	AD	No	15.19.6, 16.2.9
Benzenetricarboxylic acid, trioctyl ester	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Benzyl acetate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Benzyl alcohol	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Benzyl chloride	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	AB	Yes	15.12, 15.13, 15.17, 15.19
Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flashpoint >60°C (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flashpoint ≤ 60°C (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and FAME (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and vegetable oil (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	A	No	15.12, 15.17, 15.19.6
Brake fluid base mix: Poly(2-8)alkylene (C2-C3) glycols/Polyalkylene (C2-C10) glycols monoalkyl (C1-C4) ethers and their borate esters	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Bromochloromethane	Z	S/P	3	2G	Cont	No			NF	R	T	No	No	
Butene oligomer	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Butyl acetate (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Butyl acrylate (all isomers)	Y	S/P	2	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
tert-Butyl alcohol	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
Butylamine (all isomers)	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.12, 15.17, 15.19.6
Butylbenzene (all isomers)	X	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Butyl benzyl phthalate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Butyl butyrate (all isomers)	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture	Y	S/P	2	2G	Cont	No			Yes	R	No	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2

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Butylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
1,2-Butylene oxide	Y	S/P	3	2G	Cont	Inert	T2	IIB	No	R	F	AC	No	15.8.1 to 15.8.7, 15.8.12, 15.8.13, 15.8.16, 15.8.17, 15.8.18, 15.8.19, 15.8.21, 15.8.25, 15.8.27, 15.8.29, 15.19.6
n-Butyl ether	Y	S/P	3	2G	Cont	Inert	T4	IIB	No	R	FT	A	No	15.4.6, 15.12, 15.19.6
Butyl methacrylate	Z	S/P	3	2G	Cont	No	T1	IIA	No	R	FT	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2
n-Butyl propionate	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Butyraldehyde (all isomers)	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	A	No	15.19.6
Butyric acid	Y	S/P	3	2G	Cont	No			Yes	R	No	A	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6
gamma-Butyrolactone	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
Calcium alkaryl sulphonate (C11-C50)	Z	S/P	3	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19
Calcium alkyl (C10-C28) salicylate	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Calcium hydroxide slurry	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Calcium hypochlorite solution (15% or less)	Y	S/P	2	2G	Cont	No			NF	R	No	No	No	15.19.6
Calcium hypochlorite solution (more than 15%)	X	S/P	1	2G	Cont	No			NF	R	No	No	No	15.19, 16.2.9
Calcium lignosulphonate solutions	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Calcium long-chain alkyl(C5-C10) phenate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Calcium long-chain alkyl(C11-C40) phenate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Calcium long-chain alkyl phenate sulphide (C8-C40)	Y	S/P	2	2G	Open	No			Yes	O	No	ABC	No	15.19.6, 16.2.6
Calcium long-chain alkyl salicylate (C13+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Calcium long-chain alkyl (C18-C28) salicylate	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Calcium nitrate/Magnesium nitrate/Potassium chloride solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
epsilon-Caprolactam (molten or aqueous solutions)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Carbolic oil	Y	S/P	2	2G	Cont	No			Yes	C	FT	A	No	15.12, 15.19.6, 16.2.9
Carbon disulphide	Y	S/P	2	1G	Cont	Pad+ine rt	T6	IIC	No	C	FT	C	Yes	15.3, 15.12, 15.19
Carbon tetrachloride	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.12, 15.17, 15.19.6
Cashew nut shell oil (untreated)	Y	S/P	2	2G	Cont	No			Yes	R	T	AB	No	15.19.6, 16.2.6, 16.2.9
Castor oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Cesium formate solution (*)	Y	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	15.19.6
Cetyl/Eicosyl methacrylate mixture	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.13, 15.19.6, 16.2.9, 16.6.1, 16.6.2
Chlorinated paraffins (C10-C13)	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6

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Chlorinated paraffins (C14-C17) (with 50% chlorine or more, and less than 1% C13 or shorter chains)	X	P	1	2G	Open	No	-	-	Yes	O	No	A	No	15.19
Chloroacetic acid (80% or less)	Y	S/P	2	2G	Cont	No			NF	C	No	No	No	15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.19, 16.2.9
Chlorobenzene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.19.6
Chloroform	Y	S/P	3	2G	Cont	No			NF	R	T	No	Yes	15.12, 15.19.6
Chlorohydrins (crude)	Y	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	A	No	15.12, 15.19
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt solution	Y	P	2	2G	Open	No			NF	O	No	No	No	15.19.6,16.2.9
o-Chloronitrobenzene	Y	S/P	2	2G	Cont	No			Yes	C	T	ABD	No	15.12, 15.17, 15.18, 15.19, 16.2.6, 16.2.9
1-(4-Chlorophenyl)-4,4- dimethyl-pentan-3-one	Y	P	2	2G	Open	No			Yes	O	No	ABD	No	15.19.6, 16.2.6, 16.2.9
2- or 3-Chloropropionic acid	Z	S/P	3	2G	Open	No			Yes	O	No	A	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 16.2.9
Chlorosulphonic acid	Y	S/P	1	2G	Cont	No			NF	C	T	No	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.16.2, 15.19
m-Chlorotoluene	Y	S/P	2	2G	Cont	No	T4	IIA	No	R	FT	AB	No	15.19.6
o-Chlorotoluene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.19.6
p-Chlorotoluene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.19.6, 16.2.9
Chlorotoluenes (mixed isomers)	Y	S/P	2	2G	Cont	No	T4	IIA	No	R	FT	AB	No	15.19.6
Choline chloride solutions	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Citric acid (70% or less)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Coal tar	X	S/P	2	2G	Cont	No	T2	IIA	Yes	R	No	BD	No	15.19.6, 16.2.6, 16.2.9
Coal tar naphtha solvent	Y	S/P	2	2G	Cont	No	T3	IIA	No	R	FT	AD	No	15.19.6, 16.2.9
Coal tar pitch (molten)	X	S/P	2	1G	Cont	No	T2	IIA	Yes	R	No	BD	No	15.19.6, 16.2.6, 16.2.9
Cocoa butter	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Coconut oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Coconut oil fatty acid	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Coconut oil fatty acid methyl ester	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Copper salt of long chain (C17+) alkanolic acid	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Corn Oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Cotton seed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Creosote (coal tar)	X	S/P	2	2G	Cont	No	T2	IIA	Yes	R	T	AD	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Cresols (all isomers)	Y	S/P	2	2G	Open	No	T1	IIA	Yes	O	No	AB	No	15.19.6, 16.2.9
Cresylic acid, dephenolized	Y	S/P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6

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Cresylic acid, sodium salt solution	Y	S/P	2	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.9
Crotonaldehyde	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	A	Yes	15.12, 15.17, 15.19.6
1,5,9-Cyclododecatiene	X	S/P	1	2G	Cont	No			Yes	R	T	A	No	15.13, 15.19, 16.6.1, 16.6.2
Cycloheptane	X	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Cyclohexane	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9
Cyclohexanol	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Cyclohexanone	Z	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.19.6
Cyclohexanone, Cyclohexanol mixture	Y	S/P	3	2G	Cont	No			Yes	R	FT	A	No	15.19.6
Cyclohexyl acetate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Cyclohexylamine	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	AC	No	15.19.6
1,3-Cyclopentadiene dimer (molten)	Y	P	2	2G	Cont	No	T1	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Cyclopentane	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Cyclopentene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
p-Cymene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Decahydronaphthalene	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	AB	No	15.19.6
Decanoic acid	X	P	2	2G	Open	No			Yes	O	No	A	No	16.2.9
Decene	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Decyl acrylate	X	S/P	1	2G	Open	No	T3	IIA	Yes	O	No	ACD	No	15.13, 15.19, 16.6.1, 16.6.2
Decyl alcohol (all isomers)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9(e)
Decyl/Dodecyl/Tetradecyl alcohol mixture	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Decyloxytetrahydrothiophene dioxide	X	S/P	2	2G	Cont	No			Yes	R	T	A	No	15.19.6, 16.2.9
Diacetone alcohol	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
Dialkyl (C8-C9) diphenylamines	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Dialkyl (C7-C13) phthalates	X	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Dialkyl (C9 - C10) phthalates	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Dialkyl thiophosphates sodium salts solution	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	AC	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Dibromomethane	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12.3, 15.19
Dibutylamine	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	ACD	No	15.19.6
Dibutyl hydrogen phosphonate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
2,6-Di-tert-butylphenol	X	P	1	2G	Open	No	-	-	Yes	O	No	ABC D	No	15.19, 16.2.9

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Dibutyl phthalate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Dibutyl terephthalate	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.9
Dichlorobenzene (all isomers)	X	S/P	2	2G	Cont	No	T1	IIA	Yes	R	T	ABD	No	15.19.6
3,4-Dichloro-1-butene	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	ABC	Yes	15.12.3, 15.17, 15.19.6
1,1-Dichloroethane	Z	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.19.6
Dichloroethyl ether	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.19.6
1,6-Dichlorohexane	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	AB	No	15.19.6
2,2'-Dichloroisopropyl ether	Y	S/P	2	2G	Cont	No			Yes	R	T	ACD	No	15.12, 15.17, 15.19
Dichloromethane	Y	S/P	3	2G	Cont	No	T1	IIA	Yes	R	T	No	No	15.19.6
2,4-Dichlorophenol	Y	S/P	2	2G	Cont	Dry			Yes	R	T	A	No	15.19.6, 16.2.6, 16.2.9
2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution (70% or less)	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
1,1-Dichloropropane	Y	S/P	2	2G	Cont	No	T4	IIA	No	R	FT	AB	No	15.12, 15.19.6
1,2-Dichloropropane	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.12, 15.19.6
1,3-Dichloropropene	X	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	AB	Yes	15.12, 15.17, 15.18, 15.19
Dichloropropene/Dichloropropane mixtures	X	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	ABD	Yes	15.12, 15.17, 15.18, 15.19
2,2-Dichloropropionic acid	Y	S/P	3	2G	Cont	Dry			Yes	R	No	A	No	15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9
Dicyclopentadiene, Resin Grade, 81-89%	Y	S/P	2	2G	Cont	Inert	T2	IIB	No	C	FT	ABC	Yes	15.12, 15.13, 15.17, 15.19
Diethanolamine	Y	S/P	3	2G	Open	No	T1	IIA	Yes	O	No	A	No	16.2.6, 16.2.9
Diethylamine	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.12, 15.19.6
Diethylaminoethanol	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AC	No	15.19.6
2,6-Diethylaniline	Y	S/P	3	2G	Open	No			Yes	O	No	BCD	No	15.19.6, 16.2.9
Diethylbenzene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Diethylene glycol dibutyl ether	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Diethylene glycol diethyl ether	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Diethylene glycol phthalate	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Diethylenetriamine	Y	S/P	3	2G	Open	No	T2	IIA	Yes	O	No	A	No	15.19.6
Diethylenetriaminepentaacetic acid, pentasodium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Diethyl ether	Z	S/P	2	1G	Cont	Inert	T4	IIB	No	C	FT	A	Yes	15.4, 15.14, 15.19

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Di-(2-ethylhexyl) adipate	Y	P	2	2G	Open	No				Yes	O	No	AB	No	15.19.6
Di-(2-ethylhexyl) phosphoric acid	Y	S/P	2	2G	Open	No				Yes	O	No	AD	No	15.19.6
Diethyl phthalate	Y	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
Diethyl sulphate	Y	S/P	2	2G	Cont	No				Yes	C	T	A	No	15.19.6
Diglycidyl ether of bisphenol A	X	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Diglycidyl ether of bisphenol F	Y	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.6
Diheptyl phthalate	Y	P	2	2G	Open	No				Yes	O	No	AB	No	15.19.6
Di-n-hexyl adipate	X	P	1	2G	Open	No				Yes	O	No	A	No	15.19
Dihexyl phthalate	Y	P	2	2G	Open	No				Yes	O	No	AB	No	15.19.6
Diisobutylamine	Y	S/P	2	2G	Cont	No	T4	IIB	No	R	FT	ACD	No		15.12.3, 15.19.6
Diisobutylene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No		15.19.6
Diisobutyl ketone	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No		15.19.6
Diisobutyl phthalate	X	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
Diisononyl adipate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No		15.19.6
Diisooctyl phthalate	Y	P	2	2G	Open	No				Yes	O	No	AB	No	15.19.6, 16.2.6
Diisopropanolamine	Z	S/P	3	2G	Open	No	T2	IIA	Yes	O	No	A	No		16.2.9
Diisopropylamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	A	Yes		15.12, 15.19
Diisopropylbenzene (all isomers)	X	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
Diisopropylnaphthalene	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No		15.19.6
N,N-Dimethylacetamide	Z	S/P	3	2G	Cont	No	-	-	Yes	C	T	ACD	No		15.12, 15.17
N,N-Dimethylacetamide solution (40% or less)	Z	S/P	3	2G	Cont	No				Yes	R	T	B	No	15.12.1, 15.17
Dimethyl adipate	X	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.9
Dimethylamine solution (45% or less)	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	ACD	No		15.12, 15.19.6
Dimethylamine solution (greater than 45% but not greater than 55%)	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	ACD	Yes		15.12, 15.17, 15.19
Dimethylamine solution (greater than 55% but not greater than 65%)	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	ACD	Yes		15.12, 15.14, 15.17, 15.19
N,N-Dimethylcyclohexylamine	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	AC	No		15.12, 15.17, 15.19.6
Dimethyl disulphide	Y	S/P	2	2G	Cont	No	T3	IIA	No	R	FT	B	No		15.12.3, 15.12.4, 15.19.6
N,N-Dimethyldodecylamine	X	S/P	1	2G	Open	No				Yes	O	No	B	No	15.19
Dimethylethanolamine	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	AD	No		15.19.6
Dimethylformamide	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	AD	No		15.19.6
Dimethyl glutarate	Y	P	3	2G	Open	No				Yes	O	No	A	No	15.19.6

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Dimethyl hydrogen phosphite	Y	S/P	3	2G	Cont	No			Yes	R	T	AD	No	15.12.1, 15.19.6
Dimethyl octanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Dimethyl phthalate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Dimethylpolysiloxane	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
2,2-Dimethylpropane-1,3-diol (molten or solution)	Z	P	3	2G	Open	No	-	-	Yes	O	No	AB	No	16.2.9
Dimethyl succinate	Y	P	3	2G	Open	No			Yes	O	No	A	No	16.2.9
Dinitrotoluene (molten)	X	S/P	2	2G	Cont	No			Yes	C	T	A	No	15.12, 15.17, 15.19, 15.21, 16.2.6, 16.2.9, 16.6.4
Dinonyl phthalate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Diocetyl phthalate	X	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
1,4-Dioxane	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	A	No	15.12, 15.19, 16.2.9
Dipentene	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Diphenyl	X	P	2	2G	Open	No			Yes	O	No	B	No	15.19.6, 16.2.6, 16.2.9
Diphenylamine (molten)	Y	P	2	2G	Open	No	-	-	Yes	O	No	BD	No	15.19.6, 16.2.6, 16.2.9
Diphenylamine, reaction product with 2,2,4-Trimethylpentene	Y	S/P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6
Diphenylamines, alkylated	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Diphenyl/Diphenyl ether mixtures	X	P	2	2G	Open	No			Yes	O	No	B	No	15.19.6, 16.2.9
Diphenyl ether	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Diphenyl ether/Diphenyl phenyl ether mixture	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Diphenylmethane diisocyanate	Y	S/P	2	2G	Cont	Dry	-	-	Yes (a)	C	T(a)	ABC (b)D	No	15.12, 15.16.2, 15.17, 15.19.6, 16.2.6, 16.2.9
Diphenylol propane-epichlorohydrin resins	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Di-n-propylamine	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	A	No	15.12.3, 15.19.6
Dipropylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Dithiocarbamate ester (C7-C35)	X	P	2	2G	Open	No			Yes	O	No	AD	No	15.19.6, 16.2.9
Ditridecyl adipate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Ditridecyl phthalate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Diundecyl phthalate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Dodecane (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	AB	No	15.19.6
tert-Dodecanethiol	X	S/P	1	2G	Cont	No	-	-	Yes	C	T	ABD	Yes	15.12, 15.17, 15.19
Dodecene (all isomers)	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Dodecyl alcohol	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9

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Dodecylamine/Tetradecylamine mixture	Y	S/P	2	2G	Cont	No			Yes	R	T	AD	No	15.19.6, 16.2.9
Dodecylbenzene	Z	P	3	2G	Open	No	-	-	Yes	O	No	AB	No	
Dodecyl diphenyl ether disulphonate solution	X	S/P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6
Dodecyl hydroxypropyl sulphide	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Dodecyl methacrylate	Z	S/P	3	2G	Open	No			Yes	O	No	A	No	15.13
Dodecyl/Octadecyl methacrylate mixture	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.13, 15.19.6, 16.2.6, 16.6.1, 16.6.2
Dodecyl/Pentadecyl methacrylate mixture	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2
Dodecyl phenol	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Dodecyl Xylene	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Drilling brines (containing zinc salts)	X	P	2	2G	Open	No			Yes	O	No	No	No	15.19.6
Drilling brines, including:calcium bromide solution, calcium chloride solution and sodium chloride solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Epichlorohydrin	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	A	Yes	15.12, 15.17, 15.19
Ethanolamine	Y	S/P	3	2G	Open	No	T2	IIA	Yes	O	FT	A	No	16.2.9
2-Ethoxyethyl acetate	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Ethoxylated long chain (C16+) alkyloxyalkylamine	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	AB	No	15.19.6, 16.2.9
Ethoxylated tallow amine (> 95%)	X	S/P	2	2G	Cont	Inert	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Ethyl acetate	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
Ethyl acetoacetate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ethyl acrylate	Y	S/P	2	2G	Cont	No	T2	IIB	No	R	FT	A	Yes	15.13, 15.19.6, 16.6.1, 16.6.2
Ethylamine	Y	S/P	2	1G	Cont	No	T2	IIA	No	C	FT	CD	Yes	15.12, 15.14, 15.19.6
Ethylamine solutions (72% or less)	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	AC	Yes	15.12, 15.14, 15.17, 15.19
Ethyl amyl ketone	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Ethylbenzene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Ethyl tert-butyl ether	Y	P	3	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6
Ethyl butyrate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Ethylcyclohexane	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
N-Ethylcyclohexylamine	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	A	No	15.19.6
S-Ethyl dipropylthiocarbamate	Y	P	2	2G	Open	No			Yes	O	No	A	No	16.2.9
Ethylene chlorohydrin	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	AD	Yes	15.12, 15.17, 15.19
Ethylene cyanohydrin	Y	S/P	3	2G	Open	No		IIB	Yes	O	No	A	No	15.19.6

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Ethylenediamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.19.6, 16.2.9
Ethylenediaminetetraacetic acid, tetrasodium salt solution	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Ethylene dibromide	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.12, 15.19.6, 16.2.9
Ethylene dichloride	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AB	No	15.19
Ethylene glycol	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol acetate	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Ethylene glycol butyl ether acetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol diacetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol methyl ether acetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol monoalkyl ethers	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6, 16.2.9
Ethylene glycol phenyl ether	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Ethylene glycol phenyl ether/Diethylene glycol phenyl ether mixture	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Ethylene oxide/Propylene oxide mixture with an ethylene oxide content of not more than 30% by mass	Y	S/P	2	1G	Cont	Inert	T2	IIB	No	C	FT	AC	No	15.8, 15.12, 15.14, 15.19
Ethylene-vinyl acetate copolymer (emulsion)	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Ethyl-3-ethoxypropionate	Y	P	3	2G	Cont	No	T2	IIA	No	R	No	A	No	15.19.6
2-Ethylhexanoic acid	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
2-Ethylhexyl acrylate	Y	S/P	3	2G	Open	No	T3	IIB	Yes	O	No	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
2-Ethylhexylamine	Y	S/P	2	2G	Cont	No	T3	IIA	No	R	FT	A	No	15.12, 15.19.6
2-Ethyl-2-(hydroxymethyl) propane-1,3-diol (C8-C10) ester	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Ethylidene norbornene	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	AD	No	15.12.1, 15.19.6
Ethyl methacrylate	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2
N-Ethylmethylallylamine	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	F	AC	Yes	15.12.3, 15.17, 15.19
Ethyl propionate	Y	P	3	2G	Open	No	T1	IIA	No	R	F	A	No	15.19.6
2-Ethyl-3-propylacrolein	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	A	No	15.19.6, 16.2.9
Ethyl toluene	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Fatty acid (saturated C13+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Fatty acid methyl esters (m)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Fatty acids, (C8-C10)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19, 16.2.6, 16.2.9
Fatty acids, (C12+)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Fatty acids, (C16+)	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6

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Fatty acids, essentially linear (C6-C18) 2-ethylhexyl ester	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
Ferric chloride solutions	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.11, 15.19.6, 16.2.9
Ferric nitrate/Nitric acid solution	Y	S/P	2	2G	Cont	No			NF	R	T	No	Yes	15.11, 15.19
Fish oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Fluosilicic acid (20-30%) in water solution	Y	S/P	3	1G	Cont	No	-	-	NF	R	T	No	Yes	15.11, 15.19.6
Formaldehyde solutions (45% or less)	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	Yes	15.19.6, 16.2.9
Formamide	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Formic acid (85% or less acid)	Y	S/P	3	2G	Cont	No	-	-	Yes	R	T(g)	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6, 16.2.9
Formic acid (over 85%)	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	FT (g)	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6, 16.2.9
Formic acid mixture (containing up to 18% propionic acid and up to 25% sodium formate)	Z	S/P	3	2G	Cont	No	-	-	Yes	R	T(g)	AC	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6
Furfural	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.19.6
Furfuryl alcohol	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Glucitol/glycerol blend propoxylated (containing less than 10% amines)	Z	S/P	3	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6
Glutaraldehyde solutions (50% or less)	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6
Glycerol monooleate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Glycerol propoxylated	Z	S/P	3	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6
Glycerol, propoxylated and ethoxylated	Z	P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
Glycerol/sucrose blend propoxylated and ethoxylated	Z	P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
Glyceryl triacetate	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Glycidyl ester of C10 trialkylacetic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Glycine, sodium salt solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Glycolic acid solution (70% or less)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	15.19.6, 16.2.9
Glyoxal solution (40% or less)	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Glyoxylic acid solution (50 % or less)	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	ACD	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9, 16.6.1, 16.6.2, 16.6.3
Glyphosate solution (not containing surfactant)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Groundnut oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Heptane (all isomers)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9
n-Heptanoic acid	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Heptanol (all isomers) (d)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6

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Heptene (all isomers)	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Heptyl acetate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
1-Hexadecylnaphthalene / 1,4-bis(hexadecyl)naphthalene mixture	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Hexamethylenediamine (molten)	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	AC	Yes	15.12, 15.17, 15.18, 15.19, 16.2.9
Hexamethylenediamine adipate (50% in water)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Hexamethylenediamine solution	Y	S/P	3	2G	Cont	No			Yes	R	T	A	No	15.19.6
Hexamethylene diisocyanate	Y	S/P	2	1G	Cont	Dry	T1	IIB	Yes	C	T	AC (b)D	Yes	15.12, 15.16.2, 15.17, 15.18, 15.19
Hexamethylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Hexamethyleneimine	Y	S/P	2	2G	Cont	No	T4	IIB	No	R	FT	AC	No	15.19.6
Hexane (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
1,6-Hexanediol, distillation overheads	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Hexanoic acid	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
Hexanol	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
Hexene (all isomers)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Hexyl acetate	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Hydrochloric acid	Z	S/P	3	1G	Cont	No			NF	R	T	No	Yes	15.11
Hydrogen peroxide solutions (over 60% but not over 70% by mass)	Y	S/P	2	2G	Cont	No			NF	C	No	No	No	15.5.1, 15.19.6
Hydrogen peroxide solutions (over 8% but not over 60% by mass)	Y	S/P	3	2G	Cont	No			NF	C	No	No	No	15.5.2, 15.18, 15.19.6
2-Hydroxyethyl acrylate	Y	S/P	2	2G	Cont	No			Yes	C	T	A	No	15.12, 15.13, 15.19.6, 16.6.1, 16.6.2
N-(Hydroxyethyl)ethylenediaminetriacetic acid, trisodium salt solution	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
2-Hydroxy-4-(methylthio)butanoic acid	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Illipe oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Isoamyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
Isobutyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
Isobutyl formate	Z	P	3	2G	Cont	No	T4	IIA	No	R	F	AB	No	
Isobutyl methacrylate	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.12, 15.13, 15.17, 16.6.1, 16.6.2
Isophorone	Y	S/P	3	2G	Cont	No			Yes	R	No	A	No	15.19.6
Isophoronediamine	Y	S/P	3	2G	Cont	No			Yes	R	T	A	No	16.2.9
Isophorone diisocyanate	X	S/P	2	2G	Cont	Dry			Yes	C	T	ABD	No	15.12, 15.16.2, 15.17, 15.19.6
Isoprene	Y	S/P	3	2G	Cont	No	T3	IIB	No	R	F	B	No	15.13, 15.14, 15.19.6, 16.6.1, 16.6.2

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Isopropanolamine	Y	S/P	3	2G	Open	No	T2	IIA	Yes	O	FT	A	No	15.19.6, 16.2.6, 16.2.9
Isopropyl acetate	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	
Isopropylamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	CD	Yes	15.12, 15.14, 15.19
Isopropylamine (70% or less) solution	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	CD	Yes	15.12, 15.19.6, 16.2.9
Isopropylcyclohexane	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6, 16.2.9
Isopropyl ether	Y	S/P	3	2G	Cont	Inert	T2	IIA	No	R	F	A	No	15.4.6, 15.13.3, 15.19.6
Jatropha oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Lactic acid	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Lactonitrile solution (80% or less)	Y	S/P	2	1G	Cont	No			Yes	C	T	ACD	Yes	15.12, 15.13, 15.17, 15.18, 15.19, 16.6.1, 16.6.2, 16.6.3
Lard	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Latex, ammonia (1% or less)- inhibited	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Latex: Carboxylated styrene-Butadiene copolymer; Styrene-Butadiene rubber	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Lauric acid	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Ligninsulphonic acid, magnesium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	AC	No	
Ligninsulphonic acid, sodium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Linseed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Liquid chemical wastes	X	S/P	2	2G	Cont	No			No	C	FT	A	Yes	15.12, 15.19.6, 20.5.1
Long-chain alkaryl polyether (C11-C20)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Long-chain alkaryl sulphonic acid (C16-C60)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Long-chain alkylphenate/Phenol sulphide mixture	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
L-Lysine solution (60% or less)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Magnesium chloride solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Magnesium long-chain alkaryl sulphonate (C11-C50)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Magnesium long-chain alkyl salicylate (C11+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Maleic anhydride	Y	S/P	3	2G	Cont	No			Yes	R	No	AC	No	16.2.9
Mango kernel oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Mercaptobenzothiazol, sodium salt solution	X	S/P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
Mesityl oxide	Z	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.19.6
Metam sodium solution	X	S/P	2	2G	Cont	No	-	-	NF	C	T	No	Yes	15.12, 15.17, 15.19
Methacrylic acid	Y	S/P	3	2G	Cont	No			Yes	R	T	A	No	15.13, 15.19.6, 16.2.9, 16.6.1

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Methacrylic acid - alkoxy poly (alkylene oxide) methacrylate copolymer, sodium salt aqueous solution (45% or less)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	AC	No	16.2.9
Methacrylic resin in ethylene dichloride	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AB	No	15.19, 16.2.9
Methacrylonitrile	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	A	Yes	15.12, 15.13, 15.17, 15.19
3-Methoxy-1-butanol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	
3-Methoxybutyl acetate	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
N-(2-Methoxy-1-methyl ethyl)-2-ethyl-6-methyl chloroacetanilide	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6
Methyl acetate	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
Methyl acetoacetate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Methyl acrylate	Y	S/P	2	2G	Cont	No	T1	IIB	No	R	FT	A	Yes	15.13, 15.19.6, 16.6.1, 16.6.2
Methyl alcohol	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Methylamine solutions (42% or less)	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	ACD	Yes	15.12, 15.17, 15.19
Methylamyl acetate	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Methylamyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Methyl amyl ketone	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
N-Methylaniline	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6
alpha-Methylbenzyl alcohol with acetophenone (15% or less)	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Methylbutenol	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6, 16.2.9
Methyl tert-butyl ether	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	
Methyl butyl ketone	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	15.19.6
Methylbutynol	Z	P	3	2G	Cont	No	T4	IIB	No	R	F	A	No	
Methyl butyrate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Methylcyclohexane	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Methylcyclopentadiene dimer	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	B	No	15.19.6
Methylcyclopentadienyl manganese tricarbonyl	X	S/P	1	1G	Cont	No	-	-	Yes	C	T	ABC D	Yes	15.12, 15.18, 15.19, 16.2.9
Methyl diethanolamine	Y	S/P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
2-Methyl-6-ethyl aniline	Y	S/P	3	2G	Open	No			Yes	O	No	AD	No	15.19.6
Methyl ethyl ketone	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
2-Methyl-5-ethyl pyridine	Y	S/P	3	2G	Open	No		IIA	Yes	O	No	AD	No	15.19.6
Methyl formate	Z	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	A	Yes	15.12, 15.14, 15.19
2-Methylglutaronitrile with 2-Ethylsuccinonitrile (12% or less)	Z	S	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19

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2-Methyl-2-hydroxy-3-butyne	Z	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	ABD	No	15.19.6, 16.2.9
Methyl isobutyl ketone	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	
Methyl methacrylate	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
3-Methyl-3-methoxybutanol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Methyl naphthalene (molten)	X	S/P	2	2G	Cont	No			Yes	R	No	AD	No	15.19.6
2-Methyl-1,3-propanediol	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
2-Methylpyridine	Z	S/P	2	2G	Cont	No	T1	IIA	No	C	F	A	No	15.12.3, 15.19.6
3-Methylpyridine	Z	S/P	2	2G	Cont	No	T1	IIA	No	C	F	AC	No	15.12.3, 15.19
4-Methylpyridine	Z	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	A	No	15.12.3, 15.19, 16.2.9
N-Methyl-2-pyrrolidone	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Methyl salicylate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
alpha-Methylstyrene	Y	S/P	2	2G	Cont	No	T1	IIB	No	R	FT	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2 (j)
3-(methylthio)propionaldehyde	Y	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	BC	Yes	15.12, 15.17, 15.19
Molybdenum polysulfide long chain alkyl dithiocarbamide complex	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Morpholine	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Motor fuel anti-knock compound (containing lead alkyls)	X	S/P	1	1G	Cont	No	T4	IIA	No	C	FT	AC	Yes	15.6, 15.12, 15.18, 15.19
Myrcene	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9
Naphthalene (molten)	X	S/P	2	2G	Cont	No	T1	IIA	Yes	R	No	AD	No	15.19.6, 16.2.9
Naphthalenesulphonic acid-Formaldehyde copolymer, sodium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Neodecanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Nitrating acid (mixture of sulphuric and nitric acids)	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.11, 15.16.2, 15.17, 15.19
Nitric acid (70% and over)	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.11, 15.19
Nitric acid (less than 70%)	Y	S/P	2	2G	Cont	No			NF	R	T	No	Yes	15.11, 15.19
Nitrilotriacetic acid, trisodium salt solution	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Nitrobenzene	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	AD	No	15.12, 15.17, 15.18, 15.19, 16.2.9
Nitroethane	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A(f)	No	15.19.6, 16.6.1, 16.6.2, 16.6.4
Nitroethane(80%)/ Nitropropane(20%)	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A(f)	No	15.19.6, 16.6.1, 16.6.2, 16.6.3
Nitroethane, 1-Nitropropane (each 15% or more) mixture	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.6.1, 16.6.2, 16.6.3
o-Nitrophenol (molten)	Y	S/P	2	2G	Cont	No			Yes	C	T	AD	No	15.12, 15.19.6, 16.2.6, 16.2.9
1- or 2-Nitropropane	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.19.6

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Nitropropane (60%)/Nitroethane (40%) mixture	Y	S/P	3	2G	Cont	No	T4	IIB	No	R	FT	A(f)	No	15.19.6
o- or p-Nitrotoluenes	Y	S/P	2	2G	Cont	No		IIB	Yes	C	T	AB	No	15.12, 15.17, 15.19.6
Nonane (all isomers)	X	P	2	2G	Cont	No	T4	IIA	No	R	F	BC	No	15.19.6
Nonanoic acid (all isomers)	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Non-edible industrial grade palm oil	Y	S/P	2	2G	Cont	No	-	-	Yes	R	No	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Nonene (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Nonyl alcohol (all isomers)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Nonyl methacrylate monomer	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Nonylphenol	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6, 16.2.9
Nonylphenol poly(4+)ethoxylate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Noxious liquid, NF, (1) n.o.s. (trade name, contains) ST1, Cat. X	X	P	1	2G	Open	No	-	-	Yes	O	No	A	No	15.19, 16.2.6
Noxious liquid, F, (2) n.o.s. (trade name, contains) ST1, Cat. X	X	P	1	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6
Noxious liquid, NF, (3) n.o.s. (trade name, contains) ST2, Cat. X	X	P	2	2G	Open	No	-		Yes	O	No	A	No	15.19, 16.2.6
Noxious liquid, F, (4) n.o.s. (trade name, contains) ST2, Cat. X	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6
Noxious liquid, NF, (5) n.o.s. (trade name, contains) ST2, Cat. Y	Y	P	2	2G	Open	No	-		Yes	O	No	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, F, (6) n.o.s. (trade name, contains) ST2, Cat. Y	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, NF, (7) n.o.s. (trade name, contains) ST3, Cat. Y	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, F, (8) n.o.s. (trade name, contains) ST3, Cat. Y	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, NF, (9) n.o.s. (trade name, contains) ST3, Cat. Z	Z	P	3	2G	Open	No	-		Yes	O	No	A	No	
Noxious liquid, F, (10) n.o.s. (trade name, contains) ST3, Cat. Z	Z	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	
Octamethylcyclotetrasiloxane	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	AC	No	15.19.6, 16.2.9
Octane (all isomers)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Octanoic acid (all isomers)	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Octanol (all isomers)	Y	P	2	2G	Open	No			Yes	O	No	A	No	
Octene (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
n-Octyl acetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Octyl aldehydes	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.9
Octyl decyl adipate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Olefin-Alkyl ester copolymer (molecular weight 2000+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Olefin Mixture (C7-C9) C8 rich, stabilised	X	S/P	2	2G	Cont	No	T3	IIB	No	R	F	ABC	No	15.13, 15.19.6
Olefin mixtures (C5-C7)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6

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Olefin mixtures (C5-C15)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Olefins (C13+, all isomers)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
alpha-Olefins (C6-C18) mixtures	X	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6, 16.2.9
Oleic acid	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Oleum	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.11.2 to 15.11.8, 15.12.1, 15.16.2, 15.17, 15.19, 16.2.6
Oleylamine	X	S/P	2	2G	Cont	No			Yes	R	T	A	No	15.19.6, 16.2.9
Olive oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Oxygenated aliphatic hydrocarbon mixture	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
Palm acid oil	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm fatty acid distillate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel acid oil	Y	S/P	2	2G	Open	No			Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel fatty acid distillate	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel olein	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel stearin	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm mid-fraction	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm oil fatty acid methyl ester	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Palm olein	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm stearin	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Paraffin wax	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Paraldehyde	Z	S/P	3	2G	Cont	No	T3	IIB	No	R	F	A	No	15.19.6, 16.2.9
Paraldehyde-ammonia reaction product	Y	S/P	2	2G	Cont	No	T4	IIB	No	C	FT	A	No	15.12.3, 15.19
Pentachloroethane	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12, 15.17, 15.19.6
1,3-Pentadiene	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2, 16.6.3
1,3-Pentadiene (greater than 50%), cyclopentene and isomers, mixtures	Y	S/P	2	2G	Cont	Inert	T3	IIB	No	C	FT	ABC	Yes	15.12, 15.13, 15.17, 15.19
Pentaethylenehexamine	X	S/P	2	2G	Open	No			Yes	O	No	B	Yes	15.19
Pentane (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.14, 15.19.6
Pentanoic acid	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
n-Pentanoic acid (64%)/2-Methyl butyric acid (36%) mixture	Y	S/P	2	2G	Open	No	T2		Yes	C	No	AD	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.19

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Pentene (all isomers)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.14, 15.19.6
n-Pentyl propionate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Perchloroethylene	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12.1, 15.12.2, 15.19.6
Petrolatum	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Phenol	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	A	No	15.12, 15.19, 16.2.9
1-Phenyl-1-xylyl ethane	Y	P	3	2G	Open	No			Yes	O	No	AB	No	
Phosphate esters, alkyl (C12-C14) amine	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Phosphoric acid	Z	S/P	3	2G	Open	No			NF	O	No	No	No	15.11.1, 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 16.2.9
Phosphorus, yellow or white	X	S/P	1	1G	Cont	Pad+ (vent or inert)			No	C	No	C	Yes	15.7, 15.19, 16.2.9
Phthalic anhydride (molten)	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	R	No	AD	No	15.19.6, 16.2.6, 16.2.9
alpha-Pinene	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
beta-Pinene	X	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6
Pine oil	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Polyacrylic acid solution (40% or less)	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	AC	No	
Polyalkyl (C18-C22) acrylate in xylene	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	AB	No	15.19.6, 16.2.6, 16.2.9
Polyalkylalkenaminesuccinimide, molybdenum oxysulphide	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether acetate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Polyalkyl (C10-C20) methacrylate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyalkyl (C10-C18) methacrylate/ethylene-propylene copolymer mixture	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polybutene	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Polybutenyl succinimide	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Poly(2+)cyclic aromatics	X	P	1	2G	Cont	No			Yes	R	No	AD	No	15.19, 16.2.6, 16.2.9
Polyether (molecular weight 1350+)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Polyethylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Polyethylene glycol dimethyl ether	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Poly(ethylene glycol) methylbutenyl ether (MW>1000)	Z	P	3	2G	Open	No	-	-	Yes	O	No	AC	No	16.2.9
Polyethylene polyamines	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Polyethylene polyamines (more than 50% C5 -C20 paraffin oil)	Y	S/P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9

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Polyferric sulphate solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6
Poly(iminoethylene)-graft-N-poly(ethyleneoxy) solution (90% or less)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	AC	No	16.2.9
Polyisobutenamine in aliphatic (C10-C14) solvent	Y	P	3	2G	Open	No	T3	IIA	Yes	O	No	A	No	15.19.6
Polyisobutenyl anhydride adduct	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Poly(4+)isobutylene	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Polymethylene polyphenyl isocyanate	Y	S/P	2	2G	Cont	Dry			Yes	C	T(a)	A	No	15.12, 15.16.2, 15.19.6, 16.2.9 (a)
Polyolefin (molecular weight 300+)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefin amide alkeneamine (C17+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Polyolefin amide alkeneamine borate (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin amide alkeneamine polyol	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Polyolefinamine (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Polyolefinamine in alkyl (C2-C4) benzenes	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefinamine in aromatic solvent	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefin aminoester salts (molecular weight 2000+)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefin anhydride	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin ester (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin phenolic amine (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin phosphorusulphide, barium derivative (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Poly(20)oxyethylene sorbitan monooleate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Poly(5+)propylene	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Polypropylene glycol	Z	S/P	3	2G	Cont	No			Yes	O	No	ABC	No	15.19.6
Polysiloxane	Y	P	3	2G	Cont	No	T4	IIB	No	R	F	AB	No	15.19.6, 16.2.9
Potassium chloride solution	Z	S/P	3	2G	Open	No	-	-	NF	O	No	A	No	16.2.9
Potassium hydroxide solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6
Potassium oleate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Potassium thiosulphate (50% or less)	Y	P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
n-Propanolamine	Y	S/P	3	2G	Open	No			Yes	O	No	AD	No	15.19.6, 16.2.9
2-Propene-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer solution	Y	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	15.19.6
beta-Propiolactone	Y	S/P	2	2G	Cont	No		IIA	Yes	R	T	A	No	15.19.6
Propionaldehyde	Y	S/P	3	2G	Cont	No	T4	IIB	No	R	FT	A	Yes	15.17, 15.19.6

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Propionic acid	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	F	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6
Propionic anhydride	Y	S/P	3	2G	Cont	No	T2	IIA	Yes	R	T	A	No	15.19.6
Propionitrile	Y	S/P	2	1G	Cont	No	T1	IIB	No	C	FT	AD	Yes	15.12, 15.17, 15.18, 15.19
n-Propyl acetate	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	15.19.6
n-Propyl alcohol	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
n-Propylamine	Z	S/P	2	2G	Cont	Inert	T2	IIA	No	C	FT	AD	Yes	15.12, 15.19
Propylbenzene (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Propylene glycol methyl ether acetate	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	
Propylene glycol monoalkyl ether	Z	P	3	2G	Cont	No	T3	IIA	No	R	F	AB	No	
Propylene glycol phenyl ether	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Propylene oxide	Y	S/P	2	2G	Cont	Inert	T2	IIB	No	C	FT	AC	No	15.8, 15.12.1, 15.14, 15.19
Propylene tetramer	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Propylene trimer	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Pyridine	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Pyrolysis gasoline (containing benzene)	Y	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	AB	No	15.12, 15.17, 15.19.6
Rapeseed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Rapeseed oil (low erucic acid containing less than 4% free fatty acids)	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Rape seed oil fatty acid methyl esters	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Resin oil, distilled	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	ABC	No	15.12, 15.17, 15.19.6
Rice bran oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Rosin	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Safflower oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Shea butter	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Sodium alkyl (C14-C17) sulphonates (60-65% solution)	Y	P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Sodium aluminosilicate slurry	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Sodium benzoate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Sodium borohydride (15% or less)/Sodium hydroxide solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Sodium bromide solution (less than 50%) (*)	Y	S/P	3	2G	Open	No	-	-	NF	R	No	No	No	15.19.6
Sodium carbonate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Sodium chlorate solution (50% or less)	Z	S/P	3	2G	Open	No			NF	O	No	No	No	15.9, 15.19.6, 16.2.9

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Sodium dichromate solution (70% or less)	Y	S/P	2	2G	Open	No				NF	C	No	No	No	15.12.3, 15.19
Sodium hydrogen sulphide (6% or less)/Sodium carbonate (3% or less) solution	Z	P	3	2G	Open	No				NF	O	No	No	No	15.19.6, 16.2.9
Sodium hydrogen sulphite solution (45% or less)	Z	S/P	3	2G	Open	No				NF	O	No	No	No	16.2.9
Sodium hydrosulphide/Ammonium sulphide solution	Y	S/P	2	2G	Cont	No	T4	IIB	No	C	FT	A	Yes	15.12, 15.14, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3	
Sodium hydrosulphide solution (45% or less)	Z	S/P	3	2G	Cont	Vent or pad (gas)				NF	R	T	No	No	15.19.6, 16.2.9
Sodium hydroxide solution	Y	S/P	3	2G	Open	No				NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Sodium hypochlorite solution (15% or less)	Y	S/P	2	2G	Cont	No	-	-		NF	R	No	No	No	15.19.6
Sodium methylate 21-30% in methanol	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	AC	Yes	15.12, 15.17, 15.19, 16.2.6(only if >28%), 16.2.9	
Sodium nitrite solution	Y	S/P	2	2G	Open	No				NF	O	No	No	No	15.12.3.1, 15.12.3.2, 15.19, 16.2.9
Sodium petroleum sulphonate	Y	S/P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.6
Sodium poly(4+)acrylate solutions	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9	
Sodium silicate solution	Y	P	3	2G	Open	No				NF	O	No	No	No	15.19.6, 16.2.9
Sodium sulphide solution (15% or less)	Y	S/P	3	2G	Cont	No				NF	C	T	No	No	15.19.6, 16.2.9
Sodium sulphite solution (25% or less)	Y	P	3	2G	Open	No				NF	O	No	No	No	15.19.6, 16.2.9
Sodium thiocyanate solution (56% or less)	Y	P	3	2G	Open	No				Yes	O	No	No	No	15.19.6, 16.2.9
Soyabean oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9	
Styrene monomer	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2	
Sulphohydrocarbon (C3-C88)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9	
Sulpholane	Y	P	3	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.9
Sulphur (molten)	Z	S	3	1G	Open	Vent or pad (gas)	T3		Yes	O	FT	No	No	15.10, 16.2.9	
Sulphuric acid	Y	S/P	3	2G	Open	No				NF	O	No	No	No	15.11, 15.16.2, 15.19.6
Sulphuric acid, spent	Y	S/P	3	2G	Open	No				NF	O	No	No	No	15.11, 15.16.2, 15.19.6
Sulphurized fat (C14-C20)	Z	P	3	2G	Open	No				Yes	O	No	AB	No	
Sulphurized polyolefinamide alkene (C28-C250) amine	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No		
Sunflower seed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9	
Tall oil, crude	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6	
Tall oil, distilled	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6	
Tall oil fatty acid (resin acids less than 20%)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6	
Tall oil pitch	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6	

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Tallow	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Tallow fatty acid	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Tetrachloroethane	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12, 15.17, 15.19.6
Tetraethylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Tetraethylene pentamine	Y	S/P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Tetrahydrofuran	Z	S	3	2G	Cont	No	T3	IIB	No	R	FT	A	No	15.19.6
Tetrahydronaphthalene	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Tetramethylbenzene (all isomers)	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Titanium dioxide slurry	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Toluene	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Toluenediamine	Y	S/P	2	2G	Cont	No			Yes	C	T	AD	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Toluene diisocyanate	Y	S/P	2	2G	Cont	Dry	T1	IIA	Yes	C	FT	AC (b)D	Yes	15.12, 15.16.2, 15.17, 15.19, 16.2.9
o-Toluidine	Y	S/P	2	2G	Cont	No			Yes	C	T	A	No	15.12, 15.17, 15.19
Tributyl phosphate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
1,2,3-Trichlorobenzene (molten)	X	S/P	1	2G	Cont	No			Yes	C	T	ACD	Yes	15.12.1, 15.17, 15.19, 16.2.6, 16.2.9
1,2,4-Trichlorobenzene	X	S/P	1	2G	Cont	No			Yes	R	T	AB	No	15.19, 16.2.9
1,1,1-Trichloroethane	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
1,1,2-Trichloroethane	Y	S/P	3	2G	Cont	No			NF	R	T	No	No	15.12.1, 15.19.6
Trichloroethylene	Y	S/P	2	2G	Cont	No	T2	IIA	Yes	R	T	No	No	15.12, 15.17, 15.19.6
1,2,3-Trichloropropane	Y	S/P	2	2G	Cont	No			Yes	C	T	ABD	No	15.12, 15.17, 15.19
1,1,2-Trichloro-1,2,2-Trifluoroethane	Y	P	2	2G	Open	No			NF	O	No	No	No	15.19.6
Tricresyl phosphate (containing 1% or more ortho-isomer)	Y	S/P	1	2G	Cont	No	T2	IIA	Yes	C	No	AB	No	15.12.3, 15.19, 16.2.6
Tricresyl phosphate (containing less than 1% ortho-isomer)	Y	S/P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Tridecane	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
Tridecanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Tridecyl acetate	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Triethanolamine	Z	S/P	3	2G	Open	No			IIA	Yes	O	No	A	16.2.9
Triethylamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AC	Yes	15.12, 15.19.6
Triethylbenzene	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Triethylenetetramine	Y	S/P	2	2G	Open	No	T2	IIA	Yes	O	No	A	No	15.19.6

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Triethyl phosphate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Triethyl phosphite	Z	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	AB	No	15.12.1, 15.19.6, 16.2.9
Triisopropanolamine	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Triisopropylated phenyl phosphates	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Trimethylacetic acid	Y	S/P	2	2G	Cont	No			Yes	R	No	A	No	15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.6, 16.2.9
Trimethylamine solution (30% or less)	Z	S/P	2	2G	Cont	No	T3	IIB	No	C	FT	AC	Yes	15.12, 15.14, 15.19, 16.2.9
Trimethylbenzene (all isomers)	X	P	2	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Trimethylol propane propoxylated	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
1,3,5-Trioxane	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	F	AD	No	15.19.6, 16.2.9
Tripropylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Trixylyl phosphate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Tung oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Turpentine	X	P	2	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Undecanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	16.2.6, 16.2.9
1-Undecene	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Undecyl alcohol	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Urea/Ammonium nitrate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Urea/Ammonium nitrate solution (containing less than 1% free ammonia)	Z	S/P	3	2G	Cont	No			NF	R	T	A	No	16.2.9
Urea/Ammonium phosphate solution	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Urea solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Valeraldehyde (all isomers)	Y	S/P	3	2G	Cont	Inert	T3	IIB	No	R	FT	A	No	15.4.6, 15.19.6
Vegetable acid oils (m)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Vegetable fatty acid distillates (m)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Vinyl acetate	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
Vinyl ethyl ether	Z	S/P	2	1G	Cont	Inert	T3	IIB	No	C	FT	A	Yes	15.4, 15.13, 15.14, 15.19.6, 16.6.1, 16.6.2
Vinylidene chloride	Y	S/P	2	2G	Cont	Inert	T2	IIA	No	R	FT	B	Yes	15.13, 15.14, 15.19.6, 16.6.1, 16.6.2
Vinyl neodecanoate	Y	S/P	2	2G	Open	No			Yes	O	No	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2
Vinytoluene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	F	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2

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Waxes	Y	P	2	2G	Open	No	-	-	Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
White spirit, low (15-20%) aromatic	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9
Wood lignin with sodium acetate/oxalate	Z	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	
Xylenes	Y	P	2	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6, 16.2.9 (h)
Xylenes/ethylbenzene (10% or more) mixture	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Xylenol	Y	S/P	2	2G	Open	No		IIA	Yes	O	No	AB	No	15.19.6, 16.2.9
Zinc alkaryl dithiophosphate (C7-C16)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Zinc alkenyl carboxamide	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Zinc alkyl dithiophosphate (C3-C14)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6

Chapter 17

- a If the product to be carried contains flammable solvents such that the flashpoint does not exceed 60°C, then special electrical systems and a flammable-vapour detector shall be provided.
 - b Although water is suitable for extinguishing open-air fires involving chemicals to which this footnote applies, water shall not be allowed to contaminate closed tanks containing these chemicals because of the risk of hazardous gas generation.
 - c Phosphorus, yellow or white is carried above its autoignition temperature and therefore flashpoint is not appropriate. Electrical equipment requirements may be similar to those for substances with a flashpoint above 60°C.
 - d Requirements are based on those isomers having a flashpoint of 60°C, or less; some isomers have a flashpoint greater than 60°C, and therefore the requirements based on flammability would not apply to such isomers.
 - e Applies to n-decyl alcohol only.
 - f Dry chemical shall not be used as fire extinguishing media.
 - g Confined spaces shall be tested for both formic acid vapours and carbon monoxide gas, a decomposition product.
 - h Applies to p-xylene only.
 - i For mixtures containing no other components with safety hazards and where the pollution category is Y or less.
 - j Only certain alcohol-resistant foams are effective.
 - k Requirements for Ship Type identified in *column e* might be subject to regulation 4.1.3 of Annex II of MARPOL 73/78.
 - l Applicable when the melting point is equal to or greater than 0°C.
 - m From vegetable oils, animal fats and fish oils specified in the IBC Code.
- * Indicates that with reference to chapter 21 of the IBC Code (paragraph 21.1.3), deviations from the normal assignment criteria used for some carriage requirements have been implemented.

Chapter 18

List of products to which the Code does not apply

18.1 The following are products, which have been reviewed for their safety and pollution hazards and determined not to present hazards to such an extent as to warrant application of the Code.

18.2 Although the products listed in this chapter fall outside the scope of the Code, the attention of Administrations is drawn to the fact that some safety precautions may be needed for their safe transportation. Accordingly, Administrations shall prescribe appropriate safety requirements.

18.3 Some liquid substances are identified as falling into Pollution Category Z and, therefore, subject to certain requirements of Annex II of MARPOL.

18.4 Liquid mixtures which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II as falling into Pollution Category Z or OS, and which do not present safety hazards, may be carried under the appropriate entry in this chapter for "Noxious or Non-Noxious Liquid Substances, not otherwise specified (n.o.s.)".

EXPLANATORY NOTES

Product name	The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code.
Pollution Category	The letter Z means the Pollution Category assigned to each product under Annex II of MARPOL. OS means the product was evaluated and found to fall outside Categories X, Y, or Z.

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Product Name	Pollution Category
Acetone	Z
Alcoholic beverages, n.o.s.	Z
Apple juice	OS
n-Butyl alcohol	Z
sec-Butyl alcohol	Z
Calcium carbonate slurry	OS
Calcium nitrate solutions (50% or less)	Z
Clay slurry	OS
Coal slurry	OS
Diethylene glycol	Z
Ethyl alcohol	Z
Ethylene carbonate	Z
Glucose solution	OS
Glycerine	Z
Glycerol ethoxylated	OS
Hexamethylenetetramine solutions	Z
Hexylene glycol	Z
Hydrogenated starch hydrolysate	OS
Isopropyl alcohol	Z
Kaolin slurry	OS
Lecithin	OS
Magnesium hydroxide slurry	Z
Maltitol solution	OS
N-Methylglucamine solution (70% or less)	Z
Methyl propyl ketone	Z
Microsilica slurry	OS
Molasses	OS
Noxious liquid, (11) n.o.s. (trade name, contains) Cat. Z	Z
Non noxious liquid, (12) n.o.s. (trade name, contains) Cat. OS	OS
Orange juice (concentrated)	OS
Orange juice (not concentrated)	OS
Polyaluminium chloride solution	Z
Polyglycerin, sodium salt solution (containing less than 3% sodium hydroxide)	Z
Potassium chloride solution (less than 26%)	OS
Potassium formate solutions	Z
Propylene carbonate	Z
Propylene glycol	Z
Sodium acetate solutions	Z
Sodium bicarbonate solution (less than 10%)	OS
Sodium sulphate solutions	Z
Sorbitol solution	OS
Sulphonated polyacrylate solution	Z
Tetraethyl silicate monomer/oligomer (20% in ethanol)	Z
Triethylene glycol	Z
Vegetable protein solution (hydrolysed)	OS

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Product Name

Pollution Category

Water

OS

Chapter 19

Index of Products Carried in Bulk

19.1 The first column of the Index of Products Carried in Bulk (hereafter referred to as "the Index") provides the so-called Index Name. Where the Index Name is in capitals and in bold, the Index Name is identical to the Product Name in either chapter 17 or chapter 18. The second column listing the relevant Product Name is therefore empty. Where the Index Name is non-bold lower case it reflects a synonym for which the Product Name in either chapter 17 or chapter 18 is given in the second column. The relevant chapter of the IBC Code is reflected in the third column.

19.2 Following a review of chapter 19, a column listing UN numbers which was previously included has been removed from the Index. Since UN numbers are only available for a limited number of Index Names and there are inconsistencies between some of the names used in chapter 19 and those linked to UN numbers, it was decided to remove UN number references in order to avoid any confusion.

19.3 The Index has been developed for information purposes only. None of the Index Names indicated in non-bold lower case in the first column shall be used as the Product Name on the shipping document.

19.4 Prefixes forming an integral part of the name are shown in ordinary (roman) type and are taken into account in determining the alphabetical order of entries. These include such prefixes as:

Mono Di Tri Tetra Penta Iso Bis Neo Ortho Cyclo

19.5 Prefixes that are disregarded for purposes of alphabetical order are in italics and include the following:

n-	(normal-)
sec-	(secondary-)
tert-	(tertiary-)
o-	(ortho-)
m-	(meta-)
p-	(para-)
N-	
O-	
S-	
sym-	(symmetrical)
uns-	(unsymmetrical)
dl-	
D-	
L-	
cis-	
trans-	
(E)-	
(Z)-	
alpha-	(α -)
beta-	(β -)
gamma-	(γ -)
epsilon	(ϵ -)
omega	(ω -)

19.6 The Index utilizes a note after the index name for some entries (shown as (a) or (b)) which indicates that the following qualifications apply:

- (a) this Index Name represents a subset of the corresponding Product Name.
- (b) The Product Name corresponding to this Index Name contains a carbon chain length qualification. Since the Index Name should always represent a subset or be an exact synonym of the corresponding Product Name, the carbon chain length characteristics should be checked for any product identified by this Index Name.

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ALKYL (C18-C28) TOLUENESULPHONIC ACID, CALCIUM SALTS, HIGH OVERBASE		17
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2-Aminoisobutane (a)	BUTYLAMINE (ALL ISOMERS)	17
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2-Aminopropane (70% or less) solution	ISOPROPYLAMINE (70% OR LESS) SOLUTION	17
1-Amino-2-propanol	ISOPROPANOLAMINE	17
1-Aminopropan-2-ol	ISOPROPANOLAMINE	17
3-Aminopropan-1-ol	N-PROPANOLAMINE	17
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o-Aminotoluene	O-TOLUIDINE	17
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Ammonia water, 28% or less	AMMONIA AQUEOUS (28% OR LESS)	17
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Aniline oil	ANILINE	17
Anilinobenzene	DIPHENYLAMINE (MOLTEN)	17
Anthracene oil (coal tar fraction) (a)	COAL TAR	17
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Aqua fortis	NITRIC ACID (70% AND OVER)	17
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Azotic acid	NITRIC ACID (70% AND OVER)	17
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Basic calcium alkyl salicylate in approximately 30% mineral oil (b)	CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)	17
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1,2-Benzenedicarboxylic acid, diethyl ester	DIETHYL PHTHALATE	17
1,2-Benzenedicarboxylic acid, diundecyl ester	DIUNDECYL PHTHALATE	17
BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)		17
BENZENESULPHONYL CHLORIDE	BENZENE SULPHONYL CHLORIDE	17
BENZENE SULPHONYL CHLORIDE		17
BENZENETRICARBOXYLIC ACID, TRIOCTYL ESTER		17
Benzenol	PHENOL	17
Benzol	BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)	17
Benzole	BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)	17
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2-Benzothiazolethiol, sodium salt solution	MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION	17

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(2-Benzothiazolythio) sodium solution	MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION	17
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BENZYL ALCOHOL		17
Benzyl butyl phthalate	BUTYL BENZYL PHTHALATE	17
BENZYL CHLORIDE		17
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Betula oil	METHYL SALICYLATE	17
Biformyl	GLYOXAL SOLUTION (40% OR LESS)	17
BIO-FUEL BLENDS OF DIESEL/GAS OIL AND ALKANES (C10-C26), LINEAR AND BRANCHED WITH A FLASHPOINT >60°C (>25% BUT <99% BY VOLUME)		17
DKQ/HWGN'DNGPF UQHF KGUGNI CU'QK'CPF CNMCP GU'E32/E48+'N'GCT'CPF'DT'CEJ GF Y K'J 'C'HNCUJ RQR V'Ö82Ä'@47' 'DWW'; ; ' D] 'XQNWOG+		17
BIO-FUEL BLENDS OF DIESEL/GAS OIL AND FAME (>25% BUT <99% BY VOLUME)		17
BIO-FUEL BLENDS OF DIESEL/GAS OIL AND VEGETABLE OIL (>25% BUT <99% BY VOLUME)		17
BIO-FUEL BLENDS OF GASOLINE AND ETHYL ALCOHOL (>25% BUT <99% BY VOLUME)		17
Biphenyl	DIPHENYL	17
Bis(methylcyclopentadiene)	METHYLCYCLOPENTADIENE DIMER	17
2,5-Bis(alkyl(C7+)thio)-1,3,4-thiadiazole	ALKYLDITHIOTHIAZOLE (C6-C24)	17
Bis(2-aminoethyl)amine	DIETHYLENETRIAMINE	17
N,N'-Bis(2-aminoethyl)ethane-1,2-diamine	TRIETHYLENETETRAMINE	17
N,N'-Bis(2-aminoethyl)ethylenediamine	TRIETHYLENETETRAMINE	17
N,N-Bis(2-(bis(carboxymethyl)amino)ethyl)glycine, pentasodium salt solution	DIETHYLENETRIAMINEPENTAACETIC ACID, PENTASODIUM SALT SOLUTION	17
Bis(2-butoxyethyl) ether	DIETHYLENE GLYCOL DIBUTYL ETHER	17
N,N- Bis(carboxymethyl)glycine trisodium salt solution	NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Bis(chloroethyl) ether	DICHLOROETHYL ETHER	17
Bis(2-chloroethyl) ether	DICHLOROETHYL ETHER	17
Bis (2-chloroisopropyl) ether	2,2'-DICHLOROISOPROPYL ETHER	17
Bis(2-chloro-1-methylethyl) ether	2,2'-DICHLOROISOPROPYL ETHER	17
Bis[2-(2,3-epoxypropoxy)phenyl]methane	DIGLYCIDYL ETHER OF BISPHENOL F	17
2,2-Bis[4-(2,3-epoxypropoxy)phenyl]propane	DIGLYCIDYL ETHER OF BISPHENOL A	17
Bis(2-ethoxyethyl) ether	DIETHYLENE GLYCOL DIETHYL ETHER	17
Bis(2-ethylhexyl) adipate	DI-(2-ETHYLHEXYL) ADIPATE	17
Bis(2-ethylhexyl) hydrogen phosphate	DI-(2-ETHYLHEXYL) PHOSPHORIC ACID	17
Bis(2-ethylhexyl) phthalate	DIOCTYL PHTHALATE	17
Bis(2-hydroxyethyl)amine	DIETHANOLAMINE	17
Bis(2-hydroxyethyl)ammonium 2,4-dichlorophenoxyacetate solution	2,4-DICHLOROPHENOXYACETIC ACID, DIETHANOLAMINE SALT SOLUTION	17
Bis(2-hydroxyethyl) ether	DIETHYLENE GLYCOL	18
Bis(2-hydroxypropyl)amine	DIISOPROPANOLAMINE	17
Bis(6-methylheptyl) phthalate	DIOCTYL PHTHALATE	17

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Butanal (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
n-Butanal (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
1,3-Butanediol (a)	BUTYLENE GLYCOL	17
Butane-1,3-diol (a)	BUTYLENE GLYCOL	17
1,4-Butanediol (a)	BUTYLENE GLYCOL	17
Butane -1,4-diol (a)	BUTYLENE GLYCOL	17
2,3-Butanediol (a)	BUTYLENE GLYCOL	17
Butane-2,3-diol (a)	BUTYLENE GLYCOL	17
Butanoic acid	BUTYRIC ACID	17
Butanol	N-BUTYL ALCOHOL	18
1-Butanol	N-BUTYL ALCOHOL	18
Butanol-1	N-BUTYL ALCOHOL	18
Butan-1-ol	N-BUTYL ALCOHOL	18
2-Butanol	SEC-BUTYL ALCOHOL	18
Butan-2-ol	SEC-BUTYL ALCOHOL	18
Butanol acetate (a)	BUTYL ACETATE (ALL ISOMERS)	17
2-Butanol acetate (a)	BUTYL ACETATE (ALL ISOMERS)	17
1,4-Butanolide	GAMMA-BUTYROLACTONE	17
Butan-4-olide	GAMMA-BUTYROLACTONE	17
n-Butanol	N-BUTYL ALCOHOL	18
sec-Butanol	SEC-BUTYL ALCOHOL	18
tert-Butanol	TERT-BUTYL ALCOHOL	17
2-Butanone	METHYL ETHYL KETONE	17
Butan-2-one	METHYL ETHYL KETONE	17
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Butene dimer	OCTENE (ALL ISOMERS)	17
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2-Butoxyethyl acetate	ETHYLENE GLYCOL BUTYL ETHER ACETATE	17
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BUTYL ACETATE (ALL ISOMERS)		17
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BUTYL ACRYLATE (ALL ISOMERS)		17
n-Butyl acrylate (a)	BUTYL ACRYLATE (ALL ISOMERS)	17
Butyl alcohol	N-BUTYL ALCOHOL	18
N-BUTYL ALCOHOL		18
SEC-BUTYL ALCOHOL		18
TERT-BUTYL ALCOHOL		17
n-Butyl aldehyde (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
BUTYLAMINE (ALL ISOMERS)		17
n-Butylamine (a)	BUTYLAMINE (ALL ISOMERS)	17
sec-Butylamine (a)	BUTYLAMINE (ALL ISOMERS)	17
tert-Butylamine (a)	BUTYLAMINE (ALL ISOMERS)	17
BUTYLBENZENE (ALL ISOMERS)		17
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Butyl butanoate (a)	BUTYL BUTYRATE (ALL ISOMERS)	17
BUTYL BUTYRATE (ALL ISOMERS)		17
n-Butyl butyrate (a)	BUTYL BUTYRATE (ALL ISOMERS)	17
n-Butylcarbinol	N-AMYL ALCOHOL	17
Butyl carbitol (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER	17
Butyl carbitol acetate (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE	17
Butyl cellosolve acetate	ETHYLENE GLYCOL BUTYL ETHER ACETATE	17
BUTYL/DECYL/CETYL/EICOSYL METHACRYLATE MIXTURE		17
Butyl/decyl/hexadecyl/icosyl methacrylate mixture (a)	BUTYL/DECYL/CETYL/EICOSYL METHACRYLATE MIXTURE	17
Butyl diglycol acetate (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE	17
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1,3-Butylene glycol, 3-methyl ether	3-METHOXY-1-BUTANOL	17
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1,2-BUTYLENE OXIDE		17
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N-BUTYL ETHER		17
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BUTYL METHACRYLATE		17
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Trisodium 2-[carboxylatomethyl(2-hydroxyethyl)amino] ethyliminodi(acetate) solution	N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Trisodium N-(carboxymethyl)-N'-(2-hydroxyethyl)-N,N'-ethylenediglycine solution	N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Trisodium N-(2-hydroxyethyl)ethylenediamine-N,N'-triacetate solution	N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Trisodium nitrilotriacetate solution	NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Tritolyl phosphate, containing less than 1% ortho- isomer	TRICRESYL PHOSPHATE (CONTAINING LESS THAN 1% ORTHO-ISOMER)	17
Tritolyl phosphate, containing 1% or more ortho- isomer	TRICRESYL PHOSPHATE (CONTAINING 1% OR MORE ORTHO-ISOMER)	17
Trixylenyl phosphate	TRIXYLYL PHOSPHATE	17
TRIXYLYL PHOSPHATE		17
TUNG OIL		17
TURPENTINE		17
Turpentine oil	TURPENTINE	17
Turps	TURPENTINE	17
Type A Zeolite slurry (a)	SODIUM ALUMINOSILICATE SLURRY	17
1-Undecanecarboxylic acid	LAURIC ACID	17
N-Undecane (a)	N-ALKANES (C10+)	17
UNDECANOIC ACID		17
Undecan-1-ol	UNDECYL ALCOHOL	17
1-UNDECENE		17
Undec-1-ene	1-UNDECENE	17
UNDECYL ALCOHOL		17
Undecylbenzene	ALKYL(C9+)BENZENES	17
Undecylic acid	UNDECANOIC ACID	17
n-Undecylic acid	UNDECANOIC ACID	17
uns-Trimethylbenzene (a)	TRIMETHYLBENZENE (ALL ISOMERS)	17
unsym-Trichlorobenzene	1,2,4-TRICHLOROBENZENE	17
UREA/AMMONIUM NITRATE SOLUTION		17
UREA/AMMONIUM NITRATE SOLUTION (CONTAINING LESS THAN 1% FREE AMMONIA)		17
UREA/AMMONIUM PHOSPHATE SOLUTION		17
UREA SOLUTION		17

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VALERALDEHYDE (ALL ISOMERS)		17
n-Valeraldehyde	VALERALDEHYDE (ALL ISOMERS)	17
Valerianic acid	PENTANOIC ACID	17
Valeric acid	PENTANOIC ACID	17
n-Valeric acid	PENTANOIC ACID	17
Valeric aldehyde	VALERALDEHYDE (ALL ISOMERS)	17
Valerone	DIISOBUTYL KETONE	17
VEGETABLE ACID OILS (M)		17
VEGETABLE FATTY ACID DISTILLATES (M)		17
VEGETABLE PROTEIN SOLUTION (HYDROLYSED)		18
Vinegar acid	ACETIC ACID	17
Vinegar naphtha	ETHYL ACETATE	17
VINYL ACETATE		17
Vinylbenzene	STYRENE MONOMER	17
Vinylcarbinol	ALLYL ALCOHOL	17
Vinyl cyanide	ACRYLONITRILE	17
vinyl ethanoate	VINYL ACETATE	17
VINYL ETHYL ETHER		17
Vinylformic acid	ACRYLIC ACID	17
VINYLDENE CHLORIDE		17
VINYL NEODECANOATE		17
VINYLTOLUENE		17
Vinytoluene (all isomers)	VINYLTOLUENE	17
Vinyl trichloride	1,1,2-TRICHLOROETHANE	17
Vitriol brown oil	SULPHURIC ACID	17
WATER		18
Water glass solutions	SODIUM SILICATE SOLUTION	17
WAXES		17
White bole	KAOLIN SLURRY	18
White caustic solution	SODIUM HYDROXIDE SOLUTION	17
WHITE SPIRIT, LOW (15-20%) AROMATIC		17
White tar	NAPHTHALENE (MOLTEN)	17
Wine (a)	ALCOHOLIC BEVERAGES, N.O.S.	18
Wintergreen oil	METHYL SALICYLATE	17
Wood alcohol	METHYL ALCOHOL	17
WOOD LIGNIN WITH SODIUM ACETATE/OXALATE		17
Wood naphtha	METHYL ALCOHOL	17
Wood spirit	METHYL ALCOHOL	17
XYLENES		17
XYLENES/ETHYLBENZENE (10% OR MORE) MIXTURE		17
XYLENOL		17
Xylenol (all isomers)	XYLENOL	17
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Xylols	XYLENES	17
ZINC ALKARYL DITHIOPHOSPHATE (C7-C16)		17
ZINC ALKENYL CARBOXAMIDE		17
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Zinc bromide drilling brine	DRILLING BRINES (CONTAINING ZINC SALTS)	17
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(Z)-Octadec-9-enoic acid	OLEIC ACID	17
Z-Octadec-9-enoic acid	OLEIC ACID	17
(Z)-Octadec-9-enylamine	OLEYLAMINE	17

ANNEX 5

**RESOLUTION MSC.341(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE
PERFORMANCE STANDARD FOR PROTECTIVE COATINGS FOR
DEDICATED SEAWATER BALLAST TANKS IN ALL TYPES OF SHIPS
AND DOUBLE SIDE SKIN SPACES OF BULK CARRIERS
(RESOLUTION MSC.215(82))**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.215(82), by which it adopted the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double side skin spaces of bulk carriers (hereinafter referred to as "the Performance standard") which is mandatory under chapter II-1 of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

RECOGNIZING the need to keep the Performance standard up to date with regard to references to other IMO instruments contained therein,

HAVING CONSIDERED, at its ninety-first session, amendments to the Performance standard, proposed and circulated in accordance with Article VIII of the Convention,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention, amendments to the Performance Standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double side skin spaces of bulk carriers, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with Article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2014 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

**AMENDMENTS TO THE PERFORMANCE STANDARD FOR PROTECTIVE
COATINGS FOR DEDICATED SEAWATER BALLAST TANKS IN ALL TYPES
OF SHIPS AND DOUBLE SIDE SKIN SPACES OF BULK CARRIERS
(RESOLUTION MSC.215(82))**

1 In paragraph 2.1, the reference to the *Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers* (resolution A.744(18), as amended) is replaced by a reference to the *International Code on the enhanced programme of inspections during surveys of bulk carriers and oil tankers, 2011 (2011 ESP Code)* (resolution A.1049(27)).

2 In paragraph 2.6, the reference to "resolution A.744(18)" is replaced by a reference to "the 2011 ESP Code".

ANNEX 6

**RESOLUTION MSC.342(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE PERFORMANCE STANDARD FOR
PROTECTIVE COATINGS FOR CARGO OIL TANKS OF CRUDE OIL TANKERS
(RESOLUTION MSC.288(87))**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.288(87), by which it adopted the Performance standard for protective coatings for cargo oil tanks of crude oil tankers (hereinafter referred to as "the Performance standard") which is mandatory under chapter II-1 of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

RECOGNIZING the need to keep the Performance standard up-to-date with regard to references to other IMO instruments contained therein,

HAVING CONSIDERED, at its ninety-first session, amendments to the Performance standard, proposed and circulated in accordance with Article VIII of the Convention,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention, amendments to the Performance Standard for protective coatings for cargo oil tanks of crude oil tankers, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with Article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2014 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

**AMENDMENTS TO THE PERFORMANCE STANDARD FOR PROTECTIVE
COATINGS FOR CARGO OIL TANKS OF CRUDE OIL TANKERS
(RESOLUTION MSC.288(87))**

In paragraph 2.6, the reference to "resolution A.744(18)" is replaced by a reference to the *International Code on the enhanced programme of inspections during surveys of bulk carriers and oil tankers, 2011 (2011 ESP Code)* (resolution A.1049(27)).

ANNEX 7

**RESOLUTION MSC.343(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE PROTOCOL OF 1978 RELATING TO THE
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO Article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention") and the functions which the Protocol of 1978 relating to the Convention (hereinafter referred to as "the 1978 SOLAS Protocol") confers upon the Maritime Safety Committee for the consideration and adoption of amendments to the 1978 SOLAS Protocol,

RECOGNIZING the need to align the contents of the Forms of the Safety Construction Certificate and Safety Equipment Certificate for cargo ships set out in the appendix to the 1978 SOLAS Protocol with those in the Convention and the 1988 SOLAS Protocol,

HAVING CONSIDERED, at its ninety-first session, amendments to the 1978 SOLAS Protocol proposed and circulated in accordance with Article VIII(b)(i) of the Convention and Article II of the 1978 SOLAS Protocol,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention and Article II of the 1978 SOLAS Protocol, amendments to the appendix to the annex to the 1978 SOLAS Protocol, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention and Article II of the 1978 SOLAS Protocol, that the said amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Parties to the 1978 SOLAS Protocol or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES the Parties concerned to note that, in accordance with Article VIII(b)(vii)(2) of the Convention and Article II of the 1978 SOLAS Protocol, the amendments shall enter into force on 1 July 2014, upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention and Article II of the 1978 SOLAS Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1978 SOLAS Protocol;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the 1978 SOLAS Protocol.

* * *

ANNEX

**AMENDMENTS TO THE PROTOCOL OF 1978 RELATING TO THE INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

ANNEX

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

APPENDIX

The existing forms of the Cargo Ship Safety Construction Certificate and Cargo Ship Safety Equipment Certificate are replaced by the following:

FORM OF SAFETY CONSTRUCTION CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY CONSTRUCTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1978 relating thereto

under the authority of the Government of

(name of the State)

by

(person or organization authorized)

Particulars of ship¹

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

Deadweight of ship (metric tons)²

IMO Number³

Type of ship⁴

Bulk carrier

Oil tanker

Chemical tanker

Gas carrier

Cargo ship other than any of the above

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² For oil tankers, chemical tankers and gas carriers only.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

⁴ Delete as appropriate.

Date of build:

- Date of building contract
- Date on which keel was laid or ship was at similar stage of construction
- Date of delivery
- Date on which work for a conversion or an alteration or modification of a major character was commenced (where applicable)

All applicable dates shall be completed.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/10 of the Convention.
- 2 That the survey showed that the condition of the structure, machinery and equipment as defined in the above regulation was satisfactory and the ship complied with the relevant requirements of chapters II-1 and II-2 of the Convention (other than those relating to fire safety systems and appliances and fire control plans).
- 3 That in implementing regulation I/6(b) the Government has instituted:
 - mandatory annual surveys;
 - unscheduled inspections.
- 4 That an Exemption Certificate has/has not⁴ been issued.
- 5 The ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2/17⁴ of the Convention.
- 6 A Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection⁴ is/is not⁴ appended to this Certificate.

This certificate is valid until

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁴ Delete as appropriate.

INTERMEDIATE SURVEY

(for tankers of 10 years of age and over)

This is to certify that at an intermediate survey required by regulation I/10 of the Convention, as modified by the 1978 Protocol, this ship was found to comply with relevant provisions of the Convention.

Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the Authority, as appropriate)

Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the Authority, as appropriate)

MANDATORY ANNUAL SURVEYS OR UNSCHEDULED INSPECTIONS

This is to certify that the ship has been surveyed in accordance with regulation I/6(b) of the Convention, as modified by the 1978 Protocol and the relevant recommendations of the Organization⁵.

1st mandatory annual survey^{4,6} Signed:

1st unscheduled inspection⁴ Place:

Date:
(Seal or stamp of the Authority as appropriate)

2nd mandatory annual survey^{4,6} Signed:

2nd unscheduled inspection⁴ Place:

Date:
(Seal or stamp of the Authority as appropriate)

⁴ Delete as appropriate.

3rd mandatory annual survey^{4,6} Signed:

3rd unscheduled inspection⁴ Place:

Date:

(Seal or stamp of the Authority as appropriate)

4th mandatory annual survey^{4,6} Signed:

4th unscheduled inspection⁴ Place:

Date:

(Seal or stamp of the Authority as appropriate)

⁴ Delete as appropriate.

⁶ An intermediate survey, but not an unscheduled inspection, may take the place of a mandatory annual survey.

FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY EQUIPMENT CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Cargo Ship Safety (Form E)

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1978 relating thereto

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

Deadweight of ship (metric tons)²

Length of ship (regulation III/3.12)

IMO Number³

Type of ship⁴

Bulk carrier

Oil tanker

Chemical tanker

Gas carrier

Cargo ship other than any of the above

Date on which keel was laid or ship was at a similar stage of construction or,
where applicable, date on which work for a conversion or an alteration
or modification of a major character was commenced

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² For oil tankers, chemical tankers and gas carriers only.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

⁴ Delete as appropriate.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/8 of the Convention, as modified by the 1978 Protocol.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards fire safety systems and appliances and fire control plans;
 - 2.2 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
 - 2.3 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
 - 2.4 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
 - 2.5 the ship was provided with lights, shapes and means of making sound signals and distress signals in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
 - 2.6 in all other respects the ship complied with the relevant requirements of the Convention;
 - 2.7 the ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-2/17 / III/38⁴ of the Convention;
 - 2.8 a Document of approval of alternative design and arrangements for fire protection/ life-saving appliances and arrangements⁴ is/is not⁴ appended to this Certificate.
- 3 That the ship operates in accordance with regulation III/26.1.1.1⁵ within the limits of the trade area
- 4 That in implementing regulation I/6(b) the Government has instituted:
 - mandatory annual surveys;
 - unscheduled inspections.
- 5 That an Exemption Certificate has/has not⁴ been issued.

This certificate is valid until

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at

(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁴ Delete as appropriate.

⁵ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998 in the case of self-righting partially enclosed lifeboat(s) on board.

INTERMEDIATE SURVEY

(for tankers of 10 years of age and over)

This is to certify that at an intermediate survey required by regulation I/8 of the Convention, as modified by the 1978 Protocol, this ship was found to comply with relevant provisions of the Convention.

Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the Authority, as appropriate)

MANDATORY ANNUAL SURVEYS OR UNSCHEDULED INSPECTIONS

This is to certify that the ship has been surveyed in accordance with regulation I/6(b) of the Convention, as modified by the 1978 Protocol and the relevant recommendations of the Organization⁶.

mandatory annual survey^{4,7}

Signed:

unscheduled inspection⁴

Place:

Date:

(Seal or stamp of the Authority as appropriate)

Under the provisions of regulation I/14 of the Convention, as modified by the 1978 Protocol, the validity of this Certificate is extended until

Signed:

Place:

Date:

(Seal or stamp of the Authority as appropriate)

⁴ Delete as appropriate.

⁶ Reference is made to the *Guidelines on surveys required by the 1978 SOLAS Protocol, the International Bulk Chemical Code and the International Gas Carrier Code*, adopted by the Organization by resolution A.560(14), as amended by MSC.84(70), and applicable parts of the *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2011*, as may be amended, adopted by the Organization by resolution A.1053(27).

⁷ An intermediate survey, but not an unscheduled inspection, may take the place of a mandatory annual survey.

ANNEX 8

**RESOLUTION MSC.344(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO THE
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO Article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention") and Article VI of the Protocol of 1988 relating to the Convention (hereinafter referred to as "the 1988 SOLAS Protocol") concerning the procedure for amending the 1988 SOLAS Protocol,

RECOGNIZING the need to align the forms of certificates set out in the appendix to the 1988 SOLAS Protocol with those in the Convention and the 1978 SOLAS Protocol,

HAVING CONSIDERED, at its ninety-first session, amendments to the 1988 SOLAS Protocol proposed and circulated in accordance with Article VIII(b)(i) of the Convention and Article VI of the 1988 SOLAS Protocol,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention and Article VI of the 1988 SOLAS Protocol, amendments to the appendix to the annex to the 1988 SOLAS Protocol, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(vi)(2)(bb) of the Convention and Article VI of the 1988 SOLAS Protocol, that the said amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Parties to the 1988 SOLAS Protocol or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES the Parties concerned to note that, in accordance with Article VIII(b)(vii)(2) of the Convention and Article VI of the 1988 SOLAS Protocol, the amendments shall enter into force on 1 July 2014, upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention and Article VI of the 1988 SOLAS Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1988 SOLAS Protocol;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Parties to the 1988 SOLAS Protocol.

* * *

ANNEX

**AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO THE INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

ANNEX

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

APPENDIX

**MODIFICATIONS AND ADDITIONS TO THE APPENDIX TO THE ANNEX TO
THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

All the forms of certificates and records of equipment contained in the appendix to the annex are replaced by the following:

FORM OF SAFETY CERTIFICATE FOR PASSENGER SHIPS

PASSENGER SHIP SAFETY CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Passenger Ship Safety (Form P)

(Official seal)

(State)

for *an/a short*¹ international voyage

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

(name of the State)

by

(person or organization authorized)

Particulars of ship²

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

Sea areas in which ship is certified to operate (regulation IV/2)

IMO Number³

Date of build:

Date of building contract

Date on which keel was laid or ship was at similar stage of construction

Date of delivery

Date on which work for a conversion or an alteration or modification of a major character
was commenced (where applicable)

All applicable dates shall be completed.

¹ Delete as appropriate.

² Alternatively, the particulars of the ship may be placed horizontally in boxes.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/7 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards:
 - .1 the structure, main and auxiliary machinery, boilers and other pressure vessels;
 - .2 the watertight subdivision arrangements and details;
 - .3 the following subdivision load lines:

Subdivision load lines assigned and marked on the ship's side amidships (regulation II-1/18) ⁴	Freeboard	To apply when the spaces in which passengers are carried include the following alternative spaces
P1
P2
P3

- 2.2 the ship complied with the requirements of the Convention as regards structural fire protection, fire safety systems and appliances and fire control plans;
- 2.3 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
- 2.4 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
- 2.5 the ship complied with the requirements of the Convention as regards radio installations;
- 2.6 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention;
- 2.7 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
- 2.8 the ship was provided with lights, shapes, means of making sound signals and distress signals, in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
- 2.9 in all other respects the ship complied with the relevant requirements of the Convention;
- 2.10 the ship was/was not¹ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55/II-2/17/III/38¹ of the Convention;
- 2.11 a Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection/life-saving appliances and arrangements¹ is/is not¹ appended to this Certificate.
- 3 That an Exemption Certificate has/has not¹ been issued.

¹ Delete as appropriate.

⁴ For ships constructed before 1 January 2009, the applicable subdivision notation "C.1, C.2 and C.3" should be used.

This certificate is valid until

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at

(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation I/14(d) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(d) of the Convention, be accepted as valid until

Signed:.....

(Signature of authorized official)

Place:.....

Date:.....

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/14(e) or I/14(f) applies

This certificate shall, in accordance with regulation I/14(e)/I/14(f)¹ of the Convention, be accepted as valid until

Signed:

(Signature of authorized official)

Place:.....

Date:.....

(Seal or stamp of the authority, as appropriate)

¹ Delete as appropriate.

FORM OF SAFETY CONSTRUCTION CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY CONSTRUCTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

Deadweight of ship (metric tons)²

IMO Number³

Type of ship⁴

- Bulk carrier
- Oil tanker
- Chemical tanker
- Gas carrier
- Cargo ship other than any of the above

Date of build:

Date of building contract

Date on which keel was laid or ship was at similar stage of construction

Date of delivery

Date on which work for a conversion or an alteration or modification of a major character was commenced (where applicable)

All applicable dates shall be completed.

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² For oil tankers, chemical tankers and gas carriers only.

³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

⁴ Delete as appropriate.

THIS IS TO CERTIFY:

1. That the ship has been surveyed in accordance with the requirements of regulation I/10 of the Convention.
2. That the survey showed that the condition of the structure, machinery and equipment as defined in the above regulation was satisfactory and the ship complied with the relevant requirements of chapters II-1 and II-2 of the Convention (other than those relating to fire safety systems and appliances and fire control plans).
3. That the last two inspections of the outside of the ship's bottom took place on and(dates)
4. That an Exemption Certificate has/has not⁴ been issued.
5. The ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2/17⁴ of the Convention.
6. A Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection⁴ is/is not⁴ appended to this Certificate.

This certificate is valid until⁵ subject to the annual and intermediate surveys and inspections of the outside of the ship's bottom in accordance with regulation 1/10 of the Convention.

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at

(Place of issue of certificate)

.....

(Date of issue)

.....

(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁴ Delete as appropriate.

⁵ Insert the date of expiry as specified by the Administration in accordance with regulation I/14(a) of the Convention. The day and the month of this date correspond to the anniversary date, as defined in regulation I/2(n) of the Convention, unless amended in accordance with regulation I/14(h).

Endorsement for annual and intermediate surveys

THIS IS TO CERTIFY that, at a survey required by regulation I/10 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Intermediate⁴ survey: Signed:
(Signature of authorized official)
Place:
(Seal or stamp of the authority, as appropriate)

Annual/Intermediate⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/intermediate survey in accordance with regulation I/14(h)(iii)

THIS IS TO CERTIFY that, at an annual/intermediate survey⁴ in accordance with regulation I/14(h)(iii) of the Convention, this ship was found to comply with the relevant requirements of the Convention.

Signed:
(Signature of authorized official)

Place:

Date:

(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/14(e) or I/14(f) applies

The certificate shall, in accordance with regulation I/14(e)/I/14(f)⁴ of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where regulation I/14(h) applies

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY EQUIPMENT CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Cargo Ship Safety (Form E)
(Official seal) (State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

(name of the State)

by _____
(person or organization authorized)

Particulars of ship¹

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

Deadweight of ship (metric tons)²

Length of ship (regulation III/3.12)

IMO Number³

Type of ship⁴

- Bulk carrier
- Oil tanker
- Chemical tanker
- Gas carrier
- Cargo ship other than any of the above

Date on which keel was laid or ship was at a similar stage of construction or,
where applicable, date on which work for a conversion or an alteration
or modification of a major character was commenced

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.
² For oil tankers, chemical tankers and gas carriers only.
³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).
⁴ Delete as appropriate.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/8 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards fire safety systems and appliances and fire control plans;
 - 2.2 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
 - 2.3 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
 - 2.4 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
 - 2.5 the ship was provided with lights, shapes and means of making sound signals and distress signals in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
 - 2.6 in all other respects the ship complied with the relevant requirements of the Convention;
 - 2.7 the ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-2/17 / III/38⁴ of the Convention;
 - 2.8 a Document of approval of alternative design and arrangements for fire protection/life-saving appliances and arrangements⁴ is/is not⁴ appended to this Certificate.
- 3 That the ship operates in accordance with regulation III/26.1.1.1⁵ within the limits of the trade area
- 4 That an Exemption Certificate has/has not⁴ been issued.

This certificate is valid until⁶ subject to the annual and periodical surveys in accordance with regulation I/8 of the Convention.

Completion date of the survey on which this certificate is based:.....(dd/mm/yyyy)

Issued at

(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁴ Delete as appropriate.

⁵ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998 in the case of self-righting partially enclosed lifeboat(s) on board.

⁶ Insert the date of expiry as specified by the Administration in accordance with regulation I/14(a) of the Convention. The day and the month of this date correspond to the anniversary date as defined in regulation I/2(n) of the Convention, unless amended in accordance with regulation I/14(h).

Endorsement for annual and periodical surveys

THIS IS TO CERTIFY that, at a survey required by regulation I/8 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Periodical⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Periodical⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/periodical survey in accordance with regulation I/14(h)(iii)

THIS IS TO CERTIFY that, at an annual/periodical⁴ survey in accordance with regulation I/14(h)(iii) of the Convention, this ship was found to comply with the relevant requirements of the Convention.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

Endorsement to extend the certificate if valid for less than 5 years where regulation I/14(c) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(c) of the Convention, be accepted as valid until

Signed:

(Signature of authorized official)

Place:

Date:

(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation I/14(d) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(d) of the Convention, be accepted as valid until

Signed:

(Signature of authorized official)

Place:

Date:

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/14(e) or I/14(f) applies

The certificate shall, in accordance with regulation I/14(e)/I/14(f)⁴ of the Convention, be accepted as valid until

Signed:

(Signature of authorized official)

Place:

Date:

(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

Endorsement for advancement of anniversary date where regulation I/14(h) applies

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

Signed:
(Signature of authorized official)

Place:
Date:
(Seal or stamp of the authority, as appropriate)

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

Signed:
(Signature of authorized official)

Place:
Date:
(Seal or stamp of the authority, as appropriate)

FORM OF SAFETY RADIO CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY RADIO CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment
for Cargo Ship Safety Radio (Form R)

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

Sea areas in which ship is certified to operate (regulation IV/2)

IMO Number²

Date on which keel was laid or ship was at a similar stage of construction or,
where applicable, date on which work for a conversion or an alteration or
modification of a major character was commenced

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulation I/9 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards radio installations;
 - 2.2 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention.
- 3 That an Exemption Certificate has/has not³ been issued.

This certificate is valid until⁴ subject to the periodical surveys in accordance with regulation I/9 of the Convention.

Completion date of the survey on which this certificate is based:..... (dd/mm/yyyy)

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

³ Delete as appropriate.

⁴ Insert the date of expiry as specified by the Administration in accordance with regulation I/14(a) of the Convention. The day and the month of this date correspond to the anniversary date as defined in regulation I/2(n) of the Convention, unless amended in accordance with regulation I/14(h).

Endorsement for periodical surveys

THIS IS TO CERTIFY that, at a survey required by regulation I/9 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey in accordance with regulation I/14(h)(iii)

THIS IS TO CERTIFY that, at a periodical survey in accordance with regulation I/14(h)(iii) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where regulation I/14(c) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(c) of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation I/14(d) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(d) of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/14(e) or I/14(f) applies

The certificate shall, in accordance with regulation I/14(e)/I/14(f)³ of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where regulation I/14(h) applies

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

.....
Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

.....
Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

³ Delete as appropriate.

FORM OF SAFETY CERTIFICATE FOR CARGO SHIPS

CARGO SHIP SAFETY CERTIFICATE

This Certificate shall be supplemented by a Record of Equipment for Cargo Ship Safety (Form C)

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1988 relating thereto
under the authority of the Government of

(name of the State)

by

(person or organization authorized)

Particulars of ship¹

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
Deadweight of ship (metric tons)²
Length of ship (regulation III/3.12).....
Sea areas in which ship is certified to operate (regulation IV/2)
IMO Number³

Type of ship⁴

Bulk carrier
Oil tanker
Chemical tanker
Gas carrier
Cargo ship other than any of the above

Date of build:

Date of building contract
Date on which keel was laid or ship was at similar stage of construction
Date of delivery
Date on which work for a conversion or an alteration or modification of a major character
was commenced (where applicable)

All applicable dates shall be completed.

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.
² For oil tankers, chemical tankers and gas carriers only.
³ In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).
⁴ Delete as appropriate.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of regulations I/8, I/9 and I/10 of the Convention.
- 2 That the survey showed that:
 - 2.1 the condition of the structure, machinery and equipment as defined in regulation I/10 was satisfactory and the ship complied with the relevant requirements of chapter II-1 and chapter II-2 of the Convention (other than those relating to fire safety systems and appliances and fire control plans);
 - 2.2 the last two inspections of the outside of the ship's bottom took place on and (dates)
 - 2.3 the ship complied with the requirements of the Convention as regards fire safety systems and appliances and fire control plans;
 - 2.4 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
 - 2.5 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
 - 2.6 the ship complied with the requirements of the Convention as regards radio installations;
 - 2.7 the functioning of the radio installations used in life-saving appliances complied with the requirements of the Convention;
 - 2.8 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;
 - 2.9 the ship was provided with lights, shapes, means of making sound signals and distress signals in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
 - 2.10 in all other respects the ship complied with the relevant requirements of the Convention;
 - 2.11 the ship was/was not⁴ subjected to an alternative design and arrangements in pursuance of regulation(s) II-1/55 / II-2/17 / III/38⁴ of the Convention;
 - 2.12 a Document of approval of alternative design and arrangements for machinery and electrical installations/fire protection/life-saving appliances and arrangements⁴ is/is not⁴ appended to this Certificate.
- 3 That the ship operates in accordance with regulation III/26.1.1.1⁵ within the limits of the trade area.....
- 4 That an Exemption Certificate has/has not⁴ been issued.

⁴ Delete as appropriate.

⁵ Refer to the 1983 amendments to SOLAS (MSC.6(48)), applicable to ships constructed on or after 1 July 1986, but before 1 July 1998 in the case of self-righting partially enclosed lifeboat(s) on board.

This certificate is valid until⁶ subject to the annual, intermediate and periodical surveys and inspections of the outside of the ship's bottom in accordance with regulations I/8, I/9 and I/10 of the Convention.

Completion date of the survey on which this certificate is based: (dd/mm/yyyy)

Issued at
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

⁶ Insert the date of expiry as specified by the Administration in accordance with regulation I/14(a) of the Convention. The day and the month of this date correspond to the anniversary date as defined in regulation I/2(n) of the Convention, unless amended in accordance with regulation I/14(h).

Endorsement for annual and intermediate surveys relating to structure, machinery and equipment referred to in paragraph 2.1 of this certificate

THIS IS TO CERTIFY that, at a survey required by regulation I/10 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Intermediate⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Intermediate⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/intermediate survey in accordance with regulation I/14(h)(iii)

THIS IS TO CERTIFY that, at an annual/intermediate⁴ survey in accordance with regulations I/10 and I/14(h)(iii) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

Endorsement for inspections of the outside of the ship's bottom⁷

THIS IS TO CERTIFY that, at an inspection required by regulation I/10 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

First inspection: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Second inspection: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority as appropriate)

Endorsement for annual and periodical surveys relating to life-saving appliances and other equipment referred to in paragraphs 2.3, 2.4, 2.5, 2.8 and 2.9 of this certificate

THIS IS TO CERTIFY that, at a survey required by regulation I/8 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Periodical⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual/Periodical⁴ survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Annual survey: Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

⁷ Provision may be made for additional inspections.

Annual/periodical survey in accordance with regulation I/14(h)(iii)

THIS IS TO CERTIFY that, at an annual/periodical⁴ survey in accordance with regulations I/8 and I/14(h)(iii) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

Endorsement for periodical surveys relating to radio installations referred to in paragraphs 2.6 and 2.7 of this certificate

THIS IS TO CERTIFY that, at a survey required by regulation I/9 of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Periodical survey: Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

Periodical survey: Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

Periodical survey in accordance with regulation I/14(h)(iii)

THIS IS TO CERTIFY that, at a periodical survey in accordance with regulations I/9 and I/14(h)(iii) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where regulation I/14(c) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(c) of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation I/14(d) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(d) of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/14(e) or I/14(f) applies

The certificate shall, in accordance with regulation I/14(e)/I/14(f)⁴ of the Convention, be accepted as valid until

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

⁴ Delete as appropriate.

Endorsement for advancement of anniversary date where regulation I/14(h) applies

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

In accordance with regulation I/14(h) of the Convention, the new anniversary date is

Signed:
(Signature of authorized official)

Place:

Date:
(Seal or stamp of the authority, as appropriate)

FORM OF EXEMPTION CERTIFICATE

EXEMPTION CERTIFICATE

(Official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA, 1974, as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization authorized)*

Particulars of ship¹

Name of ship
Distinctive number or letters
Port of registry
Gross tonnage
IMO Number²

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² In accordance with the *IMO ship identification number scheme*, adopted by the Organization by resolution A.600(15).

THIS IS TO CERTIFY:

That the ship is, under the authority conferred by regulationof
the Convention, exempted from the requirements..... of
the Convention.

Conditions, if any, on which the Exemption Certificate is granted:
.....

Voyages, if any, for which the Exemption Certificate is granted:
.....
.....

This certificate is valid until..... subject
to the Certificate, to which
this certificate is attached, remaining valid.

Issued at.....
(Place of issue of certificate)

.....
(Date of issue) (Signature of authorized official issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where regulation I/14(c) applies

This certificate shall, in accordance with regulation I/14(c) of the Convention, be accepted as valid until
subject to theCertificate, to which this
certificate is attached, remaining valid.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and regulation I/14(d) applies

This certificate shall, in accordance with regulation I/14(d) of the Convention, be accepted as valid until
subject to theCertificate, to which this
certificate is attached, remaining valid.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where regulation I/14(e) or I/14(f) applies

This certificate shall, in accordance with regulation I/14(e)/I/14(f)³ of the Convention, be accepted as valid until
subject to theCertificate, to which this
certificate is attached, remaining valid.

Signed:
(Signature of authorized official)
Place:
Date:
(Seal or stamp of the authority, as appropriate)

³ Delete as appropriate.

ANNEX 9

**RESOLUTION MSC.345(91)
(adopted on 30 November 2012)**

**ADOPTION OF AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO
THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966, AS AMENDED**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VI of the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (hereinafter referred to as the "1988 Load Lines Protocol") concerning amendment procedures,

RECOGNIZING the need to improve clarity and standardize the application of damage stability requirements concerning initial conditions of loading and conditions of equilibrium for oil, chemical and gas tankers,

HAVING CONSIDERED, at its ninety-first session, amendments to the 1988 Load Lines Protocol proposed and circulated in accordance with paragraph 2(a) of article VI thereof,

1. ADOPTS, in accordance with paragraph 2(d) of article VI of the 1988 Load Lines Protocol, amendments to the 1988 Load Lines Protocol, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with paragraph 2(f)(ii)(bb) of article VI of the 1988 Load Lines Protocol, that the said amendments shall be deemed to have been accepted on 1 January 2014, unless, prior to that date, more than one third of the Parties to the 1988 Load Lines Protocol or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of all the merchant fleets of all Parties, have notified their objections to the amendments;
3. INVITES the Parties concerned to note that, in accordance with paragraph 2(g)(ii) of article VI of the 1988 Load Lines Protocol, the amendments shall enter into force on 1 July 2014 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with paragraph 2(e) of article VI of the 1988 Load Lines Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1988 Load Lines Protocol;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the 1988 Load Lines Protocol.

* * *

ANNEX

**AMENDMENTS TO ANNEX B TO THE PROTOCOL OF 1988 RELATING TO THE
INTERNATIONAL CONVENTION ON LOAD LINES, 1966, AS AMENDED**

**ANNEX I
Regulations for determining load lines**

**Chapter III
Freeboards**

Regulation 27 – Types of ships

Regulation 27(11) – Initial condition of loading

1 The first sentence of paragraph (b)(iv) is replaced by the following:

"50 per cent of the ship's total capacity of tanks and spaces fitted to contain each type of consumables and stores is allowed for."

2 After the existing paragraph (b)(iv), a new paragraph (b)(v) is inserted as follows:

"(v) Ballast water tanks shall normally be considered to be empty and no free surface correction shall be made for them.",

and the existing paragraphs (b)(v) and (b)(vi) are renumbered as (b)(vi) and (b)(vii), accordingly.

3 The renumbered paragraph (b)(vi) is replaced by the following:

"(vi) Alternative treatment for free surface may be considered when developing the final condition for application of damage specified in regulation 27(12):

(aa) Method 1 (appropriate to virtual corrections). The virtual centre of gravity for the initial condition is determined as follows:

- i. the loading condition shall be developed in accordance with paragraphs (i) to (iv);
- ii. the correction for the free surfaces is added to the vertical centre of gravity;
- iii. one virtual initial condition with all compartments empty is generated on summer load line draught with level trim, using the vertical centre of gravity from the above loading condition; and
- iv. the damage cases will be checked for compliance with the damage stability criteria using the above initial condition.

- (bb) Method 2 (appropriate to the use of actual free surface moments according to the assumed tank fillings for damage case). The virtual centre of gravity for the initial condition is determined as follows:
- i. the loading condition shall be developed in accordance with paragraphs (i) to (iv);
 - ii. one virtual initial condition for each damage case with liquid-filled compartments may be generated on summer load line draught with level trim, using the initial virtual condition with filled compartments generated on summer load line draught with level trim. Using the vertical centre of gravity and free surface correction from the above loading condition separate calculations for each damage case are performed, only the liquid-filled compartments to be damaged are left empty before damage; and
 - iii. the damage cases will be checked for compliance with the damage stability criteria using above initial conditions (one initial condition for each damage case)."

Regulation 27(13) – Condition of equilibrium

4 A new paragraph (g) is added after the existing paragraph (f), as follows:

- "(g) Compliance with the residual stability criteria specified in paragraphs (a), (c), (d) and (e) above is not required to be demonstrated in service loading conditions using a stability instrument, stability software or other approved method."

ANNEX 10

DRAFT ASSEMBLY RESOLUTION

**ADOPTION OF AMENDMENTS TO
THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO that, by resolution A.[...](28), it adopted the IMO Instruments Implementation Code (III Code);

NOTING proposed amendments to the International Convention on Load Lines, 1966 (1966 LL Convention) to make the III Code mandatory,

NOTING ALSO that the Maritime Safety Committee, at its ninety- first session, adopted the proposed amendments in accordance with article 29(3)(a) of the 1966 LL Convention,

HAVING CONSIDERED the proposed amendments to the 1966 LL Convention,

1. ADOPTS, in accordance with article 29(3)(b) of the 1966 LL Convention, the amendments, set out in the annex to the present resolution;
2. DETERMINES that, pursuant to new regulation 53 of Annex IV, which provides that "the requirements of the Code shall be treated as mandatory", whenever the word "should" is used in the III Code (annex to resolution A.[...](28)), it is to be read as being "shall";
3. REQUESTS the Secretary-General, in accordance with article 29(3)(b) of the 1966 LL Convention, to transmit certified copies of the present resolution and its annex to all Contracting Governments to the said Convention, for consideration and acceptance, and also to transmit copies to all Members of the Organization;
4. URGES all Governments concerned to accept the amendments at the earliest possible date;
5. RESOLVES that, should entry into force of the aforementioned amendments take place following their unanimous acceptance in accordance with article 29(2) of the 1966 LL Convention, prior to entry into force based on their acceptance as requested by this resolution, this resolution shall become invalid.

* * *

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966

**Annex I
Regulations for determining load lines**

**Chapter I
General**

Regulation 3 – Definitions of terms used in the annexes

1 The following new definitions are added after definition (12):

"(13) *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

(14) *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization.

(15) *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.[....](28).

(16) *Audit Standard* means the Code for Implementation.

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

**Annex III
Certificates**

2 A new annex IV is added after annex III, to read as follows:

**"Annex IV
Verification of compliance with the provisions of this Convention**

**Regulation 53
*Application***

Contracting Governments shall apply the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention. For the purpose of this regulation, the requirements of the Code shall be treated as mandatory and its recommendations shall be treated as non-mandatory.

Regulation 54

Verification of compliance

- (1) Every Contracting Government shall be subject to periodic audits by the Organization of its compliance with the audit standard and the requirements of the present Convention.
- (2) The Secretary-General of the Organization shall have responsibility for the implementation of the Audit Scheme, based on the guidelines developed by the Organization*.
- (3) Every Contracting Government shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.
- (4) Audit of all Contracting Governments shall be:
 - (a) based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization ; and
 - (b) conducted at periodic intervals, taking into account the guidelines developed by the Organization .

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

ANNEX 11

DRAFT ASSEMBLY RESOLUTION

**ADOPTION OF AMENDMENTS TO THE CONVENTION ON THE
INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA, 1972**

THE ASSEMBLY,

RECALLING Article VI of the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (hereinafter referred to as "the Convention"), on amendments to the Regulations,

RECALLING ALSO that, by resolution A.[...](28), it adopted the IMO Instruments Implementation Code (III Code);

NOTING proposed amendments to the Convention to make the III Code mandatory,

HAVING CONSIDERED the amendments to the Convention, adopted by the Maritime Safety Committee at its ninety-first session, and communicated to all Contracting Parties in accordance with paragraph 2, Article VI of the Convention; and also the recommendations of the Maritime Safety Committee concerning the entry into force of these amendments,

1. ADOPTS, in accordance with paragraph 3, Article VI of the Convention, the amendments set out in the annex to the present resolution;
2. DECIDES, in accordance with paragraph 4, Article VI of the Convention, that the amendments shall enter into force on [1 January 2016], unless by [1 July 2015] more than one third of Contracting Parties to the Convention have notified their objection to the amendments;
3. DETERMINES that, pursuant to new Rule 40 of new Part F, which provides that "the requirements of the Code shall be treated as mandatory", whenever the word "should" is used in the III Code (annex to resolution A.[...](28)), it is to be read as being "shall";
4. REQUESTS the Secretary-General, in conformity with paragraph 3, Article VI of the Convention, to communicate these amendments to all Contracting Parties to the Convention for acceptance;
5. INVITES Contracting Parties to the Convention to submit any objections they may have to the amendments not later than [1 July 2015], whereafter the amendments shall be deemed to have been accepted for entry into force as determined in the present resolution.

* * *

ANNEX

**AMENDMENTS TO THE CONVENTION ON THE INTERNATIONAL REGULATIONS
FOR PREVENTING COLLISIONS AT SEA, 1972, AS AMENDED**

After existing Part E (Exemptions), a new Part F is added to read as follows:

"PART F

Verification of compliance with the provisions of the Convention

Rule 39

Definitions

- (a) *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.
- (b) *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.
- (c) *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.[...](28).
- (d) *Audit Standard* means the Code for Implementation.

Rule 40

Application

Contracting Governments shall apply the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention. For the purpose of this regulation, the requirements of the Code shall be treated as mandatory and its recommendations shall be treated as non-mandatory.

Rule 41

Verification of compliance

- (a) Every Contracting Government shall be subject to periodic audits by the Organization of its compliance with the audit standard and the requirements of the present Convention.
- (b) The Secretary-General of the Organization shall have responsibility for the implementation of the Audit Scheme, based on the guidelines developed by the Organization*.
- (c) Every Contracting Government shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

- (d) Audit of all Contracting Governments shall be:
- (i) based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization^{*}; and
 - (ii) conducted at periodic intervals, taking into account the guidelines developed by the Organization^{*}.

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

ANNEX 12

DRAFT ASSEMBLY RESOLUTION

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CONVENTION
ON TONNAGE MEASUREMENT OF SHIPS, 1969**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO that, by resolution A.[...](28), it adopted the IMO Instruments Implementation Code (III Code);

NOTING proposed amendments to the International Convention on Tonnage Measurement of Ships, 1969 (1969 Tonnage Measurement Convention) to make the III Code mandatory,

NOTING ALSO that the Maritime Safety Committee, at its ninety-first session, adopted the proposed amendments in accordance with article 18(3)(a) of the 1969 Tonnage Measurement Convention,

HAVING CONSIDERED the proposed amendments to the 1969 Tonnage Measurement Convention,

1. ADOPTS, in accordance with article 18(3)(b) of the 1969 Tonnage Measurement Convention, the amendments, set out in the annex to the present resolution;
2. DETERMINES that, pursuant to new regulation 8 of Annex III, which provides that "the requirements of the Code shall be treated as mandatory", whenever the word "should" is used in the III Code (annex to resolution A.[...](28)), it is to be read as being "shall";
3. REQUESTS the Secretary-General, in accordance with article 18(3)(b) of the 1969 Tonnage Measurement Convention, to transmit certified copies of the present resolution and its annex to all Contracting Governments to the said Convention, for consideration and acceptance, and also to transmit copies to all Members of the Organization;
4. URGES all Governments concerned to accept the amendments at the earliest possible date;
5. RESOLVES that, should entry into force of the aforementioned amendments take place following their unanimous acceptance in accordance with article 18(2) of the 1969 Tonnage Measurement Convention, prior to entry into force based on their acceptance as requested by this resolution, this resolution shall become invalid.

* * *

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CONVENTION
ON TONNAGE MEASUREMENT OF SHIPS, 1969**

ANNEX I

REGULATIONS FOR DETERMINING GROSS AND NET TONNAGES OF SHIPS

Regulation 2 – Definitions of terms used in the annexes

1 The following definitions are added after definition (8):

"(9) *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

(10) *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

(11) *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.[...](28).

(12) *Audit Standard* means the Code for Implementation.

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

2 A new annex III is added to read as follows:

"ANNEX III

Verification of compliance with the provisions of this Convention

Regulation 8

Application

Contracting Governments shall apply the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention. For the purpose of this regulation, the requirements of the Code shall be treated as mandatory and its recommendations shall be treated as non-mandatory.

Regulation 9

Verification of compliance

(1) Every Contracting Government shall be subject to periodic audits by the Organization of its compliance with the audit standard and the requirements of the present Convention.

(2) The Secretary-General of the Organization shall have responsibility for the implementation of the Audit Scheme, based on the guidelines developed by the Organization*.

(3) Every Contracting Government shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.

(4) Audit of all Contracting Governments shall be:

.1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization* ; and

.2 conducted at periodic intervals, taking into account the guidelines developed by the Organization* .

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

ANNEX 13

**RESOLUTION MSC.346(91)
(adopted on 30 November 2012)**

**APPLICATION OF SOLAS REGULATION III/17-1 TO SHIPS TO WHICH
SOLAS CHAPTER III DOES NOT APPLY**

THE MARITIME SAFETY COMMITTEE,

NOTING that, at its ninety-first session, it adopted, by resolution MSC.338(91), amendments to chapter III of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"), in the form of new regulation III/17-1, requiring all ships engaged on international voyages to have plans and procedures for the recovery of persons from the water,

NOTING ALSO that, in emergency situations of distress, ships responding to a distress call involving recovery of persons from the water may not necessarily be engaged on international voyages and may be those to which chapter III of the Convention does not apply,

1. AGREES that it is beneficial that, in an emergency situation where operations for the recovery of persons from the water are required, ships to which chapter III of the Convention does not apply nevertheless have plans and procedures for the recovery of persons from the water;

2. INVITES SOLAS Contracting Governments to determine to what extent the requirements of regulation III/17-1 of the Convention should apply to the following categories of ships:

- .1 cargo ships of a gross tonnage below 500 engaged on any voyage;
- .2 cargo ships of a gross tonnage of 500 and above not engaged on international voyages;
- .3 passenger ships not engaged on international voyages;
- .4 fishing vessels;
- .5 high-speed craft under the 1994 and 2000 HSC Codes;
- .6 dynamically supported craft under the DSC Code;
- .7 special purpose ships under the SPS Code and the 2008 SPS Code; and
- .8 mobile offshore drilling units under the 1979, 1989 and 2009 MODU Codes.

ANNEX 14

DRAFT AMENDMENTS TO SOLAS CHAPTER III

**CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

**Part B
Requirements for ships and life-saving appliances**

Regulation 19 – Emergency training and drills

Existing paragraphs 2.2 and 2.3 are amended to read as follows:

"2.2 On a ship engaged on a voyage where passengers are scheduled to be on board for more than 24 h, musters of newly-embarked passengers shall take place prior to or immediately upon departure. Passengers shall be instructed in the use of the lifejackets and the action to take in an emergency.

2.3 Whenever new passengers embark, a passenger safety briefing shall be given immediately before departure, or immediately after departure. The briefing shall include the instructions required by regulations 8.2 and 8.4, and shall be made by means of an announcement, in one or more languages likely to be understood by the passengers. The announcement shall be made on the ship's public address system, or by other equivalent means likely to be heard at least by the passengers who have not yet heard it during the voyage. The briefing may be included in the muster required by paragraph 2.2. Information cards or posters or video programmes displayed on ships video displays may be used to supplement the briefing, but may not be used to replace the announcement."

ANNEX 15

**RESOLUTION MSC.347(91)
(adopted on 30 November 2012)**

**RECOMMENDATION FOR THE PROTECTION
OF THE AIS VHF DATA LINK**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards and technical specifications for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

RECALLING FURTHER resolution MSC.74(69), annex 3: Recommendation on Performance Standards for Universal Shipborne Automatic Identification System (AIS),

REALIZING the application of AIS devices to safety of navigation as well as security,

NOTING that the International Telecommunication Union Sector for Radiocommunications (ITU-R) recognizes a Class A category of AIS which meets the requirements of resolution MSC.74(69), as well as a Class B and other categories of AIS which do not meet the requirements of resolution MSC.74(69), annex 3,

NOTING ALSO that Class A devices are intended to meet the requirements for compulsory AIS fitting under the 1974 SOLAS Convention, and that Class B devices are intended to meet the needs of ships which fit AIS on a voluntary basis,

NOTING FURTHER the benefit of Class B and other AIS devices,

RECOGNIZING that the radio channels used by AIS, particularly AIS 1 (161.975 MHz) and AIS 2 (162.025 MHz), are regarded as an AIS network, and that any disruption to those channels by any one AIS device could affect the operation of all AIS devices on that network,

RECOGNIZING FURTHER the compelling need to ensure the integrity of the AIS VHF data link,

1. RECOMMENDS that:

- .1 any device which transmits on the radio channels allocated for AIS, should meet the appropriate requirements of Recommendation ITU-R M.1371;
- .2 all such transmitting devices should be approved by the Administration; and
- .3 Administrations should take the steps necessary to ensure the integrity of the radio channels used for AIS in their waters.

2. REVOKES resolution MSC.140(76).

ANNEX 16

DRAFT ASSEMBLY RESOLUTION

ADOPTION OF THE IMO INSTRUMENTS IMPLEMENTATION CODE (III CODE)

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO that, through resolution A.1018(26), it approved the time frame and schedule of activities for the consideration and introduction of an institutionalized IMO Member State Audit Scheme,

RECALLING ALSO that, by resolution A.1054(27), it adopted the Code for the Implementation of Mandatory IMO Instruments, 2011, that provides guidance for the implementation and enforcement of IMO instruments and forms the basis of the Voluntary IMO Member State Audit Scheme, in particular concerning the identification of the auditable areas,

BEING AWARE of the request of the seventh session of the UN Commission on Sustainable Development (CSD 7) that measures be developed to ensure that flag States give full and complete effect to the IMO and other relevant conventions to which they are party, so that the ships of all flag States meet international rules and standards,

RECOGNIZING that parties to the relevant international conventions have, as part of the ratification process, accepted to fully meet their responsibilities and to discharge their obligations under the conventions and other instruments to which they are party,

REAFFIRMING that States have the primary responsibility to have in place an adequate and effective system to exercise control over ships entitled to fly their flag, and to ensure that they comply with relevant international rules and regulations in respect of maritime safety, security and protection of the marine environment,

REAFFIRMING ALSO that States, in their capacity as port and coastal States, have other obligations and responsibilities under applicable international law in respect of maritime safety, security and protection of the marine environment,

NOTING that, while States may realize certain benefits by becoming party to instruments aiming at promoting maritime safety, security and the prevention of pollution from ships, these benefits can only be fully realized when all parties carry out their obligations as required by the instruments concerned,

NOTING ALSO that the ultimate effectiveness of any instrument depends, inter alia, upon all States:

- (a) becoming party to all instruments related to maritime safety, security and pollution prevention and control;
- (b) implementing and enforcing such instruments fully and effectively;
- (c) reporting to the Organization, as required,

BEING DESIROUS to further assist Member Governments to improve their capabilities and overall performance in order to be able to comply with the IMO instruments to which they are party,

CONSCIOUS of the difficulties some Member States may face in complying fully with all the provisions of the various IMO instruments to which they are party,

MINDFUL of the need for any such difficulties to be eliminated to the extent possible; and recalling that the Organization has established an Integrated Technical Co-operation Programme for that reason and purpose,

NOTING FURTHER that the Maritime Safety Committee and the Marine Environment Protection Committee have developed requirements for adoption by Contracting Governments to the International Convention for the Safety of Life at Sea, 1974, and the Protocol of 1988 relating to the International Convention on Load Lines, 1966; the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, respectively, which will make compliance with the Code referred to in operative paragraph 1 mandatory,

RECALLING FURTHER its consideration of requirements for adoption by Contracting Governments to the International Convention on Load Lines, 1966, the International Convention on Tonnage Measurement of Ships, 1969 and the Convention on the International Regulation for Preventing Collisions at Sea, 1972, which will also make compliance with the Code referred to in operative paragraph 1 mandatory,

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee at its sixty-fourth session and the Maritime Safety Committee, at its ninety-first session,

1. ADOPTS the IMO Instruments Implementation Code (III Code), set out in the annex to the present resolution;
2. REQUESTS the Maritime Safety Committee and the Marine Environment Protection Committee to keep the Code under review and, in coordination with the Council, to propose amendments thereto to the Assembly.

* * *

ANNEX

IMO INSTRUMENTS IMPLEMENTATION CODE (III CODE)

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PART 1 – COMMON AREAS

Objective

1 The objective of this Code is to enhance global maritime safety and protection of the marine environment and assist States in the implementation of instruments of the Organization.

2 Different States will view this Code according to their own circumstances and should be bound only for the implementation of those instruments to which they are Contracting Governments or Parties. By virtue of geography and circumstance, some States may have a greater role as a flag State than as a port State or as a coastal State, whilst others may have a greater role as a coastal State or port State than as a flag State.

Strategy

3 In order to meet the objective of this Code, a State is recommended to:

- .1 develop an overall strategy to ensure that its international obligations and responsibilities as a flag, port and coastal State are met;
- .2 establish a methodology to monitor and assess that the strategy ensures effective implementation and enforcement of relevant international mandatory instruments; and
- .3 continuously review the strategy to achieve, maintain and improve the overall organizational performance and capability as a flag, port and coastal State.

General

4 Under the general provisions of treaty law and of IMO conventions, States should be responsible for promulgating laws and regulations and for taking all other steps which may be necessary to give those instruments full and complete effect so as to ensure safety of life at sea and protection of the marine environment.

5 In taking measures to prevent, reduce and control pollution of the marine environment, States should act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.

Scope

6 The Code seeks to address those aspects necessary for a Contracting Government or Party to give full and complete effect to the provisions of the applicable international instruments to which it is a Contracting Government or Party, pertaining to:

- .1 safety of life at sea;
- .2 prevention of pollution from ships;
- .3 standards of training, certification and watchkeeping for seafarers;

- .4 load lines;
- .5 tonnage measurement of ships; and
- .6 regulations for preventing collisions at sea.

7 The following areas should be considered and addressed in the development of policies, legislation, associated rules and regulations and administrative procedures for the implementation and enforcement of those obligations and responsibilities by the State:

- .1 jurisdiction;
- .2 organization and authority;
- .3 legislation, rules and regulations;
- .4 promulgation of the applicable international mandatory instruments, rules and regulations;
- .5 enforcement arrangements;
- .6 control, survey, inspection, audit, verification, approval and certification functions;
- .7 selection, recognition, authorization, empowerment and monitoring of recognized organizations, as appropriate, and of nominated surveyors;
- .8 investigations required to be reported to the Organization; and
- .9 reporting to the Organization and other Administrations.

Initial actions

8 When a new or amended instrument of the Organization enters into force for a State, the Government of that State should be in a position to implement and enforce its provisions through appropriate national legislation and to provide the necessary implementation and enforcement infrastructure. This means that the Government of the State should have:

- .1 the ability to promulgate laws, which permit effective jurisdiction and control in administrative, technical and social matters over ships flying its flag and, in particular, provide the legal basis for general requirements for registries, the inspection of ships, safety and pollution-prevention laws applying to such ships and the making of associated regulations;
- .2 a legal basis for the enforcement of its national laws and regulations including the associated investigative and penal processes; and
- .3 the availability of sufficient personnel with maritime expertise to assist in the promulgation of the necessary national laws and to discharge all the responsibilities of the State, including reporting as required by the respective conventions.

Communication of information

9 The State should communicate its strategy, as referred to in paragraph 3, including information on its national legislation to all concerned.

Records

10 Records, as appropriate, should be established and maintained to provide evidence of conformity to requirements and of the effective operation of the State. Records should remain legible, readily identifiable and retrievable. A documented procedure should be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.

Improvement

11 States should continually improve the adequacy of the measures which are taken to give effect to those conventions and protocols which they have accepted. Improvement should be made through rigorous and effective application and enforcement of national legislation, as appropriate, and monitoring of compliance.

12 The State should stimulate a culture which provides opportunities for improvement of performance in maritime safety and environmental protection activities, which may include, inter alia:

- .1 continual training programmes relating to safety and pollution prevention;
- .2 regional and national drills on safety and pollution prevention, which engage a broad spectrum of maritime related national, regional and international organizations and companies and seafarers; and
- .3 using reward and incentive mechanisms for shipping companies and seafarers, regarding improving safety and pollution prevention.

13 Further, the State should take action to identify and eliminate the cause of any non-conformities in order to prevent recurrence, including:

- .1 review and analysis of non-conformities;
- .2 implementation of necessary corrective action; and
- .3 review of the corrective action taken.

14 The State should determine action needed to eliminate the causes of potential non-conformities in order to prevent their occurrence.

PART 2 – FLAG STATES

Implementation

15 In order to effectively discharge their responsibilities and obligations, flag States should:

- .1 implement policies through the issuance of national legislation and guidance, which will assist in the implementation and enforcement of the requirements of all safety and pollution prevention conventions and protocols to which they are parties; and

- .2 assign responsibilities within their Administrations to update and revise any relevant policies adopted, as necessary.

16 A flag State should establish resources and processes capable of administering a safety and environmental protection programme, which, as a minimum, should consist of the following:

- .1 administrative instructions to implement applicable international rules and regulations as well as develop and disseminate any interpretative national regulations that may be needed including certificates issued by a classification society, which is recognized by the flag State in accordance with the provisions of SOLAS regulation XI-1/1, and which certificate is required by the flag State to demonstrate compliance with structural, mechanical, electrical, and/or other requirements of an international convention to which the flag State is a party or a requirement of the flag State's national regulations;
- .2 compliance with the requirements of the applicable international instruments, using an audit and inspection programme, independent of any administrative bodies issuing the required certificates and relevant documentation and/or of any entity which has been delegated authority by the State to issue the required certificates and relevant documentation;
- .3 compliance with the requirements related to international standards of training, certification and watchkeeping of seafarers. This includes, inter alia:
 - .1 training, assessment of competence and certification of seafarers;
 - .2 certificates and endorsements that accurately reflect the competencies of the seafarers, using the appropriate terminology as well as terms which are identical to those used in any safe manning document issued to the ship;
 - .3 impartial investigation to be held of any reported failure, whether by act or omission, that may pose a direct threat to safety of life or property at sea or to the marine environment, by the holders of certificates or endorsements issued by the State;
 - .4 that certificates or endorsements issued by the State can be effectively withdrawn, suspended or cancelled when warranted, and when necessary to prevent fraud; and
 - .5 administrative arrangements, including those involving training, assessment and certification activities conducted under the purview of another State, are such that the flag State accepts its responsibility for ensuring the competence of masters, officers and other seafarers serving on ships entitled to fly its flag;
- .4 the conduct of investigations into casualties and adequate and timely handling of cases of ships with identified deficiencies; and
- .5 the development, documentation and provision of guidance concerning those requirements that are to the satisfaction of the Administration, found in the relevant international instruments.

17 A flag State should ensure that ships entitled to fly its flag are sufficiently and efficiently manned, taking into account relevant and existing measures such as the Principles of Safe Manning adopted by the Organization.

Delegation of authority

18 With regard only to ships entitled to fly its flag a flag State authorizing a recognized organization to act on its behalf, in conducting the surveys, inspections and audits, issuing of certificates and documents, marking of ships and other statutory work required under the conventions of the Organization or under their national legislation, should regulate such authorization(s) in accordance with the applicable requirements of the international mandatory instruments to:

- .1 determine that the recognized organization has adequate resources in terms of technical, managerial and research capabilities to accomplish the tasks being assigned, in accordance with the required standards for recognized organizations acting on behalf of the Administration set out in the relevant instruments of the Organization¹;
- .2 have as its basis a formal written agreement between the Administration and the recognized organization which, as a minimum, includes the elements set out in the relevant instruments of the Organization², or equivalent legal arrangements, and which may be based on the model agreement for the authorization of recognized organizations acting on behalf of the Administration³;
- .3 issue specific instructions detailing actions to be followed in the event that a ship is found unfit to proceed to sea without danger to the ship or persons on board, or is found to present an unreasonable threat of harm to the marine environment;
- .4 provide the recognized organization with all appropriate instruments of national law and interpretations thereof giving effect to the provisions of the conventions and specify, only for application to ships entitled to fly its flag, whether any additional Administration's standards go beyond convention requirements in any respect; and
- .5 require that the recognized organization maintain records, which will provide the Administration with data to assist in interpretation of requirements contained in the applicable international instruments.

19 No flag State should mandate its recognized organizations to apply to ships, other than those entitled to fly its flag, any requirement pertaining to their classification rules, requirements, procedures or performance of other statutory certification processes, beyond convention requirements and the mandatory instruments of the Organization.

¹ Appendix 1 of the *Guidelines for the authorization of organizations acting on behalf of the Administration* (resolution A.739(18)).

² Appendix 2 of the *Guidelines for the authorization of organizations acting on behalf of the Administration* (resolution A.739(18)).

³ MSC/Circ.710-MEPC/Circ.307.

20 The flag State should establish or participate in an oversight programme with adequate resources for monitoring of, and communication with, its recognized organization(s) in order to ensure that its international obligations are fully met, by:

- .1 exercising its authority to conduct supplementary surveys to ensure that ships entitled to fly its flag in fact comply with the requirements of the applicable international instruments;
- .2 conducting supplementary surveys as it deems necessary to ensure that ships entitled to fly its flag comply with national requirements, which supplement the international mandatory requirements; and
- .3 providing staff who have a good knowledge of the rules and regulations of the flag State and the recognized organizations and who are available to carry out effective oversight of the recognized organizations.

21 A flag State nominating surveyor(s) for the purpose of carrying out surveys, audits and inspections on its behalf should regulate such nominations, as appropriate, in accordance with the guidance provided in paragraph 18, in particular subparagraphs .3 and .4.

Enforcement

22 A flag State should take all necessary measures to secure observance of international rules and standards by ships entitled to fly its flag and by entities and persons under their jurisdiction so as to ensure compliance with their international obligations. Such measures should include, inter alia:

- .1 prohibiting ships entitled to fly their flag from sailing until such ships can proceed to sea in compliance with the requirements of international rules and standards;
- .2 the periodic inspection of ships entitled to fly its flag to verify that the actual condition of the ship and its crew is in conformity with the certificates it carries;
- .3 the surveyor ensuring, during the periodic inspection referred to in subparagraph .2, that seafarers assigned to the ships are familiar with:
 - .1 their specific duties; and
 - .2 ship arrangements, installations, equipment and procedures;
- .4 ensuring that the ship's complement, as a whole, can effectively coordinate their activities in an emergency situation and in performing functions vital to safety or to the prevention or mitigation of pollution;
- .5 providing, in national laws and regulations, for penalties of adequate severity to discourage violation of international rules and standards by ships entitled to fly its flag;
- .6 instituting proceedings – after an investigation has been conducted – against ships entitled to fly its flag, which have violated international rules and standards, irrespective of where the violation has occurred;

- .7 providing, in national laws and regulations, for penalties of adequate severity to discourage violations of international rules and standards by individuals issued with certificates or endorsements under their authority; and
- .8 instituting proceedings – after an investigation has been conducted – against individuals holding certificates or endorsements who have violated international rules and standards, irrespective of where the violation has occurred.

23 A flag State should develop and implement a control and monitoring programme, as appropriate, in order to:

- .1 provide for prompt and thorough casualty investigations, with reporting to the Organization as appropriate;
- .2 provide for the collection of statistical data, so that trend analyses can be conducted to identify problem areas; and
- .3 provide for a timely response to deficiencies and alleged pollution incidents reported by port or coastal States.

24 Furthermore, the flag State should:

- .1 ensure compliance with the applicable international instruments through national legislation;
- .2 provide an appropriate number of qualified personnel to implement and enforce the national legislation referred to in subparagraph 15.1, including personnel for performing investigations and surveys;
- .3 provide a sufficient number of qualified flag State personnel to investigate incidents where ships entitled to fly its flag have been detained by port States;
- .4 provide a sufficient number of qualified flag State personnel to investigate incidents where the validity of a certificate or endorsement or competence of individuals holding certificates or endorsements issued under its authority are questioned by port States; and
- .5 ensure the training and oversight of the activities of flag State surveyors and investigators.

25 When a State is informed that a ship entitled to fly its flag has been detained by a port State, the flag State should oversee that appropriate corrective measures to bring the ship in question into immediate compliance with the applicable international instruments are taken.

26 A flag State, or a recognized organization acting on its behalf, should only issue or endorse an international certificate to a ship after it has determined that the ship meets all applicable requirements.

27 A flag State should only issue an international certificate of competency or endorsement to a person after it has determined that the person meets all applicable requirements.

Flag State surveyors

28 The flag State should define and document the responsibilities, authority and interrelation of all personnel who manage, perform and verify work relating to and affecting safety and pollution prevention.

29 Personnel responsible for, or performing, surveys, inspections and audits on ships and companies covered by the relevant international mandatory instruments should have as a minimum the following:

- .1 appropriate qualifications from a marine or nautical institution and relevant seagoing experience as a certificated ship officer holding or having held a valid management level certificate of competency and have maintained their technical knowledge of ships and their operation since gaining their certificate of competency; or
- .2 a degree or equivalent from a tertiary institution within a relevant field of engineering or science recognized by the State; or
- .3 accreditation as a surveyor through a formalized training programme that leads to the same standard of surveyor's experience and competency as that required in paragraphs 29.1, 29.2 and 32.

30 Personnel qualified under paragraph 29.1 should have served for a period of not less than three years at sea as an officer in the deck or engine department.

31 Personnel qualified under paragraph 29.2 should have worked in a relevant capacity for at least three years.

32 In addition, such personnel should have appropriate practical and theoretical knowledge of ships, their operation and the provisions of the relevant national and international instruments necessary to perform their duties as flag State surveyors obtained through documented training programmes.

33 Other personnel assisting in the performance of such work should have education, training and supervision commensurate with the tasks they are authorized to perform.

34 Previous relevant experience in the field of expertise is recommended to be considered an advantage; in case of no previous experience, the Administration should provide appropriate field training.

35 The flag State should implement a documented system for qualification of personnel and continuous updating of their knowledge as appropriate to the tasks they are authorized to undertake.

- 36 Depending on the function(s) to be performed, the qualifications should encompass:
- .1 knowledge of applicable, international and national, rules and regulations for ships, their companies, their crew, their cargo and their operation;
 - .2 knowledge of the procedures to be applied in survey, certification, control, investigative and oversight functions;
 - .3 understanding of the goals and objectives of the international and national instruments dealing with maritime safety and protection of the marine environment, and of related programmes;
 - .4 understanding of the processes both on board and ashore, internal as well as external;
 - .5 possession of professional competency necessary to perform the given tasks effectively and efficiently;
 - .6 full safety awareness in all circumstances, also for one's own safety; and
 - .7 training or experience in the various tasks to be performed and, preferably, also in the functions to be assessed.

37 The flag State should issue an identification document for the surveyor to carry when performing his/her tasks.

Flag State investigations

38 Marine safety investigations should be conducted by impartial and objective investigators, who are suitably qualified and knowledgeable in matters relating to the casualty. Subject to any agreement on which State or States will be the marine safety investigating State(s), the flag State should provide qualified investigators for this purpose, irrespective of the location of the casualty or incident.

39 The flag State is recommended to ensure that individual investigators have working knowledge and practical experience in those subject areas pertaining to their normal duties. Additionally, to assist individual investigators in performing duties outside their normal assignments, the flag State is recommended to ensure ready access to expertise in the following areas, as necessary:

- .1 navigation and the Collision Regulations;
- .2 flag State regulations on certificates of competency;
- .3 causes of marine pollution;
- .4 interviewing techniques;
- .5 evidence gathering; and
- .6 evaluation of the effects of the human element.

40 Any accidents involving personal injury necessitating absence from duty of three days or more and any deaths resulting from occupational accidents and casualties to ships of the flag State is recommended to be investigated, and the results of such investigations made public.

41 Ship casualties should be investigated and reported in accordance with the relevant international instruments, taking into account the Casualty Investigation Code, as may be amended, and guidelines developed by the Organization⁴. The report on the investigation should be forwarded to the Organization together with the flag State's observations, in accordance with the guidelines referred to above.

Evaluation and review

42 A flag State should, on a periodic basis, evaluate its performance with respect to the implementation of administrative processes, procedures and resources necessary to meet its obligations as required by the international instruments to which it is a party.

43 Measures to evaluate the performance of flag States should include, inter alia, port State control detention rates, flag State inspection results, casualty statistics, communication and information processes, annual loss statistics (excluding constructive total losses (CTLs)), and other performance indicators as may be appropriate, to determine whether staffing, resources and administrative procedures are adequate to meet its flag State obligations.

44 Areas recommended to be regularly reviewed may include, inter alia:

- .1 fleet loss and accident ratios to identify trends over selected time periods;
- .2 the number of verified cases of detained ships in relation to the size of the fleet;
- .3 the number of verified cases of incompetence or wrongdoing by individuals holding certificates or endorsements issued under its authority;
- .4 responses to port State deficiency reports or interventions;
- .5 investigations into very serious and serious casualties and lessons learned from them;
- .6 technical and other resources committed;
- .7 results of inspections, surveys and controls of the ships in the fleet;
- .8 investigation of occupational accidents;
- .9 the number of incidents and violations that occur under the applicable international maritime pollution prevention regulations; and
- .10 the number of suspensions or withdrawals of certificates, endorsements, approvals, etc.

⁴ Refer to the *Code for the Investigation of Marine Casualties and Incidents*, adopted by the Organization by resolution A.849(20), as amended by resolution A.884(21), and the mandatory *Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code)*, adopted by the Organization by resolution MSC.255(84).

PART 3 – COASTAL STATES⁵

Implementation

45 Coastal States have certain rights and obligations under various international instruments. When exercising their rights under those instruments coastal States incur additional obligations.

46 In order to effectively meet its obligations, a coastal State should:

- .1 implement policies through the issuance of national legislation and guidance, which will assist in the implementation and enforcement of the requirements of all safety and pollution prevention conventions and protocols to which it is a party; and
- .2 assign responsibilities to update and revise any relevant policies adopted, as necessary.

47 A coastal State should ensure that its legislation, guidance and procedures are established for the consistent implementation and verification of its rights, obligations and responsibilities contained in the relevant international instruments to which it is a party.

48 Those rights, obligations and responsibilities may include, inter alia:

- .1 radiocommunication services;
- .2 meteorological services and warnings;
- .3 search and rescue services;
- .4 hydrographic services;
- .5 ships' routing;
- .6 ship reporting systems;
- .7 vessel traffic services; and
- .8 aids to navigation.

Enforcement

49 A coastal State should take all necessary measures to ensure their observance of international rules when exercising their rights and fulfilling their obligations.

50 A coastal State should consider, develop and implement a control and monitoring programme, as appropriate, in order to:

- .1 provide for the allocation of statistical data so that trend analyses can be conducted to identify problem areas;

⁵ The requirements contained in this section should apply to the extent that ships, subject to IMO mandatory instruments, can access the ports of the Contracting Government.

- .2 establish mechanisms for timely response to pollution incidents in its waters; and
- .3 cooperate with flag States and/or port States, as appropriate, in investigations of maritime casualties.

Evaluation and review

51 A coastal State should periodically evaluate its performance in respect of exercising its rights and meeting its obligations under the applicable international instruments.

PART 4 – PORT STATES⁶

Implementation

52 Port States have certain rights and obligations under various international instruments. When exercising their rights under those instruments, port States incur additional obligations.

53 Port States can play an integral role in the achievement of maritime safety and environmental protection, including pollution prevention. The role and responsibilities of the port State with respect to maritime safety and environmental protection is derived from a combination of international treaties, conventions, national laws, as well as in some instances, bilateral and multilateral agreements.

54 In order to effectively meet its obligations, a port State should:

- .1 implement policies through the issuance of national legislation and guidance, which will assist in the implementation and enforcement of the requirements of all safety and pollution prevention conventions and protocols to which it is a party; and
- .2 assign responsibilities to update and revise any relevant policies adopted, as necessary.

55 A port State should ensure that its legislation, guidance and procedures are established for the consistent implementation and verification of its rights, obligations and responsibilities contained in the relevant international instruments to which it is a party.

56 Those rights, obligations and responsibilities may include, inter alia:

- .1 provision of appropriate reception facilities or capability to accept all waste streams regulated under the instruments of the Organization;
- .2 port State control⁷; and
- .3 keeping a register of fuel oil suppliers.

⁶ The requirements contained in this section should apply to the extent that ships, subject to IMO mandatory instruments, can access the ports of the Contracting Government.

⁷ Refer to the *Procedures for Port State Control, 2011* (resolution A.1052(27)).

Enforcement

57 Port States should take all necessary measures to ensure their observance of international rules when exercising their rights and fulfilling their obligations.

58 Several international maritime instruments on safety and maritime pollution prevention contain specific provisions that permit port State control.

59 Also, a number of those instruments obligate port States to treat non-parties to those conventions no more favourably than those that are parties. This means that port States should impose the conditions of those instruments on parties, as well as on non-parties.

60 When exercising its right to carry out port State control, a port State should establish processes to administer a port State control programme consistent with the relevant resolution adopted by the Organization⁷.

61 Port State control should be carried out only by authorized and qualified port State control officers in accordance with the relevant procedures adopted by the Organization.

62 Port State control officers and persons assisting them should be free from any commercial, financial, and other pressures and have no commercial interest, either in the port of inspection or the ships inspected, in ship repair facilities or any support services in the port or elsewhere nor should the port State control officers be employed by or undertake work on behalf of recognized organizations or classification societies. Further procedures should be implemented to ensure that persons or organizations external to the port State cannot influence the results of port State inspection and control carried out.

Evaluation and review

63 A port State should periodically evaluate its performance in respect of exercising its rights and meeting its obligations under the applicable instruments of the Organization.

ANNEX 17

DRAFT NEW SOLAS CHAPTER VIII

A new chapter XIII is added to read as follows:

"CHAPTER XIII

Verification of compliance with the provisions of the Convention

Regulation 1 – Definitions

1 *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

2 *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization^{*}.

3 *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.[...](28).

4 *Audit Standard* means the Code for Implementation.

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A...(28)].

Regulation 2 – Application

Contracting Governments shall apply the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention. For the purpose of this regulation, the requirements of the Code shall be treated as mandatory and its recommendations shall be treated as non-mandatory.

Regulation 3 – Verification of compliance

1 Every Contracting Government shall be subject to periodic audits by the Organization of its compliance with the audit standard and the requirements of the present Convention.

2 The Secretary-General of the Organization shall have responsibility for the implementation of the Audit Scheme, based on the guidelines developed by the Organization^{*}.

3 Every Contracting Government shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines adopted by the Organization^{*}.

- 4 Audit of all Contracting Governments shall be:
- .1 based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization^{*}; and
 - .2 conducted at periodic intervals, taking into account the guidelines developed by the Organization^{*}.

^{*} Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

ANNEX 18

DRAFT AMENDMENTS TO THE 1988 LOAD LINES PROTOCOL

ANNEX B

**ANNEXES TO THE CONVENTION AS MODIFIED BY
THE PROTOCOL OF 1988 RELATING THERETO**

ANNEX I

REGULATIONS FOR DETERMINING LOAD LINES

**Chapter I
General**

Regulation 3 – Definitions of terms used in the annexes

1 The following is added at the end of regulation 3:

"(17) *Audit* means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

(18) *Audit Scheme* means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

(19) *Code for Implementation* means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.[...](28).

(20) *Audit Standard* means the Code for Implementation.

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

ANNEX B

**ANNEXES TO THE CONVENTION AS MODIFIED BY
THE PROTOCOL OF 1988 RELATING THERETO**

2 A new annex IV is added to read as follows:

"ANNEX IV

VERIFICATION OF COMPLIANCE WITH THE PROVISIONS OF THE PROTOCOL

Regulation 53 – Application

Contracting Governments shall apply the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention. For the purpose of this regulation, the requirements of the Code shall be treated as mandatory and its recommendations shall be treated as non-mandatory.

Regulation 54 – Verification of compliance

- (1) Every Contracting Government shall be subject to periodic audits by the Organization of its compliance with the audit standard and the requirements of the present Convention.
- (2) The Secretary-General of the Organization shall have responsibility for the implementation of the Audit Scheme, based on the guidelines developed by the Organization*.
- (3) Every Contracting Government shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.
- (4) Audit of all Contracting Governments shall be:
 - (a) based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization ; and
 - (b) conducted at periodic intervals, taking into account the guidelines developed by the Organization .

* Refer to the Framework and Procedures for the [IMO] Member State Audit Scheme, adopted by the Organization by resolution [A.....(28)]."

ANNEX 19

DRAFT MSC RESOLUTION

ADOPTION OF THE CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.739(18) entitled "Guidelines for the authorization of organizations acting on behalf of the Administration", as amended by resolution MSC.208(81), and resolution A.789(19) entitled "Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration", which have become mandatory under chapter XI-1 of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the 1974 SOLAS Convention"), under chapter I of annex I to annex B of the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (hereinafter referred to as "the 1988 Load Lines Protocol"), and under Annex I and Annex II of the MARPOL Convention,

RECOGNIZING the need to update the aforementioned resolutions, gather all the applicable requirements for recognized organizations in a single IMO mandatory and assist in achieving harmonized and consistent global implementation of requirements established by IMO instruments for the assessment and authorization of recognized organizations,

RECOGNIZING ALSO the need for a code to provide, as far as national laws allow, a standard approach to assist the Administrations in meeting their responsibilities in recognizing, authorizing and monitoring their recognized organizations,

NOTING resolutions MSC[...] and MSC [...], by which it adopted, inter alia, amendments to the 1974 SOLAS Convention and to the 1988 Load Lines Protocol, respectively, to make the provisions of part I and part II of the Code for recognized organizations mandatory under the 1974 SOLAS Convention and the 1988 Load Lines Protocol,

[NOTING ALSO resolution MEPC[...] by which the Marine Environment Protection Committee adopted the Code for recognized organizations to be made mandatory under Annex I and II of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973,]

HAVING CONSIDERED, at its [...] session, the text of the proposed Code for recognized organizations,

CONSIDERING that it is highly desirable for the Code for recognized organizations made mandatory under the MARPOL Convention, the 1974 SOLAS Convention and the 1988 Load Lines Protocol to remain identical,

1. ADOPTS the Code for recognized organizations (RO Code), the text of which is set out in the annex to the present resolution;

2. INVITES Contracting Governments to the 1974 SOLAS Convention and Parties to the 1988 Load Lines Protocol to note that the RO Code will take effect on [...] upon the entry into force of the respective amendments to the 1974 SOLAS Convention and 1988 Load Lines Protocol;
3. REQUESTS the Secretary-General to transmit certified copies of the present resolution and the text of the RO Code contained in the Annex to all Contracting Governments to the 1974 SOLAS Convention and Parties to the 1988 Load Lines Protocol;
4. REQUESTS FURTHER the Secretary-General to transmit copies of this resolution and the Annex to all Members of the Organization which are not Contracting Governments to the 1974 SOLAS Convention or Parties to the 1988 Load Lines Protocol;
5. RECOMMENDS Governments concerned to use the recommendatory provisions contained in part III of the RO Code as a basis for relevant standards, unless their national requirements provide at least an equivalent degree.

* * *

ANNEX

CODE FOR RECOGNIZED ORGANIZATIONS (RO CODE)

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A2.3.5 INTERNATIONAL SAFETY MANAGEMENT CODE CERTIFICATION

Initial certification, annual/intermediate verifications, renewal certification

A2.3.6 INTERNATIONAL LOAD LINE CERTIFICATE

Initial certification, annual, renewal surveys

A2.3.7 INTERNATIONAL OIL POLLUTION PREVENTION CERTIFICATE

Initial certification, annual, intermediate, renewal surveys

A2.3.8 INTERNATIONAL POLLUTION PREVENTION CERTIFICATE FOR THE CARRIAGE OF NOXIOUS LIQUID SUBSTANCES IN BULK

Initial certification, annual, intermediate, renewal surveys

A2.3.9 INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK

Initial certification, annual, intermediate, renewal surveys

A2.3.10 INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF LIQUEFIED GASES IN BULK

Initial certification, annual, intermediate, renewal surveys

A2.3.11 INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

Initial certification, annual, intermediate, renewal surveys

A2.3.12 ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

Initial certification, annual, intermediate, renewal surveys

A2.3.13 INTERNATIONAL TONNAGE CERTIFICATE (1969)

Initial certification

APPENDIX 3 – ELEMENTS TO BE INCLUDED IN AN AGREEMENT

PREAMBLE

The International Code for Recognized Organizations (RO Code) was adopted by the Organization by resolutions [MSC...] and [MEPC...].

This Code:

- .1 provides flag States with a standard that will assist in achieving harmonized and consistent global implementation of requirements established by the instrument of the International Maritime Organization (IMO) for the assessment and authorization of recognized organizations (ROs);
- .2 provides flag States with harmonized, transparent and independent mechanisms, which can assist in the consistent oversight of ROs in an efficient and effective manner; and
- .3 clarifies the responsibilities of organizations authorized as ROs for a flag State and overall scope of authorization.

PART I GENERAL

1 PURPOSE

The Code serves as the international standard and consolidated instrument containing minimum criteria against which organizations are assessed towards recognition and authorization and the guidelines for the oversight by flag States.

2 SCOPE

2.1 The Code applies to:

- .1 all organizations being considered for recognition or that are recognized by a flag State to perform, on its behalf, statutory certification and services under mandatory IMO instruments and national legislation; and
- .2 all flag States that intend to recognize an organization to perform, on their behalf, statutory certification and services under mandatory IMO instruments.

2.2 The Code establishes:

- .1 the mandatory requirements that an organization shall fulfil to be recognized by a flag State (part I);
- .2 the mandatory requirements that an RO shall fulfil when performing statutory certification and services on behalf of its authorizing flag States (part II);
- .3 the mandatory requirements that flag States shall adhere to when authorizing an RO (part II); and
- .4 guidelines for flag State oversight of ROs (part III).

2.3 The Code defines the functional, organizational and control requirements that apply to ROs conducting statutory certification and services performed under mandatory IMO instruments, such as, but not limited to, SOLAS, MARPOL and the Load Lines Conventions.

2.4 All requirements of the Code are generic and applicable to all ROs, regardless of their type and size and the statutory certification and services provided.

2.5 ROs subject to this Code need not offer all types of statutory certification and services and may have a limited scope of recognition, provided that the requirements of this Code are applied in a manner that is compatible with the limited scope of recognition. Where any requirement of this Code cannot be applied due to the scope of services delivered by an RO, this shall be clearly identified by the flag State and recorded in the RO's quality management system.

3 CONTENTS

The Code consists of three parts. Part I contains general provisions. Part II contains mandatory provisions for the flag State and RO as already contained in relevant IMO instruments and applicable international standards. Part III contains guidelines for the oversight of ROs by flag States.

4 DELEGATION OF AUTHORITY

4.1 A flag State may delegate authority to an organization recognized as complying with the provisions of this Code to perform, on its behalf, statutory certification and services under mandatory IMO instruments and its national legislation.

4.2 The flag State shall not authorize functions beyond RO's capabilities. In this respect, flag State shall take into consideration appendix 2 of this Code for authorization.

4.3 Flag States should cooperate with each other with the objective of ensuring that ROs to whom they delegate authority adhere to the provisions of this Code.

5 COMMUNICATION OF INFORMATION

5.1 The flag State shall communicate to, and deposit with, the Secretary-General of IMO a list of ROs for circulation to the interested parties for information of their officers, and a notification of the specific responsibilities and conditions of the authority delegated to ROs.

6 REFERENCES

6.1 The Code is based on the following referenced documents:

- .1 mandatory IMO instruments and IMO Guidelines and recommendations (i.e. Codes, guidelines and standards recommended by the Organization);
- .2 ISO 9000:2005, Quality Management Systems – Fundamentals and vocabulary;
- .3 ISO 9001:2008, Quality Management Systems – Requirements;
- .4 ISO/IEC 17020:1998, General criteria for the operation of various types of bodies performing inspection;

- .5 ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing;
- .6 International Association of Classification Societies (IACS) Quality Management System Requirements (QMSR); and
- .7 national legislation.

PART II

RECOGNITION AND AUTHORIZATION REQUIREMENTS FOR ORGANIZATIONS

1 TERMS AND DEFINITIONS

1.1 *Recognized organization (RO)* means an organization that has been assessed by a flag State, and found to comply with this part of the RO Code.

1.2 *Authorization* means the delegation of authority to an RO to perform statutory certification and services on behalf of a flag State as detailed in an agreement or equivalent legal arrangement taking into account the " Elements to be included in an Agreement" as set out in appendix 3 of this Code.

1.3 *Statutory certification and services* means certificates issued, and services provided, on the authority of laws, rules and regulations set down by the Government of a sovereign State. *This includes* plan review, survey, and/or audit leading to the issuance of, or in support of the issuance of, a certificate by or on behalf of a flag State as evidence of compliance with requirements contained in an international convention or national legislation. This includes certificates issued by an organization recognized by the flag State in accordance with the provisions of SOLAS regulation XI-1/1, and which may incorporate demonstrated compliance with the structural, mechanical and electrical requirements of the RO under the terms of its agreement of recognition with the flag State.

1.4 *Assessment* means any activity to determine that the assessed entity fulfils the requirements of the relevant rules and regulations.

1.5 *Interested parties* means any person or legal entity who can demonstrate a justified interest in the survey and certification process and includes, inter alia, clients of the RO, shipowners, ship operators, shipbuilders, equipment manufacturers, shipping industry interests or associations, marine insurance interests or associations, trade associations, governmental regulatory bodies or other governmental services and non-governmental organizations.

1.6 *Location* is a place from which surveys are carried out and managed, or where plan approval is carried out, or from which processes are managed.

1.7 *Site* is the place at which a surveyor is based to cover a specific contract or a series of contracts including; but not limited to, a port, shipyard, firm, and company. All statutory certification and services at sites are to be controlled by a location.

1.8 A *Vertical Contract Audit (VCA)* is a contract/order specific audit of production processes, including witnessing work during attendance at a survey, audit or plan approval in progress and, as applicable, including relevant sub-processes. A VCA is carried out at a location or a site (Survey Station/Approval Office/Site) to verify the correct application of

relevant requirements in service realization for the specific work in that contract/order, and their interactions (relevant sub-processes include e.g. previous part surveys or UTM processes connected to the survey). Plan approval VCA may be carried out for completed tasks.

2 GENERAL REQUIREMENTS FOR RECOGNIZED ORGANIZATIONS

2.1 General

Delegation of authority by a flag State to an organization shall be subject to the confirmation of the capability of that organization to demonstrate that it has the capacity to deliver high standards of service and its compliance with the requirements of this Code and applicable national legislation.

2.2 Rules and regulations

The RO shall establish, publish and systematically maintain its rules or regulations, a version of which shall be provided in the English language, for the design, construction and certification of ships and their associated essential engineering systems as well as provide for adequate research capability to ensure appropriate updating of the published criteria.

2.3 Independence

The RO and its staff shall not engage in any activities that may conflict with their independence of judgement and integrity in relation to their statutory certification and services. The RO and its staff responsible for carrying out the statutory certification and services shall not be the designer, manufacturer, supplier, installer, purchaser, owner, user or maintainer of the item subject to the statutory certification and services, nor the authorized representative of any of these parties. The RO shall not be substantially dependent on a single commercial enterprise for its revenue.

2.4 Impartiality

2.4.1 The personnel of ROs shall be free from any pressures, which might affect their judgement in performing statutory certification and services. Procedures shall be implemented to prevent persons or organizations external to the organization from influencing the results of services carried out.

2.4.2 All potential customers shall have access to statutory certification and services provided by the RO without undue financial or other conditions. The procedures under which the RO operates shall be administered in a non-discriminatory manner.

2.5 Integrity

The RO shall be governed by the principles of ethical behaviour, which shall be contained in a Code of Ethics. The Code of Ethics shall recognize the inherent responsibility associated with a delegation of authority to include assurance of adequate performance of services.

2.6 Competence

The RO shall perform statutory certification and services by the use of competent surveyors and auditors that are duly qualified, trained and authorized to execute all duties and activities incumbent upon their employer, within their level of work responsibility.

2.7 Responsibility

The RO shall define and document the responsibilities, authorities, qualifications and interrelation of personnel whose work affects the quality of its services.

2.8 Transparency

2.8.1 Transparency reflects the principle of access to, or disclosure of all information related to the statutory certification and services carried out by the RO on behalf of a flag State.

2.8.2 The ROs shall communicate information to the flag State as described in the section on communication/cooperation with the flag State.

2.8.3 Information concerning the status of ships certified by ROs shall be made available to the public.

3 MANAGEMENT AND ORGANIZATION

3.1 General

The RO shall, based on the provisions of this Code, develop and implement a quality management system and shall continually improve its effectiveness.

3.2 Quality, safety and pollution prevention policy

The RO shall define and document its policy and objectives for, and commitment to, quality, safety and pollution prevention. In particular, the RO's management shall:

- .1 ensure that the policy and objectives are established;
- .2 ensure the policy and objectives are appropriate for the purpose of the organization;
- .3 communicate the policy and objectives; including provisions applicable to the statutory certification and services, to the organization and ensure that it is understood within the organization;
- .4 ensure sufficient availability of resources;
- .5 include a commitment to comply with all applicable requirements and continually improve the effectiveness of the quality management system;
- .6 conduct management reviews; which includes a framework for reviewing quality objectives; and
- .7 review the quality policy, objectives and the quality management system for continuing suitability.

3.3 Documentation requirements

3.3.1 The quality management system shall include the following documentation:

- .1 quality policy and quality objectives;

- .2 quality manual (refer to section 3.4);
- .3 procedures and records required by this Code and the national legislation of the recognizing flag State;
- .4 procedures to ensure the effective planning, operation, and control of the RO's processes;
- .5 rules and regulations as applicable to the RO's areas of authorization;
- .6 register of ships for which statutory certification and services are provided;
- .7 other documented process procedures that are considered necessary (these include any circulars or letters, which provide the surveyors and administrative staff with up-to-date information on classification, statutory and related matters);
- .8 specifications and diagrams defining or amplifying service processes; and
- .9 pro-forma reports, checklists and certificates appropriate to the activities covered by this certification.

3.3.2 The quality management system shall also include external documents, such as:

- .1 national and international standards necessary for the activities governed by this instrument;
- .2 IMO Conventions and resolutions;
- .3 national shipping regulations and standards appropriate to the authorization of the RO;
- .4 documents and data submitted to the RO for verification and/or approval; and
- .5 specified correspondence defined by the RO to be of an important nature.

3.4 Quality manual

The RO shall establish and maintain a quality manual that includes:

- .1 scope of the quality management system, including details of, and justification for any exclusions;
- .2 management statement on its policy and objectives for, and commitment to, quality;
- .3 description of the RO's areas of activity and competence;
- .4 general information about the organization and its head office (name, address, phone number, etc., and legal status);
- .5 information on the RO's relationship to its parent or associated organizations (where applicable);

- .6 charts describing the organization's structure;
- .7 management statement assigning a person designated who is responsible for the organization's quality management system;
- .8 relevant job descriptions;
- .9 policy statement on qualification and training of personnel;
- .10 documented procedures established for the quality management system, or reference to them;
- .11 description of the interaction between processes of the quality management system; and
- .12 description of all other documents required by the quality management system.

3.5 Control of documents

3.5.1 Documents required by the quality management system shall be controlled. The provision of document control shall apply to any type of document, including but not limited to; electronic media and IT applications where said electronic media may affect the reliability of the service or of the recorded data.

3.5.2 A documented procedure shall be established to define the controls needed to:

- .1 approve documents for adequacy prior to issue;
- .2 review and update as necessary and re-approve documents;
- .3 ensure that changes and the current revision status of documents are identified;
- .4 ensure that relevant versions of applicable documents are available at points of use;
- .5 ensure that documents remain legible and readily identifiable;
- .6 ensure that documents of external origin are determined by the RO to be necessary for the planning and operation of the quality management system that they are identified and their distribution is controlled; and
- .7 prevent the unintended use of obsolete documents, and to apply suitable identification if they are retained for any purpose.

3.6 Control of records

3.6.1 Records shall be established to provide evidence of conformity to requirements of this Code and of the effective operation of the quality management system. The records shall be controlled.

3.6.2 The RO shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention, and disposition of records. Records shall remain legible, readily identifiable and retrievable.

3.6.3 The RO shall ensure that records are maintained, demonstrating achievement of the required standards in the terms covered by the statutory certification and services performed as well as the effective operation of the quality management system. Records, other than those set out in 3.6.4.2, shall be retained at least for the period for which statutory certification and services are provided by the RO. Records specified in 3.6.4.2 for a ship shall be retained for a minimum period of three years beyond the period for which statutory certification and services are provided by the RO to that ship, or a longer period if specified in the agreement between the flag State and the RO.

3.6.4 Records shall include at least those relevant to:

- .1 rules and regulations development and associated research;
- .2 the application of the rules and regulations and statutory requirements through:
 - .1 verification and/or approval of documents and/or drawings relevant to the design;
 - .2 approval and survey of materials and equipment;
 - .3 survey during construction and installation;
 - .4 survey during service; and
 - .5 issuance of certificates;
- .3 the register of ships; and
- .4 all other records required by this quality management system and any additional requirements established by the recognizing flag State.

3.7 Planning

3.7.1 The RO shall ensure that quality objectives, including those needed to meet the requirements for statutory certification and services are established at relevant functions and levels within the organization.

3.7.2 The quality objectives shall be measurable and consistent with the quality policy.

3.7.3 The RO shall in its planning consider the elements identified below, and use the result to evaluate the effectiveness of its standards and procedures and their impact on safety of life and property and the marine environment:

- .1 that the planning of the quality management system is carried out in order to meet the requirements of the mandatory IMO Instruments, including but not limited to this Code, its quality management system and the authorizing flag State's national legislation;

- .2 that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented;
- .3 that the needs and expectations of the customers and other interested parties are taken into account, e.g. feedback from IMO, flag States and industry associations;
- .4 the effectiveness of services based on statistics from port State control, casualties, loss trends and feedback obtained from internal and external users;
- .5 the performance of the quality management system processes based on feedback from internal audits, non-conformities and internal comments;
- .6 lessons learned from previous experience and deriving from an examination of survey reports, casualty investigations or external sources; and
- .7 other sources of information which identifies opportunities for improvement.

3.7.4 The RO shall identify and plan the processes required for the quality management system, and determine the sequence and interaction of these processes.

3.7.5 The RO shall determine the requirements to be complied with and the criteria to ensure both the operation and control of these processes, including the criteria for acceptance, and evaluate the resources needed.

3.7.6 The RO shall plan and develop the processes required for statutory certification and services. Planning of the delivery of statutory certification and services shall be consistent with the requirements of other processes of the quality management system.

3.7.7 In planning the delivery of statutory certification and services, the RO shall determine the following as appropriate:

- .1 quality objectives and requirements for statutory certification and services;
- .2 the need to establish processes and documents, and to provide resources specific to the activity;
- .3 required verification, validation, monitoring, measurement, inspection and test activities and the criteria for acceptance; and
- .4 records needed to provide evidence that statutory certification and services meet the quality management system requirements; the requirements set out in the Code and the national legislation of the recognizing flag State.

3.7.8 The output of this planning shall be in a form suitable for the RO's structure and method of operations. The output of the planning should consider:

- .1 responsibility and authority for developing improvement plans;
- .2 skills and knowledge needed;
- .3 improvement approaches, methodology and tools;

- .4 resource requirements;
- .5 alternative planning needs;
- .6 indicators for performance achievements; and
- .7 the need for documentation and records.

3.8 Organization

3.8.1 The relative size, structure, experience, and capability of the RO shall be commensurate with the type and degree of the statutory certification and services authorized by the flag State.

3.8.2 The RO shall demonstrate that it has the technical, administrative, and managerial competence and capacity to ensure the provision of quality services in a timely manner.

3.8.3 The RO shall appoint a member of its management who, irrespective of other responsibilities, shall have responsibility and authority that includes:

- .1 ensuring that processes needed for the quality management system are established, implemented, and maintained;
- .2 ensuring that processes required for the effective delivery of statutory certification and services are established, implemented and maintained;
- .3 reporting to top management on the performance of the quality management system; the delivery of statutory certification and services and any need for improvement; and
- .4 ensuring the promotion of awareness of all requirements throughout the RO.

3.8.4 The RO shall ensure that the responsibilities and authorities are defined and communicated within the RO.

3.9 Communication

3.9.1 *Internal communication*

The RO shall ensure that appropriate communication processes are established within the RO and that communication takes place regarding the effectiveness of the quality management system and statutory certification and services provided.

3.9.2 *Communication/cooperation with flag State*

3.9.2.1 The RO shall establish appropriate communication processes with the authorizing flag State that, inter alia, address the following:

- .1 information specified by the flag State in terms of authorization;
- .2 classification of ships (assignments of class, changes and withdrawals), as applicable;

- .3 cases where a ship did not in all respects remain fit to proceed to sea without danger to the ship or persons on board or presenting unreasonable threat or harm to the environment;
- .4 information on all overdue surveys, overdue recommendations or overdue conditions of class, operating conditions or operating restrictions issued against their classed ships that shall be made available upon request by the authorizing flag State; and
- .5 other information as so specified by the authorizing flag State.

3.9.2.2 The RO shall allow participation in the development of its rules and/or regulations by the flag State.

3.9.2.3 The RO shall determine, propose and, if agreed by the flag State, implement effective arrangements for communicating with a flag State in relation to:

- .1 enquiries, contracts or other handling, including amendments; and
- .2 flag State feedback, including conformity issues pertaining to statutory certification and services.

3.9.3 Cooperation between ROs

3.9.3.1 Under the framework established by the flag State, the ROs shall cooperate and share relevant experience with other ROs with the view to standardizing processes concerning statutory certification and services for the flag State, as appropriate.

3.9.3.2 Under the framework established by a flag State or a group of flag States, the organizations recognized by this State or these States shall establish and maintain appropriate technical and safety-related cooperation processes regarding statutory survey and certification services of ships, which may affect the validity of certificates issued by other ROs either in whole or in part on behalf of the said flag State(s). Flag States shall seek to mutually cooperate in order to ensure, as far as practicable, the compatibility of their respective frameworks.

3.9.3.3 No flag State shall mandate its ROs to apply to ships, other than those entitled to fly its flag, any requirement pertaining to their classification rules, requirements, procedures or performance of other statutory certification processes, beyond convention requirements and the mandatory instruments of the IMO.

3.9.3.4 In cases of transfer of the certification of the ship from one RO to another, the losing organization shall, without undue delay, provide the gaining organization access to the history file of the ship including:

- .1 any overdue surveys;
- .2 any overdue recommendations and overdue conditions of class;
- .3 operating conditions issued against the ship;
- .4 operating restrictions issued against the ship; and

- .5 technical information, drawings, plans and documents taking into account the relevant guidelines developed by the Organization⁸.

3.9.3.5 New certificates for the ship can be issued by the gaining organization only after all overdue surveys have been satisfactorily completed and all overdue recommendations or overdue conditions of class previously issued in respect of the ship have been completed as specified by the losing organization.

3.9.3.6 Prior to the issuance of the certificates, the gaining organization shall advise the losing organization of the date of issue of the certificates and confirm the date, place and action taken to satisfy each overdue survey, overdue recommendation and overdue condition of class.

3.9.3.7 ROs shall establish and implement appropriate common requirements concerning cases of transfer of the certification of a ship where special precautions are necessary. Those cases shall, as a minimum, include the certification of ships of 15 years of age or over and the transfer of a ship from an organization not recognized by the flag State of the ship.

3.10 Management review

3.10.1 General

The management of an RO shall review its quality management system; including a review of the RO's performance of statutory certification and services, at planned intervals, which shall not exceed 13 months, to ensure its continuing suitability, adequacy, and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

3.10.2 Review input

The input to management review shall include the following information:

- .1 results of audits;
- .2 feedback from interested parties;
- .3 process performance and consistency of compliance with statutory requirements;
- .4 status of preventive and corrective actions;
- .5 follow-up actions from previous management reviews;
- .6 changes that could affect the quality management system;
- .7 recommendations for improvement; and
- .8 any output of management reviews containing information relevant to quality objectives, customer complaints and activity monitoring, throughout the RO, shall be used as input to the top management review.

⁸ MSC-MEPC.5/Circ.2 – Guidelines for Administrations to ensure the adequacy of transfer of class-related matters between recognized organizations (ROs).

3.10.3 Review output

3.10.3.1 The output from management review shall include any decisions and actions related to:

- .1 improvement of the effectiveness of the quality management system and its processes;
- .2 improvement of services related to the requirements established in the authorization agreement; and
- .3 resource requirements.

3.10.3.2 Top management shall ensure that the results of the top management review of the quality management system, including the derived quality objectives, are documented and communicated throughout the organization, as appropriate.

3.10.3.3 Records from management reviews shall be maintained.

4 RESOURCES

4.1 General

4.1.1 The RO shall determine and provide the adequate resources in terms of technical, managerial and survey capabilities to accomplish the tasks being assigned and resources needed to implement the quality management system and to continually improve its effectiveness; and to enhance its performance in the delivery of statutory certification and services.

4.1.2 The RO shall be able to document extensive experience in assessing the design, construction and equipment of ships and the capability to effectively perform statutory certification and services on behalf of a flag State.

4.1.3 The RO shall have the capacity to:

- .1 provide for the publication and systematic maintenance of rules and/or regulations for the design, construction and certification of ships and their associated essential engineering systems as well as the provision of an adequate research capability to ensure appropriate updating of the published criteria. The RO is required to maintain an up-to-date version of this publication in the English language; and
- .2 allow participation in the development of its rules and/or regulations by representatives of the flag State and other interested parties.

4.2 Personnel

4.2.1 The RO shall be equipped, at all times, with significant managerial, technical, support and research staff commensurate with the size of the fleet in its class, its composition and the organization's involvement in the construction, repair and conversion of ships. The RO shall be capable of assigning to every place of work, when and as needed, the means and staff commensurate with the tasks to be carried out in accordance with the requirements of this Code and those of the flag State.

4.2.2 The management of an RO shall have the competence, capability and capacity to organize, manage and control the performance of statutory certification and services in order to verify compliance with requirements relevant to the tasks delegated and shall, inter alia:

- .1 possess an adequate number of competent supervisory, technical appraisal and survey personnel;
- .2 develop and maintain appropriate procedures and instructions;
- .3 maintain up-to-date documentation on interpretation of the relevant instruments;
- .4 give technical and administrative support to field staff; and
- .5 review survey reports and plan approval letters for accuracy, compliance with requirements and to provide experience feedback for continual improvement.

4.2.3 The RO shall be established with a qualified staff to provide the required service representing an adequate geographical coverage and local representation as required.

4.2.4 The RO shall perform statutory certification and services by the use of only exclusive surveyors and auditors, being persons solely employed by the RO, duly qualified, trained and authorized to execute all duties and activities incumbent upon their employer, within their level of work responsibility. While still remaining responsible for the certification on behalf of the flag State, the RO may subcontract radio surveys to non-exclusive surveyors in accordance with section 5.9 of part II of this Code.

4.2.5 The RO's personnel performing and responsible for statutory certification and services shall have, as a minimum, the following formal education:

- .1 qualifications from a tertiary institution within a relevant field of engineering or physical science (minimum two-year programme); or
- .2 qualifications from a marine or nautical institution and relevant seagoing experience as a certificated ship officer, and
- .3 proficiency in the English language commensurate with the scope of statutory certification and services.

4.2.6 Other personnel assisting in the performance of statutory work shall have education, training and supervision commensurate with the tasks they are authorized to perform.

4.2.7 The RO shall have a documented system to track the qualifications of personnel; including continuous updating of their knowledge as appropriate to the tasks they are authorized to undertake. This system shall comprise appropriate training courses, including, inter alia, international instruments and appropriate procedures related to the delivery of statutory certification and services, as well as practical tutored training; it shall provide documented evidence of satisfactory completion of the training. As a minimum, the provisions in appendices 1 and 2 shall be met.

4.3 Infrastructure

4.3.1 The RO shall determine, provide, and maintain the infrastructure required to perform statutory certification and services in accordance with the requirements of the mandatory IMO instruments. Infrastructure includes, as applicable:

- .1 building, workspaces and associated utilities;
- .2 process equipment (both hardware and software); and
- .3 supporting services, including but not limited to transport, communication, training and information systems.

4.3.2 Systems (hardware and software) provided to the surveyor shall be identified and relevant training on their use shall be carried out and documented. Special consideration should be given to the situation where a surveyor is working out of a home-based office.

4.4 Work environment

4.4.1 The RO shall be satisfied that the work environment is safe and effective to perform statutory certification and services. While it is understood that such environmental conditions are not provided by the RO, the environmental conditions under which the survey will be permitted to take place shall be made clear to the customer prior to survey commencing.

4.4.2 The RO shall determine the necessary working procedures required to perform statutory certification and services safely and effectively. Training of staff on personal safety shall be carried out and documented.

4.4.3 Requirements for personal protective equipment to be used while performing statutory certification and services and procedures for personal safety of surveyors at work shall be established and documented.

5 STATUTORY CERTIFICATION AND SERVICES PROCESSES

5.1 General

It should be recognized that statutory certification and services are service delivery development process for flag State and RO compliance verification activities rather than the design process for a ship or maritime equipment.

5.2 Design and development

5.2.1 The RO shall plan and control the design and development of statutory certification and services processes. During the design and development planning, the organization shall determine:

- .1 the design and development stages;
- .2 the review, verification and validation that are appropriate to each service design and development stage; and
- .3 the responsibilities and authorities for design and development.

5.2.2 The RO shall allow participation in the development and review of its rules, procedures and/or regulations, specifically in the review process prior to finalization, by representatives of the flag State and interested parties.

5.2.3 The RO shall include in its rules and/or procedures:

- .1 requirements specified and communicated to ROs by the flag State, specifically for statutory certification and services⁹;
- .2 requirements not stated by the flag State but necessary for specified or intended use, as determined by the RO.

5.2.4 Implementation of requirements may be in the form of adoption into the RO's internal requirements or by use of the original documents from IMO or the flag State.

5.2.5 The RO shall not issue statutory certificates to a ship, irrespective of its flag, which has been declassified or is changing class for safety reasons, before giving the opportunity to the competent Administration of the flag State to give its opinion within a reasonable time as to whether a full inspection is necessary.

5.3 Design and development inputs

5.3.1 Inputs relating to service requirements shall be determined and records maintained.

These inputs shall include:

- .1 applicable statutory and regulatory requirements;
- .2 where applicable, information derived from previous similar designs;
- .3 other requirements essential for design and development, such as functional and performance requirements; and
- .4 in-service experience with ships and mobile offshore installations obtained from within the RO itself and external sources.

5.3.2 The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.

5.4 Design and development outputs

At suitable stages, systematic reviews of design and development of rules and standards shall be performed in accordance with planned arrangements to evaluate the ability of the results to meet requirements; and to identify any problems and propose necessary actions.

5.5 Design and development verification

Verification shall be performed in accordance with planned arrangements to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained.

⁹ Refer to the *Code for the implementation of mandatory IMO instruments, 2011*, adopted by resolution A.1054(27), as may be amended.

5.6 Control of design and development changes

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of the design and development changes shall include evaluation of the effect of the changes on the constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained.

5.7 Control of production and service provisions

5.7.1 The RO shall ensure that all statutory certification and services are carried out under controlled conditions.

5.7.2 Controlled conditions shall include, as applicable:

- .1 the availability of information that describes the status and condition of ships surveyed and certified;
- .2 the availability of rules, regulations, work instructions, and other applicable standards, as necessary;
- .3 the use of suitable equipment;
- .4 the availability and use of monitoring and measuring equipment;
- .5 the implementation of monitoring and measurement;
- .6 the implementation of controls to ensure the accuracy of survey reports and certificates both before and after issuance; and
- .7 a safe work environment.

5.7.3 An RO accepting a ship to be constructed without a known flag State shall conduct the statutory certification and services of the ship in conformity with all relevant international and national requirements and the requirements of this Code.

5.8 Property of clients

The RO shall identify, verify, protect and safeguard property provided by the clients for performance of statutory certification and services. If property is lost, damaged or otherwise found to be unsuitable for use, the RO shall report this to the property owner and maintain relevant records.

5.9 Subcontracting and service suppliers

5.9.1 Where an RO chooses to outsource any service that affects conformity to requirements or accepts work of a third party approved by the RO, the RO shall ensure that it fully controls the performance of such services. The flag State may increase the scope of control to be applied to these outsourced services. The process for outsourcing shall be defined within the RO's quality management system. For the purpose of accountability to the flag State, the work performed by the sub-contracted organization or service supplier constitutes the work of the RO and shall be subject to the requirements incumbent upon the RO under this Code.

5.9.2 Firms providing services on behalf of the owner of a ship or a mobile offshore unit, the results of which are used by the RO in making decisions affecting the statutory certification and service shall be subject to approval and control by the RO in accordance with the procedures in the quality management system.

5.10 Control of monitoring and measuring devices

5.10.1 The RO shall determine the monitoring and measurement to be undertaken and the monitoring and measurement equipment needed to provide evidence of conformity to the applicable requirements.

5.10.2 The RO shall establish processes to ensure that monitoring and measurement can be carried out in a manner that is consistent with the monitoring and measurement requirements.

5.10.3 Where necessary to ensure valid results, measuring equipment shall:

- .1 be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded;
- .2 be adjusted or re-adjusted as necessary;
- .3 have identification in order to determine its calibration status;
- .4 be safeguarded from adjustments that would invalidate the measurement result; and
- .5 be protected from damage and deterioration during handling, maintenance, and storage.

5.10.4 The RO shall assess and record the validity of previous measuring results when the equipment is found not to conform to requirements. The RO shall take appropriate action on the equipment affected. Records of results of calibration and verification shall be maintained.

5.10.5 When used in monitoring and measurement of specific requirements, the ability of computer software to satisfy the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

5.10.6 Where an RO is verifying testing at manufacturers, builders, repairers or owners premises and reporting the same, the RO shall ensure that the measuring devices used in the process are identified and that evidence of calibration is obtained. Where an RO is witnessing testing of service equipment installed or available onboard a ship, a means shall be established so that the RO is satisfied as to the appropriate accuracy of the measuring equipment.

5.11 Complaints

The RO shall have a documented process to address complaints related to statutory certification and services.

5.12 Appeals

The RO shall have a documented process to address appeals related to statutory certification and services in accordance with the requirements of the flag State.

6 PERFORMANCE MEASUREMENT, ANALYSIS AND IMPROVEMENT

6.1 General

6.1.1 The RO shall plan and implement the monitoring, measurement, analysis and improvement processes needed to demonstrate conformity to statutory certification and services requirements, to ensure conformity of the quality management system, and to continually improve the effectiveness of the quality management system. This shall include the determination of applicable methods, including statistical techniques, and the extent of their use. The measurements employed by the RO shall be reviewed periodically, and data shall be verified on a continual basis for accuracy and completeness.

6.1.2 The RO shall develop key performance indicators with respect to the performance of statutory certification and services.

6.2 Internal audit

6.2.1 The RO shall implement an audit programme; including the completion of internal audits at planned intervals to determine whether the authorized activity conforms to the planned arrangements and that the quality management system is effectively implemented and maintained, and that a supervisory system is in place, which monitors statutory certification and services.

6.2.2 The audit programme shall take into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits, flag State feedback, complaints and appeals including port State and flag State inspections. When planning the internal audits, consideration shall be given to complaints received in the past (either related to the location or in general) and to the results of previous internal audits and to the operation of the locations.

6.2.3 The RO shall define the audit criteria, scope, frequency, and methods. Auditors shall be suitably qualified and selected in order to ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work. The audit scope shall cover the processes for the statutory certification and services at various locations with a focus on verification of the efficient and effective implementation of the quality management system and applicable work processes at the individual location. The audit periods, which may be established according to the findings, shall ensure that each location is audited at least once per three years. Audits at locations shall also include visits to selected sites, which operate under the control of the location.

6.2.4 A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results. Records of audits and their results shall be maintained.

6.2.5 The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities, observations (potential non-conformities) and their root causes.

6.3 Vertical Contract Audit

6.3.1 The RO shall carry out Vertical Contract Audits annually for each of the following processes:

- .1 plan approval;
- .2 new construction survey;
- .3 in-service periodical survey/audit; and
- .4 type approval (where applicable) or survey of other materials and equipment.

6.3.2 Evidence of completion of VCAs and findings thereof, shall be formally recorded.

6.4 Monitoring and measurement of processes

6.4.1 The RO shall apply suitable methods for monitoring, including a supervisory system that monitors the work activities carried out, and where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve sustained compliance with the requirements of this Code and the agreement with the flag State, in particular:

- .1 the RO's rules and/or regulations shall be complied with; and
- .2 the requirements of the statutory certification and services are satisfied.

6.4.2 When planned results are not achieved, correction and corrective action shall be taken, as appropriate.

6.4.3 The implemented methods should consider issues such as, but not limited to:

- .1 port State control detentions;
- .2 casualties; and
- .3 rework of plan approval letters and survey reports.

6.5 Control, monitoring and measurement of non-conformities, including statutory deficiencies

6.5.1 The RO shall monitor and measure the service delivery with statutory requirements and the RO's rules to verify that all requirements have been met. This shall be carried out at appropriate stages of the statutory certification and services process in accordance with the planned arrangements. Evidence of conformity with the statutory requirements and RO rules shall be maintained. Records shall indicate the person(s) approving or verifying compliance with the statutory requirements and the RO's rules.

6.5.2 The RO shall make provisions to ensure that non-conformities are identified and controlled. The controls and related responsibilities and authorities for dealing with non-conformities shall be defined in a documented procedure.

6.5.3 Where applicable, the RO shall deal with a non-conformity by one or more of the following ways:

- .1 by taking action to eliminate the detected non-conformity;
- .2 by authorizing its use, release or acceptance under the terms determined by the flag State;
- .3 when accepting with or without correction by exemption or equivalence, consideration should be given to the non-conformities with rules and regulations or statutory requirements during:
 - .1 drawing approval,
 - .2 survey of materials and equipment,
 - .3 survey during construction and installation,
 - .4 survey during service;
- .4 by taking action to preclude its original intended use or application; and
- .5 by taking action appropriate to the effects, or potential effects, of the non-conformity when a non-conformity is detected.

6.5.4 When a non-conformity is corrected, it shall be subject to reverification to demonstrate conformity to the requirements.

6.5.5 Records of the nature of non-conformities and any subsequent actions taken, including exemption or equivalences obtained, shall be maintained.

6.5.6 The RO shall comply with the instructions of the flag State detailing actions to be followed in the event that a ship is found not fit to proceed to sea without danger to the ship or persons on board, or presenting unreasonable threat of harm to the marine environment.

6.5.7 The ROs shall cooperate with port State control Administrations where a ship to which the RO issued the certificates is concerned, in particular, in order to facilitate the rectification of reported deficiencies or other discrepancies.

6.5.8 The RO responsible for issuing the relevant certificate shall, upon receiving a report of an accident or discovering a defect to a ship which affects the safety of the ship or the efficiency or completeness of its life saving appliances or other equipment, cause investigations to be initiated to determine whether a survey is necessary.

6.6 Improvement

6.6.1 General

The RO shall continually improve the effectiveness of its quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

6.6.2 Data analysis

6.6.2.1 The objective of data analysis is to determine the cause of problems to guide effective corrective and preventive action. The RO shall:

- .1 analyse data from various sources to assess performance against plans and goals and to identify areas for improvement;
- .2 make use of statistical methodologies for data analysis, which can help in assessing, controlling, and improving performance of processes; and
- .3 analyse the product requirements, as well as analysis of relevant processes, operations and quality records.

6.6.2.2 Information and data from all parts of the RO shall be integrated and analysed to evaluate the overall performance of the quality management system.

6.6.2.3 The results of analysis shall be documented and used to determine:

- .1 trends;
- .2 operational performance;
- .3 customer satisfaction and/or dissatisfaction through complaints or other quality indicators (PSC detentions, flag State non-conformities, etc.);
- .4 effectiveness and/or efficiency of processes; and
- .5 performance of suppliers.

6.6.3 Sources of information

The RO shall identify sources of information and establish processes for collection of information for planning continual improvement, corrective and preventive actions. Such information shall include, inter alia:

- .1 customer complaints;
- .2 non-conformance reports;
- .3 outputs from management reviews;
- .4 internal audit reports;
- .5 outputs from data analysis;
- .6 relevant records;
- .7 outputs from customer feedback and satisfaction measurements;
- .8 process measurements;
- .9 results of self-assessment; and
- .10 in-service experience.

6.6.4 Corrective action

6.6.4.1 The RO shall without undue delay undertake action to eliminate the causes of non-conformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the non-conformities encountered and address all actual or potential effects of these.

6.6.4.2 A documented procedure shall be established to define requirements for:

- .1 reviewing non-conformities (including complaints);
- .2 determining the cause of non-conformities;
- .3 evaluating the need for action to ensure that non-conformities do not recur;
- .4 determining and implementing action needed;
- .5 records of the results of action taken; and
- .6 reviewing the effectiveness of the corrective action taken.

6.6.5 Preventive action

6.6.5.1 The RO shall undertake action to identify and eliminate the causes of potential non-conformities in order to prevent their occurrence. Preventive actions shall be appropriate to the nature and effects of the potential problems.

6.6.5.2 A documented procedure shall be established to define requirements for:

- .1 determining potential non-conformities and their causes;
- .2 evaluating the need for action to prevent occurrence of non-conformities;
- .3 determining and implementing action needed;
- .4 records of results of action taken; and
- .5 reviewing the effectiveness of the preventive action taken.

6.6.5.3 Examples of such methodologies may include risk analyses, trend analyses, statistical process control, fault-tree analyses, failure modes and effects and criticality analyses.

7 QUALITY MANAGEMENT SYSTEM CERTIFICATION

7.1 The RO shall develop, implement and maintain an effective internal quality management system that complies with the requirements of this Code and is based on appropriate parts of internationally recognized quality standards no less effective than the ISO 9000 series.

7.2 The RO's quality management system shall be periodically assessed and certified in accordance with the applicable international quality standards by a qualified body, accredited to comply with ISO/IEC 17021:2006 standard by an accreditation body who is signatory to the International Accreditation Forum (IAF) Multinational Recognition Agreement (MRA), recognized by the flag State as having the necessary governance and competences to act

independently of the ROs or their associations and having the necessary means to carry out its duties effectively and to the highest professional standards, safeguarding the independence of the persons performing them.

7.3 In pursuance of continually improving RO and flag State services, IMO endeavours to closely monitor the certification and audit process of the RO and its implementation to ensure its continued relevance and validity to the maritime industry in general and to the ROs, in particular. IMO will lay down the working methods and rules of procedure for such monitoring.

8 AUTHORIZATION OF RECOGNIZED ORGANIZATIONS

8.1 General

Under the provisions of regulation I/6 of SOLAS 1974, article 13 of LL 66, regulation 4-6 of MARPOL Annex I and regulation 8 of MARPOL Annex II and article 6 of TONNAGE 69, a flag State may authorize an RO to act on its behalf in statutory certification and services and determination of tonnages only to ships entitled to fly its flag as required by these conventions. Such authorizations shall not require ROs to perform actions that impinge on the rights of another flag State.

8.2 Legal basis of the functions under authorization

The flag State shall establish the legal basis under which the authorization of statutory certification and services is administered. The following items shall be considered:

- .1 the formal written agreement with the RO;
- .2 acts, regulations and supplementary information;
- .3 interpretations; and
- .4 deviations and equivalent solutions.

8.3 Specification of authorization

The flag State shall specify the scope of authorization granted to an RO. The following specifications shall be considered:

- .1 ship types and sizes;
- .2 conventions and other instruments, including relevant national legislation;
- .3 approval of drawings;
- .4 approval of materials and equipment;
- .5 surveys, audits, inspections;
- .6 issuance, endorsement and/or renewal of certificates;
- .7 corrective actions;
- .8 withdrawal or cancellation of certificates; and
- .9 reporting requirements.

8.4 Resources

The flag State shall ensure that a RO has adequate resources in terms of technical, managerial and research capabilities to accomplish the tasks being assigned, in accordance with the minimum standards for ROs acting on behalf of the flag State set out in part II of this Code.

8.5 Instruments

The flag State shall provide the RO with access to all appropriate instruments of national law giving effect to the provisions of the conventions, notify the RO of any additions, deletions or revisions thereto in advance of their effective date and specify whether the flag State's standards go beyond convention requirements in any respect.

8.6 Instructions

8.6.1 The flag State shall issue specific instructions detailing the procedures to be followed in carrying out statutory certification and services, and actions to be followed in the event that a ship is found not fit to proceed to sea without danger to the ship or persons on board, or presenting unreasonable threat of harm to the marine environment.

8.6.2 Flag States shall ensure by appropriate means that ROs cooperate with each other in accordance with the provisions of this Code.

8.7 Records

The flag State shall specify that the RO maintain records, which can provide the flag State with data to assist in interpretation of convention regulations.

PART III

OVERSIGHT OF RECOGNIZED ORGANIZATIONS

1 PURPOSE

Part III of the RO Code provides guidance on flag State's oversight of ROs authorized to perform statutory certification and services on its behalf. Part III also provides guidance on the principles of oversight that may include ship inspection, auditing, and monitoring activities.

2 SCOPE

Part III of the RO code is applicable to all flag States that have authorized ROs to perform statutory certification and services. Part III includes flag State oversight provisions and provides guidance, which is non-mandatory, to assist flag States in the development and implementation of an effective oversight programme of ROs.

3 REFERENCES

The following documents are referenced:

- .1 mandatory IMO instruments;

- .2 ISO 9000:2005, Quality Management Systems – Fundamentals and vocabulary;
- .3 ISO 9001:2008, Quality Management Systems – Requirements;
- .4 ISO/IEC 17020:1998, General Criteria for the operation of various types of bodies performing inspection;
- .5 ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing; and
- .6 national legislation.

4 TERMS AND DEFINITIONS

4.1 *Audit* means a systematic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. Auditing is characterized by reliance on a number of principles. These make the audit an effective and reliable tool in support of management policies and controls, providing information on which an RO can act to improve its performance. Adherence to these principles is a prerequisite for providing audit conclusions that are relevant and sufficient and for enabling auditors working independently from one another to reach similar conclusions in similar circumstances.

4.2 *Audit criteria* means a set of policies, procedures or requirements.

4.3 *Audit evidence* means records, statements of fact, or other information, which are relevant to the audit criteria and verifiable. Audit evidence may be qualitative or quantitative.

4.4 *Audit findings* means results of the evaluation of the collected audit evidence against audit criteria. Audit findings can indicate conformity, observation (potential non-conformity) or non-conformity with audit criteria or opportunities for improvement.

4.5 *Audit conclusion* means an outcome of an audit, provided by the audit team, after consideration of the audit objectives and all audit findings.

4.6 *Audit client* means an organization or person requesting an audit.

4.7 *Auditee* is an organization recognized by a flag State that may be subject to an audit by the authorizing flag State.

4.8 *Auditor* means a person with the competence to conduct an audit.

4.9 *Audit team* means one or more auditors conducting an audit, supported if required by technical experts.

4.10 *Technical expert* means a person who provides specific knowledge or expertise to the audit team.

4.11 *Audit programme* means a set of one or more audits planned for a specific period and directed towards a specific purpose. An audit programme includes all activities necessary for planning, organizing, and conducting the audits.

4.12 *Audit plan* means a description of the activities and arrangements for an audit.

4.13 *Audit scope* means extent and boundaries of an audit. The audit scope generally includes a description of the physical locations, organizational units, activities and processes, as well as the time period covered.

4.14 *Competence* means demonstrated personal attributes and demonstrated ability to apply knowledge and skills.

4.15 *Oversight* means any activity by a flag State carried out to assure an RO's service complies with IMO and national requirements of the recognizing flag State.

4.16 *Monitoring* means any activity by a flag State where a flag State witnesses services by an RO or reviews documentation used by the RO and which is carried out to assure that RO services are in compliance with IMO and national requirements. Monitoring may be considered as a component of oversight.

5 ESTABLISHING AN OVERSIGHT PROGRAMME

5.1 Oversight

The flag State should establish or participate in an oversight programme with adequate resources for monitoring of, and communication with, its RO(s) in order to ensure that its international obligations are fully met, by:

- .1 exercising its authority to conduct supplementary surveys to ensure that ships entitled to fly its flag in fact comply with the requirements of the applicable international instruments;
- .2 conducting supplementary surveys as it deems necessary to ensure that ships entitled to fly its flag comply with national requirements, which supplement the international mandatory requirements; and
- .3 providing staff who have a good knowledge of the rules and regulations of the flag State and the ROs and who are available to carry out effective oversight of the ROs.

5.2 Flag State's supervision of duties delegated to an RO

The flag State's supervision of duties delegated to an RO should consider, inter alia, the following:

- .1 documentation of the RO's quality management system;
- .2 access to internal instructions, circulars and guidelines;
- .3 access to the RO's documentation relevant to the flag State's fleet;
- .4 cooperation with the flag State's inspection and verification work; and
- .5 provision of information and statistics; such as, but not limited to, damage and casualties relevant to the flag State's fleet.

5.3 Verification and monitoring

The flag State should establish a system to ensure the adequacy of statutory certification and services provided. Such a system should, inter alia, include the following items:

- .1 procedures for communication with the RO;
- .2 procedures for reporting to the flag State by the RO and the processing of such reports by the flag State. The following reporting requirements should be considered:
 - .1 the RO should notify the flag State immediately upon becoming aware of a situation involving a major deficiency, or serious safety-related issue, that would normally be considered sufficient to detain a ship from proceeding to sea pending correction;
 - .2 the RO should notify the flag State(s) immediately upon becoming aware of a situation aboard ship or within a company involving a major non-conformity, as defined in the *Guidelines on the Implementation of the International Safety Management (ISM) Code by Administrations* (resolution A.1022(26), as amended);
 - .3 the notification above should contain the name of the company or ship, the IMO number, the official number, if applicable, and a description of the major non-conformity, deficiency or issue;
 - .4 the RO should inform the flag State, as soon as possible, of any dangerous occurrences, accidents, machinery or structural breakdowns, or failures that they are aware of on a ship; and
 - .5 the RO should report to the flag State in writing the names and official numbers, if applicable, of any ships removed from the RO's list of classed/certified ships for which the RO has performed statutory certification and services. The report should contain a description of the reason(s) for removal from class, and this should be made within thirty (30) days of the removal becoming effective;
- .3 additional ship's inspections by the flag State;
- .4 appropriate technical and/or safety related consultations between ROs regarding statutory certification and services, which may affect the validity of certificates issued either in whole or in part on behalf of the flag State(s);
- .5 the flag State's evaluation/acceptance of the certification of the RO's quality management system by an independent body of auditors accepted by the flag State;
- .6 monitoring and verification of statutory certification and services, which contribute either in whole or in part to compliance with a mandatory IMO instrument. The flag States should consider the implementation of the following:

- .1 flag State's oversight of RO quality management systems;
 - .2 observation of or systematic review of reports of the quality management system audits conducted by other qualified persons or organizations external to and independent of the RO;
 - .3 verification and inspection of ships that are subject to statutory certification and services; and
 - .4 complaint and feedback system and corrective action follow-up;
- .7 a flag State accepting ships constructed without its involvement should establish that an RO conducting statutory certification and services of the ship conforms to this Code; and
- .8 for ships constructed without an identified flag State, the flag State specific requirements should be verified prior to certification.

6 PRINCIPLES OF AUDITING

6.1 The flag State should be satisfied that the RO has an effective quality management system in place. The flag State may rely upon the audits carried out by an accredited certification body or equivalent organizations. Intergovernmental cooperation in establishing common auditing practices is encouraged.

6.2 A flag State auditor should advance the following principles:

- .1 ethical conduct: the foundation of professionalism. Trust, integrity, confidentiality and discretion are essential to auditing;
- .2 fair presentation: the obligation to report truthfully and accurately. Audit findings, audit conclusions, and audit reports reflect truthfully and accurately the audit activities. Significant obstacles encountered during the audit and unresolved diverging opinions between the audit team and the auditee are reported; and
- .3 due professional care: the application of diligence and judgment in auditing. Auditors exercise care in accordance with the importance of the task they perform and the confidence placed in them by audit clients and other interested parties. Having the necessary competence is an important factor.

6.3 Further principles relate to the audit, which is by definition independent and systematic.

- .1 independence: the basis for the impartiality of the audit and objectivity of the audit conclusions. Auditors are independent of the activity being audited and are free from bias and conflict of interest. Auditors maintain an objective state of mind throughout the audit process to ensure that the audit findings and conclusions will be based only on the audit evidence;
- .2 evidence-based approach: the rational method for reaching reliable and reproducible audit conclusions in a systematic audit process. Audit evidence is verifiable. It is based on samples of the information available, since an audit is conducted during a finite period of time and with finite resources. The appropriate use of sampling is closely related to the confidence that can be placed in the audit conclusions.

6.4 The guidance given in this Code is based on the principles set out above.

7 MANAGING AN OVERSIGHT PROGRAMME

7.1 General

7.1.1 The flag States are required to verify that the organizations recognized to perform statutory certification and services on their behalf fulfil the requirements of this Code. The purpose of this verification is to ensure that the RO is performing its statutory certification and service in compliance with this Code and its agreement with the flag State.

7.1.2 The flag State should develop, implement, and manage an effective oversight programme of the ROs that act on its behalf.

7.1.3 An oversight programme should include various monitoring activities, which may inter alia consist of audits, inspections and audit observations (potential non-conformities). The flag States' oversight programme of their ROs should be developed after carefully assessing the factors associated with the RO as well as the extent of access to the RO's records of statutory certification and services that are made available to the flag State. The programme should also consider the delivery of statutory certification and services with respect to the provisions of the Conventions and with respect to the national requirements and instructions published by the flag State. Factors should include:

- .1 the scope and frequency of high level audits of the RO carried out by flag States and independent accredited bodies, and of internal audits carried out by the RO;
- .2 the extent to which audit findings, observations (potential non-conformities) and corrective actions are made available to the flag State;
- .3 the extent to which remote monitoring of the RO can be undertaken by the flag State which can manifest itself in several different ways depending on the scope of information that is electronically available to the flag State. Remote monitoring can include:
 - .1 review of the contents of survey reports associated with statutory certificates issued by the RO;
 - .2 review of the effectiveness of the control and rectification of deficiencies and outstanding requirements within the deadlines established by the flag State through the RO; and
 - .3 review of the RO's country-specific instructions to determine that the flag State's national requirements are properly and completely addressed by the RO;
- .4 flag State inspections carried out on board ships to check the end-result of the certification process, with a specific interest in their national requirements and/or implementation of instructions issued to the RO; and
- .5 port State control detentions and deficiencies allocated to the responsibility of the RO.

7.1.4 An oversight programme should also include all activities necessary for planning and organizing the types and number of monitoring activities, and for providing resources to conduct them effectively and efficiently within the specified periods.

7.1.5 Those assigned the responsibility for managing the oversight programme should:

- .1 establish, implement, monitor, review and improve the oversight programme; and
- .2 identify the necessary resources and ensure they are available and provided, as required.

7.1.6 An oversight programme should also include planning, the provision of resources and the establishment of procedures to conduct monitoring activities within the programme.

7.2 Oversight programme objectives and extent

7.2.1 Objectives of an oversight programme

7.2.1.1 The flag State should establish objectives for an oversight programme, to direct the planning and conduct of monitoring activities.

7.2.1.2 The following objectives should be considered:

- .1 management priorities;
- .2 flag State intentions;
- .3 flag State system requirements;
- .4 statutory, regulatory and contractual requirements;
- .5 need for ROs to be evaluated;
- .6 flag State, ROs, and other requirements;
- .7 needs of other interested parties; and
- .8 risks to the flag State.

7.2.2 Extent of an oversight programme

7.2.2.1 The flag State's oversight programme should reflect the size, nature and complexity of the flag State's authorization programme, as well as the following factors:

- .1 the scope, objective and duration of monitoring activities to be conducted;
- .2 the frequency of monitoring activities to be conducted;
- .3 the number, importance, complexity, similarity, and locations of the ROs;
- .4 standards, statutory, regulatory, and contractual requirements and other monitoring criteria;
- .5 the need for accreditation or registration/certification of ROs;

- .6 conclusions of previous monitoring activities;
- .7 the concerns of interested parties; and
- .8 significant changes to an RO or its operations.

7.2.2.2 A flag State may enter into a written agreement to participate in combined monitoring/oversight activities with another flag State or States that have authorizations with the same RO provided that the level of detail regarding individual flag State requirements and individual flag State performance are addressed at a level equivalent to an oversight programme conducted by each of the individual flag State. Conversely no flag State may be compelled by another flag State or organization to accept oversight of an RO by others in lieu of conducting its own individual flag State oversight unless it so elects by written agreement or is so provided in the law of that State. A copy of all such agreements should be submitted to IMO for the information of the Member States.

7.3 Oversight programme responsibilities, resources and procedures

7.3.1 Oversight programme responsibilities

7.3.1.1 The flag State is responsible for managing its oversight programme. The flag State should utilize competent individuals that have an understanding of the oversight requirements, audit principles, and the application of audit techniques. They should have management skills as well as technical and business understanding relevant to the activities to be monitored.

7.3.1.2 Those assigned the responsibility for managing the oversight programme should:

- .1 establish the objectives and extent of the oversight programme;
- .2 establish the responsibilities and procedures, and ensure resources are provided;
- .3 ensure the implementation of the oversight programme;
- .4 ensure that appropriate oversight programme records are maintained; and
- .5 monitor, review and improve the oversight programme.

7.3.2 Oversight programme resources

When identifying resources for the oversight programme, the flag State should consider the following:

- .1 financial resources necessary to develop, implement, manage, and improve oversight activities;
- .2 auditing techniques;
- .3 processes to achieve and maintain the competence of staff, and to improve oversight performance;
- .4 the availability of staff and technical experts having competence appropriate to the particular oversight programme objectives;
- .5 the extent of the oversight programme; and
- .6 travelling time, accommodation and other oversight needs.

7.3.3 Oversight programme procedures

7.3.3.1 The flag State's oversight programme procedures should address the following:

- .1 planning and scheduling of oversight activities;
- .2 assuring the competence of assigned personnel;
- .3 selecting appropriate personnel and assigning their roles and responsibilities;
- .4 conducting monitoring activities;
- .5 conducting follow-up, if applicable;
- .6 maintaining oversight programme records;
- .7 monitoring the performance and effectiveness of the oversight programme;
and
- .8 reporting on the overall achievements of the oversight programme.

7.3.3.2 For flag States with a limited authorization programme, the activities above may be addressed in a single procedure.

7.3.4 Oversight programme implementation

The implementation of a flag State oversight programme should include the following factors:

- .1 communicating the objectives of the oversight programme to relevant parties;
- .2 coordinating and scheduling monitoring activities relevant to the oversight programme;
- .3 establishing and maintaining a process for the evaluation of assigned personnel and their continual professional development;
- .4 selecting and appointing assigned personnel;
- .5 providing necessary resources to the oversight programme, specifically the corresponding monitoring activities;
- .6 robust execution of monitoring activities according to the oversight programme;
- .7 ensuring the control of records of the monitoring activities;
- .8 ensuring review and approval of monitoring activity reports, and ensuring their distribution to interested parties; and
- .9 ensuring follow-up, if applicable.

7.3.5 Oversight programme records

7.3.5.1 The flag State's monitoring records should be maintained to demonstrate the implementation of the oversight programme and should include the following:

- .1 all records related to monitoring activities, such as:
 - .1 plans;
 - .2 reports;
 - .3 non-conformity reports;
 - .4 corrective and preventive action reports, and
 - .5 follow-up reports, if applicable;
- .2 results of oversight programme review; and
- .3 records related to personnel covering subjects, such as:
 - .1 assigned personnel competence and performance evaluation;
 - .2 monitoring and/or audit team selection; and
 - .3 maintenance and improvement of competence.

7.3.5.2 Records should be retained and suitably safeguarded.

7.4 Oversight programme monitoring and reviewing

7.4.1 The implementation of a flag State oversight programme should be monitored and, at appropriate intervals, reviewed to assess whether its objectives have been met and to identify opportunities for improvement.

7.4.2 The flag State should develop and use performance indicators to monitor the effectiveness of its oversight programme for ROs. The following factors should be considered:

- .1 the ability of assigned personnel to implement the oversight plan;
- .2 conformity with the requirements of the RO Code, monitoring activities, and schedules; and
- .3 feedback from clients, ROs and assigned personnel.

7.4.3 The flag State should consider the following performance indicators when evaluating the performance of the ROs:

- .1 port State performance of ROs;
- .2 results of RO's internal audits;
- .3 results of quality management system audits performed by third-party organizations (ACBs);

- .4 the results of previous performance monitoring; and
- .5 condition/compliance of ships that receive survey and certification from the ROs.

7.4.4 The flag State should, on a periodic basis, evaluate its overall performance with respect to the implementation of administrative processes, procedures and resources necessary to meet its obligations as required by the conventions to which it is party.

7.4.5 Other measures to evaluate the performance of the flag States may include, inter alia, the following:

- .1 port State control detention rates;
- .2 flag State inspection results;
- .3 casualty statistics;
- .4 communication and information processes;
- .5 annual loss statistics (excluding constructive total losses (CTLs)); and
- .6 other performance indicators as may be appropriate, to determine whether staffing, resources and administrative procedures are adequate to meet their flag State obligations. Other performance measurement indicators may consist of the following:
 - .1 fleet loss and accident ratios to identify trends over selected time periods;
 - .2 the number of verified cases of detained ships in relation to the size of the fleet;
 - .3 the number of verified cases of incompetence or wrongdoing by individuals holding certificates or endorsements issued under its authority;
 - .4 responses to port State deficiency reports or interventions;
 - .5 investigations into very serious and serious casualties and lessons learned from them;
 - .6 technical and other resources committed;
 - .7 results of inspections, surveys and controls of the ships in the fleet;
 - .8 investigation of occupational accidents;
 - .9 the number of incidents and violations under MARPOL 73/78, as amended; and
 - .10 the number of suspensions or withdrawals of certificates, endorsements and approvals.

7.4.6 The oversight programme review should also consider:

- .1 results and trends from monitoring;
- .2 conformity with procedures;
- .3 evolving needs and expectations of interested parties;
- .4 oversight programme records;
- .5 alternative or new auditing practices or monitoring activities; and
- .6 consistency in performance between audit teams in similar situations.

7.4.7 Results of oversight programme reviews can lead to corrective and preventive actions and the improvement of the oversight programme.

Appendix 1

REQUIREMENTS FOR TRAINING AND QUALIFICATION OF RECOGNIZED ORGANIZATION'S TECHNICAL STAFF

A1.1 Definitions

A1.1.1 *Survey staff* are the personnel authorized to carry out surveys and to conclude whether or not compliance has been achieved.

A1.1.2 *Plan approval staff* are the personnel authorized to carry out design assessment and to conclude whether or not compliance has been achieved.

A.1.1.3 *Audit staff* are the personnel authorized to carry out audits and to conclude whether compliance has been achieved.

A1.1.4 *Trainee* is a person receiving theoretical and practical training under the supervision of a trainer/tutor.

A1.1.5 *Trainer* is a designated person having experience within a relevant area or a proficient expert in a special field recognized by the RO to give theoretical training through classroom teaching, special seminars or individual training.

A1.1.6 *Tutor* is a qualified and designated person from among the RO's staff having appropriate experience and capability in the relevant areas of activities in which they assist, consult and supervise the practical training of a trainee until the latter is qualified.

A1.1.7 *Technical staff* are the personnel qualified to carry out technical activity as survey staff or plan approval staff or, Marine Management Systems audit staff.

A1.1.8 *Support staff* are the personnel assisting survey and/or plan approval staff in connection with classification and statutory work.

A1.2 Trainee entry requirements

RO personnel performing, and responsible for, statutory work shall have as a minimum the formal education requirements defined in part II, section 4.2.5.

A1.3 Modules

A1.3.1 The RO shall define the required competence criteria for each relevant type of survey, and type of plan approval activity and audit to be performed.

A1.3.2 The RO shall define the necessary theoretical and practical training modules required to meet the competence criteria defined for survey, plan approval and marine management systems audit staff. The training modules shall cover as a minimum:

- .1 learning and competence objectives;
- .2 scope of training; and
- .3 evaluation criteria and pass requirements.

A1.3.3 Through studying the training modules, trainees shall acquire and develop general knowledge and understanding applicable to different types of ships and types of work according to the flag State requirements, RO's rules and regulations and international conventions and codes.

A1.4 Theoretical training for survey and plan approval staff

A1.4.1 The objective of theoretical training is to ensure that familiarization with rules, technical standards or statutory regulations and any additional requirement specific to the type of survey or ships is sufficient for the areas of activity.

A1.4.2 Theoretical training shall include:

- .1 general modules for theoretical training; and
- .2 special modules for theoretical training in the particular specialty.

A1.4.3 General modules for theoretical training shall include general subjects with respect to:

- .1 activity and functions of IMO and maritime Administrations;
- .2 activity and functions of classification societies;
- .3 classification of ships and offshore installations;
- .4 types of certificates and reports issued on completion of class and statutory surveys;
- .5 quality management system;
- .6 personal safety regulations; and
- .7 legal and ethical issues.

A1.4.4 The programmes of theoretical training for survey and plan approval staff shall be documented in a training plan and developed according to the areas of activity (types or categories of surveys, types of ships, subjects such as hull, machinery, electrical engineering, etc.).

A1.4.5 In case of an existing gap in the formal educational background in some particular field of activity, theoretical training shall be extended.

A1.4.6 In case survey or plan approval staff have obtained particular qualifications through their previous work experience prior to their joining the RO, the training plan may be reduced.

A1.4.7 Additions or reductions in the individual training plans shall be documented.

A1.4.8 In case of extension of areas of activity the training plan shall be developed and documented accordingly.

A1.4.9 Theoretical training may be received through classroom teaching, special seminars, individual training, self-study or computer-assisted training.

A1.5 Practical training for survey and plan approval staff (see appendix 2 for specific criteria for each certificate)

A1.5.1 General

Practical training shall ensure the trainee is sufficiently proficient to carry out survey or design assessment work independently.

A1.5.2 Plan approval staff

A1.5.2.1 Practical training shall be commensurate with the complexity of design assessment (review of technical design of ships, review of technical documentation on materials and equipment) and shall be carried out under the supervision of a tutor.

A1.5.2.2 Practical training carried out shall be recorded.

A1.5.3 Survey staff

A1.5.3.1 Practical training shall be commensurate with the complexity of the survey (types or categories of surveys, types of ships, specific subjects (hull, machinery, and electrical engineering)) and shall be carried out under the supervision of a tutor.

A1.5.3.2 Selection of particular surveys depends on the specialty/qualification to be granted and shall include classification and statutory types of surveys of the following, as appropriate:

- .1 new construction;
- .2 ships and offshore installations in operation; and
- .3 materials and equipment.

A1.5.3.3 Practical training carried out shall be recorded.

A1.5.4 Examinations and tests for survey and plan approval staff

A1.5.4.1 Competence gained through the theoretical training shall be demonstrated through written or oral examination or through suitable computer tests.

A1.5.4.2 Examinations and tests shall cover the sets of modules attended by the trainee, as applicable.

A1.5.4.3 With respect to competence gained through practical training being demonstrated by:

- .1 a surveyor, this shall be accomplished by the surveyor satisfactorily completing the surveys associated with the competence whilst under the supervision of the tutor. The surveyor would be expected to be able to answer associated technical questions raised as thought necessary by the tutor to confirm levels of understanding. The results of the tutor's review shall be annotated on the respective training record; and

- .2 a plan approval staff member, this shall be accomplished by the staff member satisfactorily completing the appraisal of drawings against the relevant classification rules and statutory regulations as verified through a review by the tutor of the staff member's work. The results of the tutor's review shall be annotated on the respective training record.

A1.5.4.4 A competent person shall perform examinations of theoretical training or witnessing practical competence.

A1.5.4.5 During examinations and tests, use of the relevant working documents (rules, conventions, checklists, etc.) by the trainee shall be considered allowable.

A1.5.5 Audit staff

A1.5.5.1 Theoretical training

A1.5.5.1.1 Theoretical training should address the following:

- .1 principles and practice of management systems auditing;
- .2 the requirements of the International Safety Management (ISM) Code and its interpretation and application;
- .3 mandatory rules and regulations and applicable codes, guidelines and standards recommended by the IMO, flag States, classification societies and maritime industry organization; and
- .4 basic shipboard operations including emergency preparedness and response. The time spent on each topic and the level of detail that it is necessary to include will depend on the qualifications and experience of the trainees, their existing competence in each subject, and the number of training audits to be carried out.

A1.5.5.1.2 The training may be modular in structure, in which case the period over which the theoretical training is delivered shall not exceed 12 months.

A1.5.5.1.3 Where appropriate, some elements may be delivered by means such as distance learning and e-learning. However, at least fifty per cent of the total theoretical training days shall be classroom-based in order to allow for discussion and debate and to allow candidates to benefit from the experience of the trainer.

A1.5.5.2 Examination

A1.5.5.2.1 Confirmation that the learning objectives have been met shall be demonstrated by written examination at the end of the theoretical training, or at the end of each module if the training is not delivered in a single training course.

A1.5.5.2.2 If the trainee fails the written examination, or any part thereof; a single resist will be permitted. A candidate who fails the resist will be required to undergo the corresponding theoretical training again before being allowed to make another attempt at the examination.

A1.5.5.2.3 A candidate who passes a written examination shall receive a certificate, statement or other record indicating which of the competences have been addressed, and the dates on which the corresponding training took place.

A1.5.5.3 Practical training

A1.5.5.3.1 A person authorized to carry out ISM audits shall have completed at least the minimum number of training audits under supervision as specified by the RO.

A1.5.5.3.2 The RO shall establish procedures for ensuring and demonstrating that the required competence has been achieved.

A1.6 Qualification

A1.6.1 After completion of the theoretical and practical training, with positive results, the trainee is granted the appropriate authorizations to work independently. The activities they are qualified to perform (types of surveys, types of ships, types of design approval, etc.) are identified.

A1.6.2 The criteria adopted by the RO for granting qualifications shall be documented in the appropriate quality management system documents.

A1.7 Assessment of training effectiveness

A1.7.1 The methods of training effectiveness assessment may include monitoring, testing, etc., on the regular basis according to the RO's system.

A1.7.2 The criteria adopted by the RO for training effectiveness assessment shall be documented in the appropriate RO quality management system documents.

A1.7.3 Evidence of training effectiveness assessment shall be provided.

A1.8 Maintenance of qualification

A1.8.1 The criteria adopted by the RO for maintenance or updating of qualifications shall be in accordance with and documented in the appropriate RO quality management system documents.

A1.8.2 Updating of qualifications may be done through the following methods:

- .1 self-study (unassisted study);
- .2 different courses and seminars organized in local offices and/or in the main offices of the RO;
- .3 extraordinary technical seminars in case of significant changes in the RO's rules or international conventions, codes, etc. (with examination if required); and
- .4 special training on specific works or type of survey in some areas of the activity, which are determined by activity monitoring or by a long time absence of practical experience.

A1.8.3 Maintenance of qualifications in accordance with these criteria shall be verified at annual performance review.

A1.9 Activity monitoring

A1.9.1 Purpose

Activity monitoring has the purpose:

- .1 to assess whether the individuals are competent and capable of carrying out their authorized and assigned work independently, consistent with the RO's policies and practices;
- .2 to identify needs for continual improvement in aligning the technical services across the organization; and
- .3 to identify need for improvements in the guidance processes and/or tools provided for the staff.

A1.9.2 Monitoring

A1.9.2.1 Headquarters, regional or local offices, may initiate activity monitoring. It shall be carried out by persons who are qualified in the survey or audit being monitored.

A1.9.2.2 It shall be carried out to the extent that the work of each surveyor or auditor engaged in survey or audit work will be monitored at least once every other calendar year. Where a person carries out both survey and audit work, they shall be monitored in both work activities at least once every other calendar year. Only one type of survey for a qualified surveyor and one type of audit for a qualified auditor need be monitored within the two-year cycle. Persons doing plan approval shall be monitored at least once every other calendar year.

A1.9.2.3 Subsequent to the monitoring, the monitoring surveyor or auditor shall report the activity.

A1.9.2.4 Should any comments be necessary, or findings made, these will be included in the report, for review and corrective action.

A1.9.3 Method

A1.9.3.1 Activity monitoring shall be performed by personnel authorized to undertake activity monitoring.

A1.9.3.2 Preparation shall include familiarization with the processes, requirements and tools (e.g. software) associated with the activity to be witnessed during the activity monitoring.

A1.9.3.3 The monitoring process shall include a review of relevant performance information related to the individual's work. This may include: report and certificate accuracy, meeting objectives, received complaints, PSC detention feedback.

A1.9.3.4 Survey, audit or plan approval activity selected for monitoring shall have an extent such as to cover a maximum possible range of activity and qualifications that can be monitored during the attendance.

A1.9.3.5 Monitoring shall include, but not be limited to, evaluation of the individual's:

- .1 personal safety awareness;
- .2 understanding and application of the relevant requirements;
- .3 technical capabilities;
- .4 understanding of the related requirements; and
- .5 standards of reporting and communication.

A1.9.4 Reporting

Subsequent to the monitoring, a report shall be made with conclusions with respect to:

- .1 whether the individuals assessed are capable of carrying out their authorized and assigned work (including particularly positive aspects);
- .2 any areas of improvement; and
- .3 any recommended training requirements.

A1.9.5 Evaluation

The monitoring report shall be evaluated by management who will determine the individual's continued authorization or possible training requirements to obtain further authorization. The report shall be completed and reviewed annually.

A1.9.6 Implementation

The RO shall:

- .1 document the activity monitoring methodology, including how it is reported;
- .2 document how the authorization to undertake activity monitoring is achieved;
- .3 document consequence and actions to undertake if activity-monitoring timing is exceeded;
- .4 maintain records to demonstrate that all relevant staff has been monitored in the prescribed period; and
- .5 maintain records to demonstrate level of technical performance and the effect of possible improvement activities across the organization through the analysis of activity monitoring.

A1.10 Training of support staff

Support staff shall have training and/or supervision commensurate with the tasks they are authorized to perform.

A1.11 Records

Records shall be maintained for each surveyor/plan approval staff member, indicating:

- .1 formal education background;
- .2 professional experience prior to joining the RO;
- .3 evidence of theoretical training completed;
- .4 evidence of practical training completed;
- .5 evidence of examinations and tests;
- .6 professional experience during employment at the RO; and
- .7 periodical updating of knowledge.

Appendix 2

SPECIFICATIONS ON THE SURVEY AND CERTIFICATION FUNCTIONS OF RECOGNIZED ORGANIZATIONS ACTING ON BEHALF OF THE FLAG STATE

A2.1 SCOPE

A2.1.1 This document contains minimum specifications for organizations recognized as capable of performing statutory work on behalf of a flag State in terms of certification and survey functions connected with the issuance of international certificates.

A2.1.2 The principle of the system described below is to divide the specifications required into different elementary modules with a view to selecting the relevant modules for each function of certification and survey.

A2.2 AREAS OF INTEREST COVERED BY ELEMENTARY MODULES

- .1 Management
- .2 Technical appraisal
- .3 Surveys
- .4 Qualifications and training.

A2.2.1 Management

Module 1A: Management functions

The management of the RO shall have the competence, capability and capacity to organize, manage and control the performance of survey and certification functions in order to verify compliance with requirements relevant to the tasks delegated and shall, inter alia:

- .1 possess an adequate number of competent supervisory, technical appraisal and survey personnel;
- .2 provide for the development and maintenance of appropriate procedures and instructions;
- .3 provide for the maintenance of up-to-date documentation on interpretation of the relevant instruments;
- .4 give technical and administrative support to field staff; and
- .5 provide for the review of survey reports and provision of experience feedback.

A2.2.2 Technical appraisal

Module 2A: Hull structure

The RO shall have the appropriate competence, capability and capacity to perform the following technical evaluations and/or calculations pertaining to:

- .1 longitudinal strength;
- .2 local scantlings such as plates and stiffeners;
- .3 structural stress, fatigue and buckling analyses; and
- .4 materials, welding and other pertinent methods of material-joining, for compliance with relevant rules and convention requirements pertaining to design, construction and safety.

Module 2B: Machinery systems

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 propulsion, auxiliary machinery and steering gear;
- .2 piping; and
- .3 electrical and automation systems,

for compliance with relevant rules and convention requirements pertaining to design, construction and safety.

Module 2C: Subdivision and stability

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 intact and damage stability;
- .2 inclining test assessment;
- .3 grain loading stability; and
- .4 watertight and weathertight integrity.

Module 2D: Load line

The RO shall have the appropriate competence, capability and capacity to perform the following technical evaluations and/or calculations pertaining to:

- .1 freeboard calculation; and
- .2 conditions of assignment of freeboard.

Module 2E: Tonnage

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to tonnage computation.

Module 2F: Structural fire protection

The RO shall have the appropriate competence, capability, and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 structural fire protection and fire isolation;
- .2 use of combustible materials;
- .3 means of escape; and
- .4 ventilation systems.

Module 2G: Safety equipment

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 life-saving appliances and arrangements;
- .2 navigation equipment;
- .3 fire detection and fire alarm systems and equipment;
- .4 fire-extinguishing system and equipment;
- .5 fire control plans;
- .6 pilot ladders and pilot hoists;
- .7 lights, shapes and sound signals; and
- .8 inert gas systems.

Module 2H: Oil pollution prevention

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 monitoring and control of oil discharge;
- .2 segregation of oil and ballast water;
- .3 crude oil washing;
- .4 protective location of segregated ballast spaces;
- .5 pumping, piping and discharge arrangements; and
- .6 shipboard oil pollution emergency plans (SOPEPs).

Module 2I: NLS pollution prevention

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 list of substances the ship may carry;
- .2 pumping system;
- .3 stripping system;
- .4 tank-washing system and equipment; and
- .5 underwater discharge arrangements.

Module 2J: Radio

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations pertaining to:

- .1 radiotelephony;
- .2 radiotelegraphy; and
- .3 GMDSS.

Alternatively, a professional radio installation inspection service company approved and monitored by the RO according to an established and documented programme may perform these services. This programme is to include the definition of the specific requirements the company and its radio technicians shall satisfy.

Module 2K: Carriage of dangerous chemicals in bulk

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 ship arrangement and ship survival capacity;
- .2 cargo containment and material of construction;
- .3 cargo temperature control and cargo transfer;
- .4 cargo tank vent systems and environmental control;
- .5 personnel protection; operational requirements; and
- .6 list of chemicals the ship may carry.

Module 2L: Carriage of liquefied gases in bulk

The RO shall have the appropriate competence, capability and capacity to perform technical evaluations and/or calculations pertaining to:

- .1 ship arrangement and ship survival capacity;
- .2 cargo containment and material of construction;
- .3 process pressure vessels and liquid, vapour and pressure piping systems;
- .4 cargo tank vent systems and environmental control;
- .5 personnel protection;
- .6 use of cargo as fuel; and
- .7 operational requirements.

A2.2.3 Surveys

Module 3A: Survey functions

The RO shall have the appropriate competence, capability and capacity to perform the required surveys under controlled conditions as per the RO's internal quality management system and, representing an adequate geographical coverage and local representation as required. The work to be covered by the staff is described in the relevant sections of the appropriate survey guidelines developed by the Organization.

A2.2.4 Qualifications and training

Module 4A: General qualifications

RO personnel performing, and responsible for, statutory work shall meet, as a minimum, the requirements defined in part II, section 4.2.5.

Module 4B: Radio survey qualifications

A professional radio installation inspection service company, approved and monitored by the RO according to an established and documented programme, may do surveys. This programme is to include the definition of the specific requirements the company and its radio technicians shall satisfy, including, inter alia, requirements for internal tutored training covering at least:

- .1 radiotelephony;
- .2 radiotelegraphy;
- .3 GMDSS; and
- .4 initial and renewal surveys.

Radio technicians carrying out surveys shall have successfully completed, as a minimum, at least one year of relevant technical school training, the internal tutored training programme of his/her employer and at least one year of experience as an assistant radio technician. For exclusive radio surveyors to the RO, equivalent requirements as above apply.

A2.3 SPECIFICATIONS PERTAINING TO THE VARIOUS CERTIFICATES

A2.3.1 Passenger ship safety certificate

Initial certification, renewal survey

A2.3.1.1 Module Nos. 1A, 2A, 2B, 2C, 2D, 2F, 2G, 2J, 3A, 4A and 4B apply.

A2.3.1.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74, as amended.
- .2 FS: SOLAS 74, as amended:
 - .1 initial survey, report, and issuance of certificate; and
 - .2 renewal survey, report, and issuance of certificate.

A2.3.2 Cargo ship safety construction certificate

Initial certification, annual/intermediate, renewal surveys

A2.3.2.1 Module Nos. 1A, 2A, 2B, 2C, 2F, 3A and 4A apply.

A2.3.2.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74 chapters II-1, II-2 and XII with any amendments and appropriate classification rules.
- .2 FS: Pertinent technical surveys (class surveys or similar), newbuilding:
 - .1 hull structure and equipment; and
 - .2 machinery and systems installation and testing.
- .3 FS: Pertinent technical surveys (class surveys or similar), ships in operation:
 - .1 annual/intermediate survey;
 - .2 renewal survey; and
 - .3 bottom survey.
- .4 FS: SOLAS 74 chapters II-1, II-2 and XII, as amended:
 - .1 initial survey, report, issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.3 Cargo ship safety equipment certificate

Initial certification, annual, periodical, renewal surveys

A2.3.3.1 Module Nos. 1A, 2G, 3A and 4A apply.

A2.3.3.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: SOLAS 74 chapters II-1, II-2, III and V, as amended, and applicable aspects of COLREG 72, as amended.
- .2 FS: SOLAS 74 chapters II-1, II-2, III and V, as amended, and applicable aspects of COLREG 72, as amended:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/periodical survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.4 Cargo ship safety radio certificate

Initial certification, periodical, renewal surveys

A2.3.4.1 Module Nos. 1A, 2J, 3A and 4B apply.

A2.3.4.2 For this certification the system shall cover practical tutored training on the following issues for Technical Appraisal and Support staff (TS) and Field Surveyors (FS) respectively:

- .1 TS: SOLAS 74 chapter IV, as amended.
- .2 FS: Reference Module 4B.

A2.3.5 International Safety Management Code certification

Initial certification, annual/intermediate verifications, renewal certification

A2.3.5.1 All of the modules, with the exception of 2E (tonnage), apply to the extent that they relate to an RO's ability to identify and evaluate the mandatory rules and regulations with which a company's safety management system and ships shall comply.

A2.3.5.2 For this certification, the system shall comply with the qualification and training requirements for ISM Code assessors contained in the *Guidelines on Implementation of the International Safety Management (ISM) Code by Administrations*.

A2.3.6 International load line certificate

Initial certification, annual, renewal surveys

A2.3.6.1 Module Nos. 1A, 2A, 2C, 2D, 3A and 4A apply.

A2.3.6.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Calculation of freeboard and approval of drawings for conditions of assignment according to ILLC 1966.
- .2 FS: Pertinent technical surveys (class surveys or similar), newbuilding:
 - .1 hull structural survey;
 - .2 hull penetrations and closing appliances; and
 - .3 stability/inclining test.
- .3 FS: Pertinent technical surveys (class surveys or similar), ships in operation:
 - .1 annual survey;
 - .2 renewal survey; and
 - .3 bottom survey.
- .4 FS: Measurement for load line/initial survey report.
- .5 FS: Conditions for assignment/initial survey report.
- .6 FS: Load line marking verification/initial survey report.
- .7 FS: Load line annual survey.
- .8 FS: Load line renewal survey, report and issuance of certificate.

A2.3.7 International oil pollution prevention certificate

Initial certification, annual, intermediate, renewal surveys

A2.3.7.1 Module Nos. 1A, 2A, 2B, 2C, 2H, 3A and 4A apply.

A2.3.7.2 For this certification, the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to MARPOL 73/78, Annex I.
- .2 FS: MARPOL 73/78, Annex I, as amended:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.8 International pollution prevention certificate for the carriage of noxious liquid substances in bulk

Initial certification, annual, intermediate, renewal surveys

A2.3.8.1 Module Nos. 1A, 2A, 2B, 2C, 2I, 3A and 4A apply.

A2.3.8.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to MARPOL 73/78, Annex II and appropriate codes.
- .2 FS: MARPOL 73/78, Annex II and appropriate codes:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.9 International certificate of fitness for the carriage of dangerous chemicals in bulk

Initial certification, annual, intermediate, renewal surveys

A2.3.9.1 Module Nos. 1A, 2A, 2B, 2C, 2K, 3A and 4A apply.

A2.3.9.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code).
- .2 FS: IBC Code:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.10 International certificate of fitness for the carriage of liquefied gases in bulk

Initial certification, annual, intermediate, renewal surveys

A2.3.10.1 Module Nos. 1A, 2A, 2B, 2C, 2L, 3A and 4A apply.

A2.3.10.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and manuals according to International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).
- .2 FS: IGC Code:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.11 International air pollution prevention certificate (IAPP)

Initial certification, annual, intermediate, renewal surveys

A2.3.11.1 Module Nos. 1A, 2B, 3A and 4A apply.

A2.3.11.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and technical files according to the International NO_x Technical Code.
- .2 FS: NO_x Technical Code:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.12 Engine international air pollution prevention certificate (EIAPP)

Initial certification, annual, intermediate, renewal surveys

A2.3.12.1 Module Nos. 1A, 2B, 3A and 4A apply.

A2.3.12.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Approval of drawings and technical files according to the International NO_x Technical Code.
- .2 FS: NO_x Technical Code:
 - .1 initial survey, report and issuance of certificate;
 - .2 annual/intermediate survey and report; and
 - .3 renewal survey, report and issuance of certificate.

A2.3.13 International tonnage certificate (1969)

Initial certification

A2.3.13.1 Module Nos. 1A, 2E and 4A apply.

A2.3.13.2 For this certification the system shall cover practical tutored training on the following issues as appropriate for Technical Appraisal and Support staff (TS) and Field Surveyors (FS), respectively:

- .1 TS: Measurement and computation of tonnage according to:
 - .1 1969 Tonnage Measurement Convention;
 - .2 Pertinent IMO resolutions.
- .2 FS: Marking survey and report.

Appendix 3

ELEMENTS TO BE INCLUDED IN AN AGREEMENT

A formal written agreement or equivalent between the flag State and the RO should, as a minimum, cover the following items:

- 1 Application
- 2 Purpose
- 3 General conditions
- 4 The execution of functions under authorization:
 - .1 Functions in accordance with the general authorization
 - .2 Functions in accordance with special (additional) authorization
 - .3 Relationship between the organization's statutory and other related activities
 - .4 Functions to cooperate with port States to facilitate the rectification of reported port State control deficiencies or the discrepancies within the organization's purview
- 5 Legal basis of the functions under authorization:
 - .1 Acts, regulations and supplementary provisions
 - .2 Interpretations
 - .3 Deviations and equivalent solutions
- 6 Reporting to the flag State:
 - .1 Procedures for reporting in the case of general authorization
 - .2 Procedures for reporting in the case of special authorization
 - .3 Reporting on classification of ships (assignment of class, alterations and cancellations), as applicable
 - .4 Reporting of cases where a ship did not in all respects remain fit to proceed to sea without danger to the ship or persons on board or presenting unreasonable threat of harm to the environment
 - .5 Other reporting
- 7 Development of rules and/or regulations – Information:
 - .1 Cooperation in connection with development of rules and/or regulations – liaison meetings

- .2 Exchange of rules and/or regulations and information
- .3 Language and form
- 8 Other conditions:
 - .1 Remuneration
 - .2 Rules for administrative proceedings
 - .3 Confidentiality
 - .4 Liability³
 - .5 Financial responsibility
 - .6 Entry into force
 - .7 Termination
 - .8 Breach of agreement
 - .9 Settlement of disputes
 - .10 Use of subcontractors
 - .11 Issue of the agreement
 - .12 Amendments
- 9 Specification of the authorization from the flag State to the organization:
 - .1 Ship types and sizes
 - .2 Conventions and other instruments, including relevant national legislation
 - .3 Approval of drawings
 - .4 Approval of material and equipment
 - .5 Surveys
 - .6 Issuance of certificates
 - .7 Corrective actions
 - .8 Withdrawal of certificates
 - .9 Reporting

³ ROs and its employees who are involved in or responsible for delivery of statutory certification and services may be required by the law of the flag State to be covered by professional indemnity or professional liability insurance in the event that liability is finally and definitively imposed on the flag State for loss or damage which is proved in a court of law to have been caused by any negligent act or omission by its RO. In this connection, the flag State may also consider placing a limitation on the level of liability and indemnification to be covered under that insurance or other compensation arrangements.

- 10 The flag State's supervision of duties delegated to the organization:
- .1 Documentation of quality assurance system
 - .2 Access to internal instructions, circulars and guidelines
 - .3 Access by the flag State to the organization's documentation relevant to the flag State's fleet
 - .4 Cooperation with the flag State's inspection and verification work
 - .5 Provision of information and statistics on, e.g. damage and casualties relevant to the flag State's fleet.

ANNEX 20

DRAFT AMENDMENTS TO SOLAS CHAPTER XI-1

**CHAPTER XI-1
SPECIAL MEASURES TO ENHANCE MARITIME SAFETY**

Regulation 1 – Authorization of recognized organizations

7 The existing text of regulation 1 is replaced by the following:

"Organizations referred to in regulation I/6 shall be authorized by the Administration in accordance with the provisions of the present Convention and with the Code for recognized organizations (RO Code) adopted by the Organization by resolution [MSC...], provided that:

- .1 the provisions of part I and part II of the RO Code are mandatory and shall be fully complied with;
- .2 the related guidance contained in part III of the RO Code should be taken into account to the greatest degree possible in order to achieve a more uniform implementation of the RO Code;
- .3 amendments to part I and part II of the RO Code shall be adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I; and
- .4 part III of the RO Code is non-mandatory and shall be amended by the Maritime Safety Committee and the Marine Environment Protection Committee in accordance with their rules of procedure provided that any amendments adopted by the MSC and the MEPC will be identical and will come into effect at the same time."

ANNEX 21

DRAFT AMENDMENTS TO THE 1988 LOAD LINES PROTOCOL

ANNEX B

**ANNEXES TO THE CONVENTION AS MODIFIED BY
THE PROTOCOL OF 1988 RELATING THERETO**

ANNEX I

REGULATIONS FOR DETERMING LOAD LINES

**CHAPTER I
GENERAL**

Regulation 2-1 – Authorization of recognized organizations

The existing text of regulation 2-1 is replaced by the following:

"Organizations, including classification societies, referred to in article 13 of the Convention and regulation 1(2) shall be authorized by the Administration in accordance with the provisions of the present Convention and with the Code for recognized organizations (RO Code) adopted by the Organization by resolution [MSC...], provided that:

- (a) the provisions of part I and part II of the RO Code are mandatory and shall be fully complied with;
 - (b) the related guidance contained in part III of the RO Code should be taken into account to the greatest degree possible in order to achieve a more uniform implementation of the RO Code;
 - (c) amendments to part I and part II of the RO Code shall be adopted, brought into force and take effect in accordance with the provisions of article VI of the present Protocol; and
 - (d) part III of the RO Code is non-mandatory and shall be amended by the Maritime Safety Committee and the Marine Environment Protection Committee in accordance with their rules of procedure provided that any amendments adopted by the MSC and the MEPC will be identical and will come into effect at the same time."
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