

ISO 8217:2012

MARINE DISTILLATE FUELS

Parameter (Unit)	Limit	DMX	DMA	DMZ	DMB	Test Method
Density at 15 °C (kg/m ³)	Max	-	890	890	900	ISO 3675/12185
Viscosity at 40 °C ^(a) (mm ² /s)	Max Min	5.5 1.4	6.0 2.0	6.0 3.0	11.0 2.0	ISO 3104
Micro Carbon Residue at 10% (% m/m)	Max	0.3	0.3	0.3	-	ISO 10370
Micro Carbon Residue (% m/m)	Max	-	-	-	0.3	ISO 10370
Water (% V/V)	Max	-	-	-	0.3 ^(d)	ISO 3733
Sulphur ^(b) (% m/m)	Max	1.0	1.5	1.5	2.0	ISO 14596/8754
Total Sediment by hot filtration (% m/m)	Max	-	-	-	0.1 ^(d)	ISO 10307-1
Ash (% m/m)	Max	0.01	0.01	0.01	0.01	ISO 6245
Flash point (°C)	Min	43	60	60	60	ISO 2719
Pour point in Summer ^(c) (°C)	Max	-	0	0	6	ISO 3016
Pour point in Winter ^(c) (°C)	Max	-	-6	-6	0	ISO 3016
Cloud point (°C)	Max	-16	-	-	-	ISO 3015
Cetane Index (-)	Min	45	40	40	35	ISO 4264
Acid number (mg KOH/g)	Max	0.5	0.5	0.5	0.5	ASTM D664
Oxidation stability (g/m ³)	Max	25	25	25	25 ^(e)	ISO 12205
Lubricity, corrected wear scar diameter (wsd 1.4 at 60°C ^(g)) (µm)	Max	520	520	520	520 ^(f)	ISO 12156-1
Hydrogen sulphide (mg/kg)	Max	2.0	2.0	2.0	2.0	IP 570
Appearance (-)	-	Clear & Bright ^(h)			- ^(d) (e) (f)	-

(a) 1 mm²/s = 1 cSt.

(b) Notwithstanding the limits given, the purchaser shall define the maximum sulfur content in accordance with relevant statutory limitations.

(c) Purchasers should ensure that this pour point is suitable for the equipment on board, especially if the ship operates in cold climates.

(d) If the sample is not clear and bright, the total sediment by hot filtration and water tests shall be required.

(e) If the sample is not clear and bright, the test cannot be undertaken and hence the oxidation stability limit shall not apply.

(f) If the sample is not clear and bright, the test cannot be undertaken and hence the lubricity limit shall not apply.

(g) This requirement is applicable to fuels with a sulfur content below 500 mg/kg (0.050 mass %).

(h) If the sample is dyed and not transparent, then water test shall be required. The water content shall not exceed 200 mg/kg (0.02 % m/m).

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MARINE RESIDUAL FUELS

Parameter (Unit)	Limit	RMA 10 ^(a)	RMB 30	RMD 80	RME 180	RMG 180	RMG 380	RMG 500	RMG 700	RMK 380	RMK 500	RMK 700	Test Method
Density at 15 °C (kg/m ³)	Max	920	960	975	991	991				1010			ISO 12185 /3675
Viscosity at 50 °C ^(b) (mm ² /s)	Max	10	30	80	180	180	380	500	700	380	500	700	ISO 3104
Water (% V/V)	Max	0.3	0.5										ISO 3733
Micro Carbon Residue (% m/m)	Max	2.5	10.0	14.0	15.0	18.0				20.0			ISO 10370
Sulphur ^(c) (% m/m)	Max	Statutory Requirements											ISO 14596 /8754
Total Sediment, aged (% m/m)	Max	0.1											ISO 10307-2
Sodium (mg/kg)	Max	50	100		50	100						IP 501/ IP 470	
Ash (% m/m)	Max	0.04	0.07			0.10				0.15			ISO 6245
Vanadium (mg/kg)	Max	50	150			350				450			ISO 14597 /IP 501 /IP 470
Aluminium + Silicon (mg/kg)	Max	25	40		50	60						ISO 10478 /IP 501 /IP 470	
CCAI (-)	Max	850	860			870						-	
Flash point (°C)	Min	60											ISO 2719
Pour point in Summer ^(d) (°C)	Max	6		30									ISO 3016
Pour point in Winter ^(d) (°C)	Max	0		30									ISO 3016
Acid number (mg KOH/g)	Max	2.5											ASTM D664
Used lubricating oils (ULO): Calcium and Zinc; or Calcium and Phosphorus (mg/kg)	-	The fuel shall be free from ULO. A fuel shall be considered to contain ULO when either one of the following conditions is met: calcium > 30 and zinc > 15; or calcium > 30 and phosphorus > 15											IP 501 /IP 470 /IP 500
Hydrogen sulphide (mg/kg)	Max	2.0											IP 570

- (a) This category is based on a previously defined distillate DMC category that was described in ISO 8217:2005.
- (b) $1 \text{ mm}^2/\text{s} = 1\text{cSt}$.
- (c) The purchaser shall define the maximum sulfur content in accordance with relevant statutory limitations.
- (d) Purchasers shall ensure that this pour point is suitable for the equipment on board, especially if the ship operates in cold climates.