

**AVERAGE TESTED VALUE OF BUNKERS (DISTILLATE & RESIDUAL FUELS)
BY MARITIME PORT AUTHORITY SINGAPORE FOR 2nd QUARTER 2025**

A. Distillate

Characteristic	Unit	Average Tested Value 1Q 2025	Average Tested Value 2Q 2025	Test Method
Kinematic Viscosity @ 40°C	mm ² /s	4.019	4.091	ISO 3104
Density @15°C	kg/m ³	874.2	872.6	ISO 12185
Cetane Index	-	44.2	44.5	ISO 4264
Sulphur	% (m/m)	0.087	0.080	ISO 8754
Flash point	°C	79.0	75.0	ISO 2719
Hydrogen Sulfide	mg/kg	<0.60	<0.60	IP 570
Acid number	mg KOH/g	0.11	<0.10	ASTM D664
Total Sediment Hot Filtration	% (m/m)	-	-	ISO 10307-1
Carbon Residue	% (m/m)	<0.10	<0.10	ISO 10370
Cloud Point	°C	6	7	ISO 3015
CFPP	°C	2	3	ASTM D6371
Pour Point	°C	-6	-6	ISO 3016
Ash	mass %	<0.001	<0.001	ISO 6245
Lubricity	µm	328	328	ISO 12156-1
Water	% (m/m)	-	-	ISO 12937
Oxidation Stability	g/m ³	7	8	ISO 12205
Strong Acid Number	mg KOH/g	Zero	Zero	ASTM D664
Total Organic Halogen Content as Chlorine	mg/kg	<2	<2	EN 14077

B. Residual Fuels - VLSFO

Characteristic	Unit	Average Tested Value 1Q 2025	Average Tested Value 2Q 2025	Test Method
Kinematic Viscosity @50°C	mm²/s	128.9	142.7	ISO 3104
Density @15°C	kg/m³	948.8	953.4	ISO 12185
CCAI	-	824.0	828.0	ISO 8217 Annex F
Sulphur	% (m/m)	0.48	0.48	ISO 8754
Flash point	°C	74.0	74.0	ISO 2719
Hydrogen Sulfide	mg/kg	<0.60	<0.60	IP 570
Acid number	mg KOH/g	0.60	0.79	ASTM D664
Total Sediment Potential	% (m/m)	0.03	0.02	ISO 10307-2
Carbon Residue	% (m/m)	5.97	5.86	ISO 10370
Pour Point	°C	12	9	ISO 3016
Water	% (V/V)	0.30	0.24	ISO 3733
Ash	% (m/m)	0.023	0.020	ISO 6245
Vanadium	mg/kg	8	9	IP 501
Sodium	mg/kg	23	22	IP 501
Aluminium plus Silicon	mg/kg	32	38	IP 501
Calcium	mg/kg	17	18	IP 501
Zinc	mg/kg	3	2	IP 501
Phosphorus	mg/kg	2	2	IP 501
Strong Acid Number	mg KOH/g	Zero	Zero	ASTM D664
Total Organic Halogen Content as Chlorine	mg/kg	3	5	EN 14077

C. Residual-HSFO

Characteristic	Unit	Average Tested Value 1Q 2025	Average Tested Value 2Q 2025	Test Method
Kinematic Viscosity @50°C	mm²/s	356.5	366.2	ISO 3104
Density @15°C	kg/m³	982.4	979.9	ISO 12185
CCAI	-	844.0	841.0	ISO 8217 Annex F
Sulphur	% (m/m)	3.07	2.92	ISO 8754
Flash point	°C	80.0	81.0	ISO 2719
Hydrogen Sulfide	mg/kg	<0.60	<0.60	IP 570
Acid number	mg KOH/g	0.51	0.34	ASTM D664
Total Sediment Potential	% (m/m)	0.02	0.02	ISO 10307-2
Carbon Residue	% (m/m)	13.45	12.67	ISO 10370
Pour Point	°C	-3	0	ISO 3016
Water	% (V/V)	0.28	0.28	ISO 3733
Ash	% (m/m)	0.045	0.044	ISO 6245
Vanadium	mg/kg	139	149	IP 501
Sodium	mg/kg	26	29	IP 501
Aluminium plus Silicon	mg/kg	19	23	IP 501
Calcium	mg/kg	9	8	IP 501
Zinc	mg/kg	1	1	IP 501
Phosphorus	mg/kg	1	1	IP 501
Strong Acid Number	mg KOH/g	Zero	Zero	ASTM D664
Total Organic Halogen Content as Chlorine	mg/kg	3	4	EN 14077

D. Bio-Residual¹

Characteristic	Unit	Average Tested Value 1Q 2025	Average Tested Value 2Q 2025	Test Method
Kinematic Viscosity @50°C	mm ² /s	46.30	53.13	ISO 3104
Density @15°C	kg/m ³	937.5	945.9	ISO 12185
CCAI	-	825.6	833.9	ISO 8217 Annex F
Sulphur	% (m/m)	0.44	0.43	ISO 8754
Flash point	°C	93.1	94.8	ISO 2719
Hydrogen Sulfide	mg/kg	<0.60	<0.60	IP 570
Acid number	mg KOH/g	0.49	0.57	ASTM D664
Total Sediment Potential	% (m/m)	0.02	0.02	ISO 10307-2
Carbon Residue	% (m/m)	5.87	7.29	ISO 10370
Pour Point	°C	6	3	ISO 3016
Water	% (V/V)	0.22	0.19	ISO 3733
Ash	% (m/m)	0.019	0.027	ISO 6245
Vanadium	mg/kg	21	23	IP 501
Sodium	mg/kg	16	17	IP 501
Aluminium plus Silicon	mg/kg	23	28	IP 501
Calcium	mg/kg	7	10	IP 501
Zinc	mg/kg	1	1	IP 501
Phosphorus	mg/kg	1	1	IP 501
FAME content	% (m/m)	24.7	24.3	ASTM D7963

¹ Based on COQs received.

E. B100²

Characteristic	Unit	Average Tested Value 1Q 2025	Average Tested Value 2Q 2025	Test Method
Ester Content	% (m/m)	97.2	97.3	EN 14103
Density @15°C	% (m/m)	894.5	877.8	EN 14103
Kinematic Viscosity @ 40 °C	mm ² /s	4.551	4.090	EN ISO 3104
Flash Point, PMCC	°C	122.6	165.6	EN ISO 2719
Cetane Number	-	58.4	58.1	EN ISO 5165
Copper Corrosion @ 50°C (122°F) for 3hrs	-	1a	1a	EN ISO 2160
Oxidation Stability @ 110°C	hours	>8	>8	EN 14112
Acid Value	mg KOH/g	0.40	0.40	EN 14104
Iodine Value	g iodine /100g	55.3	64.5	EN 14111
Linolenic Acid Methyl Ester Content	kg/m ³	1	1	EN ISO 12185
Polyunsaturated (>= 4 Double Bonds) Methyl Esters	% (m/m)	<0.60	<0.60	EN 15779
Methanol Content	% (m/m)	0.026	0.020	EN 14110B
Monoglycerides Content	% (m/m)	0.33	0.20	EN 14105
Diglycerides Content	% (m/m)	<0.10	<0.10	EN 14105
Triglycerides Content	% (m/m)	<0.10	<0.10	EN 14105
Free Glycerol	% (m/m)	0.011	0.016	EN 14105
Total Glycerol	% (m/m)	0.109	0.095	EN 14105
Water content	ppm (m/m)	280	260	EN ISO 12937

² Based on COQs received.

Total Contamination	mg/kg	12.0	12.0	EN 12662
Sulfated Ash Content	% (m/m)	<0.02	<0.02	ISO 3987
Sulfur Content	mg/kg	6	8	EN ISO 20846
Group II Metals (Ca + Mg)	mg/kg	<2	<2	EN 14538
Group I Metals (Na + K)	mg/kg	<2	<2	EN 14538
Phosphorus Content	mg/kg	<4	<4	EN 14107
Cold Filter Plugging Point (CFPP)	°C	10	8	EN 116