

Table 1 – Requirements for marine distillate fuels

Characteristic	Unit	Limit	Category ISO-F-				Test method reference
			DMX	DMA	DMB	DMC °	
Density at 15 °C	kg/m ³	max.	--	890,0	900,0	920,0	ISO 3675 or ISO 12185 (see also 7.1)
Viscosity at 40 °C	mm ² /s b	Min. max.	1,40 5,50	1,50 6,00	– 11,0	– 14,0	ISO 3104 ISO 3104
Flash point	°C	min. min.	– 43	60 –	60 –	60 –	ISO 2719 (see also 7.2)
Pour point (upper) c – winter quality – summer quality	°C	max. max.	-- --	-6 0	0 6	0 6	ISO 3016 ISO 3016
Cloud point	°C	max.	-16 d	–	--	–	ISO 3015
Sulfur	% (m/m)	max.	1,00	1,50	2,00 e	2,00 e	ISO 8754 or ISO 14596 (see also 7.3)
Cetane index	--	min.	45	40	35	--	ISO 4264
Carbon residue on 10 % (VN) distillation bottoms	% (m/m)	max.	0,30	0,30	–	–	ISO 10370
Carbon residue	% (m/m)	max.	--	--	0,30	2,50	ISO 10370
Ash	% (m/m)	max.	0,01	0,01	0,01	0,05	ISO 6245
Appearance f	--	--	Clear and bright		F	--	See 7.4 and 7.5
Total sediment, existent	% (m/m)	max.	–	–	0,10 f	0,10	ISO 10307-1 (see 7.5)
Water	% (VIV)	max.	--	--	0,3 f	0,3	ISO 3733
Vanadium	mg/kg	max.	–	–	–	100	ISO 14597 or IP 501 or IP 470 (see 7.8)
Aluminium plus silicon	mg/kg	max.	--	--	--	25	ISO 10478 or IP 501 or IP 470 (see 7.9)
Used lubricating oil (ULO)							
	mg/kg	max.	–	–	–	The fuel shall be free of ULO g 15	IP S01 or IP 470 IP S01 or IP 500 IP S01 or IP 470 (see 7.7)
- Zinc	mg/kg	max.	--	--	--		
- Phosphorus	mg/kg	max.	--	--	--		
- Calcium	mg/kg	max.	--	--	--	30	

^a Note that although predominantly consisting of distillate fuel, the residual oil proportion can be significant.

^b 1 mm²/s = 1 CST

^c Purchasers should ensure that this pour point is suitable for the equipment on board, especially if the vessel operates in both the northern and southern hemispheres.

^d This fuel is suitable for use without heating at ambient temperatures down to - 16 °C.

^e A sulfur limit of 1,5 % (m/m) will apply in SO₂ emission control areas designated by the International Maritime Organization, when its relevant protocol enters into force. There may be local variations, for example the EU requires that sulphur content of certain distillate grades be limited to 0,2 % (m/m) in certain applications. See 0.3 and reference [7].

^f If the sample is clear and with no visible sediment or water, the total sediment existent and water tests shall not be required. See 7.4 and 7.5.

^g A fuel shall be considered to be free of used lubricating oils (ULOs) if one or more of the elements zinc, phosphorus and calcium are below or at the specified limits. All three elements shall exceed the same limits before a fuel shall be deemed to contain ULOs.