

**INTERNATIONAL STANDARD ISO 8217 third edition 2005-11-01**

**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 <sup>3</sup>	max.	-	890,0	900,0	920,0	ISO 3675 or ISO 12185 (see also 7.1)
viscosity at 40°C	mm <sup>2</sup> /s <sup>b</sup>	min.	1,40	1,50	-	-	ISO 3104
		max.	5,50	6,00	11,00	14,00	
flash point	°C	min.	-	60	60	60	ISO 2719 (see also 7.2)
		min.	43	-	-	-	
pour point (upper) <sup>c</sup>							ISO 3016
winter quality	°C	max.	-	-6	0	0	
summer quality	°C	max.	-	0	6	6	
cloud point	°C	max.	-16 <sup>d</sup>	-	-	-	ISO 3015
sulfur	% (m/m)	max.	1,00	1,50	2,00 <sup>e</sup>	2,00 <sup>e</sup>	ISO 8754 or ISO 14596 (see also 7.3)
cetane index	-	min.	45	40	35	-	ISO 4264
carbon residue on 10% (V/V) distillation bottoms	% (m/m)	max.	0,30	0,30	-	-	ISO 10370
carbon residue	% (m/m)	max.	-	-	0,30	2,50	
ash	% (m/m)	max.	0,01	0,01	0,01	0,05	ISO 6245
appearance <sup>f</sup>	-	-	clear and bright			-	see 7.4 and 7.5
total sediment existent	% (m/m)	max.	-	-	0,10 <sup>f</sup>	0,10	ISO 10307-1 (see 7.5)
water	% (v/v)	max.	-	-	0,3 <sup>f</sup>	0,3	ISO 3733
vanadium	mg/kg	max.	-	-	-	100	ISO 14597 or IP 501 or IP 470 (see 7.8)
aluminium + silicon	mg/kg	max.	-	-	-	25	ISO 10478 or IP 501 or IP 470 (see 7.9)
used lubricating oil (ULO)						the fuel shall be free of ULO <sup>g</sup>	
zinc	mg/kg	max.	-	-	-	15	IP 501 or IP 470 (see 7.7)
phosphorus	mg/kg	max.	-	-	-	15	IP 501 or IP 500 (see 7.7)
calcium	mg/kg	max.	-	-	-	30	IP 501 or IP 470 (see 7.7)

<sup>a</sup> note that although predominately consisting of distillate fuel, the residual oil proportion can be significant.

<sup>b</sup> 1mm<sup>2</sup>/s = 1 cSt

<sup>c</sup> 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.

<sup>d</sup> this fuel is suitable for use without heating at ambient temperatures down to - 16°C.

<sup>e</sup> a sulfur limit of 1,5 % (m/m) will apply in SO2 emission control areas designated by the IMO, when its relevant protocol comes into force. There may be local variations.

<sup>f</sup> if the is clear and with no visible sediment or water , the total sediment existent and water tests shall not be required.

<sup>g</sup> a fuel shall be considered to be free of ULO 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.