



GLANDER

International Inc.

Established 1961

ISO 8217:2010 Marine Fuel Specifications

***Requirements for Marine Distillate Fuels**

Characteristics	Unit	Limit	Category ISO-F			
			DMX	DMA	DMZ	DMB
Viscosity at 40°C	mm ² /s	Max	5.5	6.0	6.0	11.0
	mm ² /s	Min	1.4	2.0	3.0	2.0
Micro Carbon Residue at 10% Residue	% m/m	Max	0.3	0.3	0.3	-
Density at 15°C	kg/m ³	Max	----	890	890	900
Micro Carbon Residue	% m/m	Max	----	----	----	0.3
Sulphur (A)	% m/m	Max	1.0	1.5	1.5	2.0
Water	% V/V	Max	----	----	----	0.3 (B)
Total sediment by hot filtration	% m/m	Max	----	----	----	0.1 (B)
Ash	% m/m	Max	0.01	0.01	0.01	0.01
Flash point	0°C	Min	43.0	60.0	60.0	60.0
Pour point, Summer	0°C	Max	0	0	0	6
Pour point, Winter	°C	Max	-6	-6	-6	0
Cloud point	°C	Max	-16	-	-	-
Calculated Cetane Index		Min	45	40	40	35
Acid Number	Mg KOH/g	Max	0.5	0.5	0.5	0.5
Oxidation stability	g/m ³	Max	25	25	25	25 (C)
Lubricity, corrected wear scar diameter (wsd 1.4 at 60°C) (D)	um	Max	520	520	520	520 (C)
Hydrogen sulphide (E)	mg/kg	Max	2.0	2.0	2.0	2.0
Appearance			Clear & Bright		(F)	(B)(C)

- (A) sulphur limit of 1.00% m/m applies in the Emission Control Areas designated by the International Maritime Organization. As there may be local variations, the purchaser shall define the maximum sulphur content according to the relevant statutory requirements, notwithstanding the limits given in this table.
- (B) If the sample is not clear and bright, total sediment by hot filtration and water test shall be required.
- (C) Oxidation stability and lubricity tests are not applicable if the sample is not clear and bright.
- (D) Applicable if sulphur is less than 0.050% m/m.
- (E) Effective only from 1 July 2012.
- (F) If the sample is dyed and not transparent, water test shall be required. The water content shall not exceed 200 mg/kg (0.02% m/m).



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***Requirements for Marine Residual Fuels**

Parameter	Unit	Limit	RMA ^A	RMB	RMD	RME	RMG				RMK			
			10	30	80	180	180	380	500	700	380	500	700	
Viscosity at 50°C	mm ² /s	Max	10.0	30.0	80.0	180.0	180.0	380.0	500.0	700.0	380.0	500.0	700.0	
Density at 15°C	kg/m ³	Max	920	960	975	991	991				1010			
Micro Carbon Residue	% m/m	Max	2.5	10.0	14.0	15.0	18.0				20.0			
Aluminium + Silicon	mg/kg	Max	25	40		50	60							
Sodium	mg/kg	Max	50	100		50	100							
Ash	% m/m	Max	0.04	0.07			0.10				0.15			
Vanadium	mg/kg	Max	50	150			350				450			
CCAI	-	Max	850	860			870							
Water	% V/V	Max	0.30				0.50							
Pour point (upper) , Summer B	°C	Max	6				30							
Pour point (upper) , Winter B	°C	Max	0				30							
Flash point	°C	Min					60.0							
Sulphur C	% m/m	Max	Statutory requirements											
Total Sediment, aged	% m/m	Max					0.10							
Acid Number E	Mg KOH/g	Max					2.5							
Used lubricating oils (ULO): Calcium and Zinc; or Calcium and Phosphorus	mg/kg	-	The fuel shall be free from ULO, and 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.											
Hydrogen sulphide D	mg/kg	Max					2.00							

(A) This residual marine fuel grade is formerly DMC distillate under ISO 8217:2005.

(B) Purchasers shall ensure that this pour point is suitable for the equipment on board, especially in cold climates.

(C) The purchaser shall define the maximum sulphur content according to the relevant statutory requirements.

(D) Effective only from 1 July 2012.

(E) Strong acids are not acceptable, even at levels not detectable by the standard test methods for SAN.
As acid numbers below the values stated in the table do not guarantee that the fuels are free from problems associated with the presence of acidic compounds, it is the responsibility of the supplier and the purchaser to agree upon an acceptable acid number.