



## Marine Fuel Oil Specification

### Marine Residual Fuels

Fulfils ISO 8217 2012

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Properties	Units	Limit	Grade											Test methods	
			RMA	RMB	RMD	RME	RMG				RMK				
			10	30	80	180	180	380	500	700	380	500	700		
Kinematic viscosity at 50 °C	mm <sup>2</sup> /s	max.	10,00	30,00	80,00	180,0	180,0	380,0	500,0	700,0	380,0	500,0	700,0	ISO 3104	
Density at 15 °C	kg/m <sup>3</sup>	max.	920,0	960,0	975,0	991,0	991,0				1010,0			ISO 3675 or ISO 12185	
CCAI	–	max.	850	860	860	860	870				870				
Sulfur	mass %	max.	Statutory requirements											ISO 8754 ISO 14596	
Flash point	°C	min.	60,0	60,0	60,0	60,0	60,0				60,0			ISO 2719	
Hydrogen sulfide	mg/kg	max.	2,00	2,00	2,00	2,00	2,00				2,00			IP 570	
Acid number	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			ISO 10307-2	
Carbon residue: micro method	mass %	max.	2,50	10,00	14,00	15,00	18,00				20,00			ISO 10370	
Pour point (upper)	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			IP 501, IP 470 or ISO 14597	
Sodium	mg/kg	max.	50	100	100	50	100				100			IP 501, IP 470	
Aluminium plus silicon	mg/kg	max.	25	40	40	50	60				60			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											IP 501 or IP 470 IP 500	