

## ISO 8217:2010 FUEL STANDARD

For marine distillate fuels

Characteristic	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>i</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	

- 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.  
d. For distillate fuels the precision data are currently being developed.  
e. Purchasers should ensure that this pour point is suitable for the equipment on board, especially if the ship operates in cold climates.  
f. 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.  
g. If the sample is not clear and bright, the test cannot be undertaken and hence the oxidation stability limit shall not apply.  
h. If the sample is not clear and bright, the test cannot be undertaken and hence the lubricity limit shall not apply.  
i. 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.

## ISO 8217:2010 FUEL STANDARD

For marine residual fuels

Characteristic	Unit	Limit	Category ISO-F											Test method reference	
			RMA	RMB	RMD	RME	RMG				RMK				
			10a	30	80	180	180	380	500	700	380	500	700		
Kinematic viscosity at 40 °C <sup>b</sup>	mm <sup>2</sup> /s	max.	10,00	30,00	80,00	180,00	180,00	380,00	500,00	700,00	380,00	500,00	700,00	ISO 3104	
Density at 15 °C	kg/m <sup>3</sup>	max.	920,0	960,0	975,0	991,0	991,0				1010,0			see 7.1 ISO 3675 or ISO 12185	
CCAI	–	max.	850	860	860	860	870				870			see 6.3 <sup>a</sup>	
Sulfur <sup>c</sup>	mass %	max.	Statutory requirements											see 7.2 ISO 8754 ISO 14596	
Flash point	°C	min.	60,0	60,0	60,0	60,0	60,0				60,0			see 7.3 ISO 2719	
Hydrogen sulfide <sup>d</sup>	mg/kg	max.	2,00	2,00	2,00	2,00	2,00				2,00			IP 570	
Acid number <sup>e</sup>	mg KOH/g	max.	2,5	2,5	2,5	2,5	2,5				2,5			ASTM D664	
Total sediment aged	mass %	max.	0,10	0,10	0,10	0,10	0,10				0,10			see 7.5 ISO 10307-2	
Carbon residue: micro method	mass %	max.	2,50	10,00	14,00	15,00	18,00				120,00			ISO 10370	
Pour point (upper) <sup>f</sup>	winter quality	°C	max.	0	0	30	30	30				30			ISO 3016
	summer quality	°C	max.	6	6	30	30	30				30			ISO 3016
Water	volume %	max.	0,30	0,50	0,50	0,50	0,50				0,50			ISO 3733	
Ash	mass %	max.	0,040	0,070	0,070	0,070	0,100				0,150			ISO 6245	
Vanadium	mg/kg	max.	50	150	150	150	350				450			see 7.7 IP 501, IP 470 or ISO 14597	
Sodium	mg/kg	max.	50	100	100	50	100				100			see 7.8 IP 501, IP 470	
Aluminium plus silicon	mg/kg	max.	25	40	40	50	60				60			see 7.9 IP 501, IP 470 or ISO 10478	
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											see 7.10 IP 501 or IP 470 IP 500	

- a. This category is based on a previously defined distillate DMC category that was described in ISO 8217:2005, Table 1. ISO 8217:2005 has been withdrawn.  
b. 1 mm<sup>2</sup>/s = 1 cSt.  
c. The purchaser shall define the maximum sulfur content in accordance with relevant statutory limitations. See 0.3 and Annex C.  
d. 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.  
e. See Annex H.  
f. Purchasers shall ensure that this pour point is suitable for the equipment on board, especially if the ship operates in cold climates.