

## RESIDUAL MARINE FUELS

ISO 8217:2012

PARAMETERS	UNIT	LIMIT	CATEGORY ISO-F										
			RMA	RMB	RMD	RME	RMG				RMK		
			10	30	80	180	180	380	500	700	380	500	700
<b>Kinematic Viscosity at 50°C</b>	mm <sup>2</sup> /s	max	10,0	30,0	80,0	180,0	180,0	380,0	500,0	700,0	380,0	500,0	700,0
<b>Density at 15°C</b>	kg/m <sup>3</sup>	max	920,0	960,0	975,0	991,0	991,0	991,0	991,0	991,0	1.010,0	1.010,0	1.010,0
<b>CCAI</b>	-	max	850	860	860	860	870	870	870	870	870	870	870
<b>Sulfur</b>	mass (%)	max	STATUTORY REQUIREMENTS										
<b>Flash Point</b>	°C	min	60,0	60,0	60,0	60,0	60,0	60,0	60,0	60,0	60,0	60,0	60,0
<b>Hydrogen Sulfide</b>	mg/kg	max	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
<b>Acid Number</b>	mg KOH/g	max	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
<b>Total Sediment</b>	mass (%)	max	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
<b>Carbon Residue:Micro Method</b>	mass (%)	max	2,50	10,00	14,00	15,00	18,00	18,00	18,00	18,00	20,00	20,00	20,00
<b>Pour Point</b>	<b>winter quality</b>	°C	max	0	0	30	30	30	30	30	30	30	30
	<b>summer quality</b>	°C	max	6	6	30	30	30	30	30	30	30	30
<b>Water</b>	volume (%)	max	0,30	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
<b>Ash</b>	mass (%)	max	0,040	0,070	0,070	0,070	0,100	0,100	0,100	0,100	150	150	150
<b>Vanadium</b>	mg/kg	max	50	150	150	150	350	350	350	350	450	450	450
<b>Sodium</b>	mg/kg	max	50	100	100	50	100	100	100	100	100	100	100
<b>Aluminium plus silicon</b>	mg/kg	max	25	40	40	50	60	60	60	60	60	60	60
<b>Used Lubricating Oils (ULO) -calcium and zinc, or -calcium and phosphorus</b>	mg/kg	-	the fuel shall be 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										

## **DISTILLATE MARINE FUELS**

ISO 8217:2012

PARAMETERS	UNIT	LIMIT	CATEGORY ISO-F				
			DMX	DMA	DMZ	DMB	
<b>Kinematic Viscosity at 40°C</b>	mm <sup>2</sup> /s	max	5,500	6,000	6,000	11,000	
		min	1,400	2,000	3,000	2,000	
<b>Density at 15°C</b>	kg/m <sup>3</sup>	max	-	890,0	890,0	900,0	
<b>CETANE INDEX</b>	-	min	45	40	40	35	
<b>Sulfur</b>	mass (%)	max	1,00	1,50	1,50	2,00	
<b>Flash Point</b>	°C	min	43,00	60,00	60,00	60,00	
<b>Hydrogen Sulfide</b>	mg/kg	max	2,00	2,00	2,00	2,00	
<b>Acid Number</b>	mg KOH/g	max	0,5	0,5	0,5	0,5	
<b>Total Sediment By Hot Filtration</b>	mass (%)	max	-	-	-	-	
<b>Oxidation Stability</b>	g/m <sup>3</sup>	max	25	25	25	25	
<b>Carbon Residue: micro method on the 10% volume distillation residue</b>	mass (%)	max	0,30	0,30	0,30	-	
<b>Carbon Residue: micro method</b>	mass (%)	max	-	-	-	0,30	
<b>Cloud point</b>	°C	max	-16	-	-	-	
<b>Pour Point (upper)</b>	<b>winter quality</b>	°C	max	-	-6	-6	0
	<b>summer quality</b>	°C	max	-	0	0	6
<b>Appearance</b>	-	-	clear and bright				
<b>Water</b>	volume (%)	max	-	-	-	0,30	
<b>Ash</b>	mass (%)	max	0,010	0,010	0,010	0,010	
<b>Lubricity, corrected wear scar diameter (wsd 1.4) at 60°C</b>	µm	max	520	520	520	520	