

Table 1 — Distillate marine fuels

Characteristics	Unit	Limit	Category ISO-F-				Test method reference	
			DMX	DMA	DMZ	DMB		
Kinematic viscosity at 40 °C <sup>a</sup>	mm <sup>2</sup> /s	max.	5,500	6,000	6,000	11,00	ISO 3104	
		min.	1,400	2,000	3,000	2,000		
Density at 15 °C	kg/m <sup>3</sup>	max.	—	890,0	890,0	900,0	see 7.1 ISO 3675 or ISO 12185	
Cetane index	—	min.	45	40	40	35	ISO 4264	
Sulfur <sup>b</sup>	mass %	max.	1,00	1,50	1,50	2,00	see 7.2 ISO 8754 ISO 14596	
Flash point	°C	min.	43,0	60,0	60,0	60,0	see 7.3 ISO 2719	
Hydrogen sulfide <sup>c</sup>	mg/kg	max.	2,00	2,00	2,00	2,00	IP 570	
Acid number	mg KOH/g	max.	0,5	0,5	0,5	0,5	ASTM D664	
Total sediment by hot filtration	mass %	max.	—	—	—	0,10 <sup>e</sup>	see 7.4 ISO 10307-1	
Oxidation stability	g/m <sup>3</sup>	max.	25	25	25	25 <sup>f</sup>	ISO 12205	
Carbon residue: micro method on the 10 % volume distillation residue	mass %	max.	0,30	0,30	0,30	—	ISO 10370	
Carbon residue: micro method	mass %	max.	—	—	—	0,30	ISO 10370	
Cloud point	°C	max.	-16	—	—	—	ISO 3015	
Pour point (upper) <sup>d</sup>	winter quality	°C	max.	-6	-6	-6	0	ISO 3016
	summer quality	°C	max.	0	0	0	6	ISO 3016
Appearance	—	—	Clear and bright <sup>l</sup>			e, f, g	see 7.6	
Water	volume %	max.	—	—	—	0,30 <sup>e</sup>	ISO 3733	
Ash	mass %	max.	0,010	0,010	0,010	0,010	ISO 6245	
Lubricity, corrected wear scar diameter (wsd 1,4) at 60 °C <sup>h</sup>	µm	max.	520	520	520	520 <sup>g</sup>	ISO 12156-1	

Table 1 (continued)

Characteristics	Unit	Limit	Category ISO-F-				Test method reference
			DMX	DMA	DMZ	DMB	
a		1 mm <sup>2</sup> /s = 1 cSt.					
b		Notwithstanding the limits given, the purchaser shall define the maximum sulfur content in accordance with relevant statutory limitations. See Annex C.					
c		Due to reasons stated in Annex D, the implementation date for compliance with the limit shall be 1 July 2012. Until such time, the specified value is given for guidance. For distillate fuels the precision data are currently being developed.					
d		Purchasers should ensure that this pour point is suitable for the equipment on board, especially if the ship operates in cold climates.					
e		If the sample is not clear and bright, the total sediment by hot filtration and water tests shall be required, see 7.4 and 7.6.					
f		If the sample is not clear and bright, the test cannot be undertaken and hence the oxidation stability limit shall not apply.					
g		If the sample is not clear and bright, the test cannot be undertaken and hence the lubricity limit shall not apply.					
h		This requirement is applicable to fuels with a sulfur content below 500 mg/kg (0,050 mass %).					
j		If the sample is dyed and not transparent, then the water limit and test method as given in 7.6 shall apply.					