ISO 8217 2024
Table 1

Dan-Bunkering
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Characteristics	Units	Limit	Catagory ISO-F-							Test Method(s)
			DMX	DMA	DFA	DMZ	DFZ	DMB	DFB	
General requirements			Clauses 5 to 10							
Viscosity @40°C	mm2/s (a)	max.	5,500	6,000				11,00		ISO 3104
		min.	1,400	2,000		3,000		2,000		
Density @15°C	kg/m3	max.	-	890,0				900,0		**ISO 3675** or **ISO 12185**
Cetane Index		min.	45,0	40,0	-	40,0	-	35,0	-	ISO 4264
Cetane Number		min.	-	-	40,0	-	40,0	-	35,0	**ISO 5165** or ASTM D6890/EN 15195 or ASTM D7668/EN 16715 or ASTM D8183/E17155
Sulfur Content	% mass	max.	Statutory requirements (B)							ISO 8754 or ISO 14596 or **ASTM D4294**
Flash Point	°C	min.	43,0	60,0						ISO 2719 Proc. A (B100 = Proc. C)
Hydrogen Sulfide	mg/kg	max.	2,00							IP 570
Acid Number	mg KOH/g	max.	0,5							ASTM D664 Proc. B
Existent Total Sediment (TSE)	% mass	max.	-					0.10 (c)		ISO 10307-1
Oxidation Stability	g/m3	max.	25	25	-	25	-	25 (d)	-	ISO 12205
	h	min.	-	-	8,0	-	8,0	,	8,0	EN 15751
FAME Content	% mass or vol.	-	De minimis	De minimis	Report (e)	De minimis	Report (e)	De minimis	Report (e)	ASTM D7963 or **EN 14078**/ASTM D7371
Net Heat of Combustion (LCV)	MJ/kg	-	-	-	Report (f)	-	Report (f)	-	Report (f)	ASTM D240
MCR on 10% dist. residue	% mass	max.	0,30					-		ISO 10370
Carbon Residue, Micro (MCR)	% mass	max.	-					0,30		ISO 10370
Cloud Point (g)	°C	max.	-16	Report (f)				- (h)	Report (f, h)	ISO 3015
Cold Filter Plugging Point (g)	°C	-	-	Report (f)				- (h)	Report (f, h)	EN 116 or EN 16329
Pour Point (upper) (g)	°C	max. Winter	-	-6				0		ISO 3016
		max. Summer	-	0				6		
Appearance		-	Clear and Bright (i)					(c)		Visual Inspection
Water Content	% vol.	max.	-					0.30 (c)		ISO 3733
Ash Content	% mass	max.	0,010							ISO 6245
Lubricity (WSD) @ 60°C (j)	µm	max.	520					520 (d)		ISO 12156-1

Bold = Reference test method for FAME and FAME blends when there are more than one test methods shown

(a) 1 mm2/s = 1 cSt
(b) The buyer is expected to define the maximum sulpfur content according to relevant statutory limitations
(c) If the sample is not clear and bright, the existent total sediment and water shall be required
(d) If the sample is not clear and bright, the test cannot be undertaken and therefore, compliance with this limit cannot be shown
(e) The seller shall report the FAME content according to the test method given or as per blend ratio (stating whether it is a mass or volume ratio)
(f) The value shall be reported according to the test method given
(g) Pour point cannot guarantee operability for all ships in all climates. The buyer should confirm that the cold flow characteristics (PP, CP, CFPP) are suitable for the ship's design and intended voyage
(h) For some products, it is possible that this test does not work due to appearance, therefore other means to evaluate usability of the product should be considered
(i) If the sample is dyed and not transparent, then the water content shall not exceed 200 mg/kg in accordance with ISO 12937
(j) This requirement is applicable to fuels with a sulfur content below 500 mg/kg (0.050% by mass)

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Table 3

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Characteristics	Units	Limit	Catagory ISO-F-					Test Method(s)
			RF20	RF80	RF180	RF380	RF500	
General requirements			Clauses 5 to 10					
Viscosity @ 50°C (a)	mm2/s (b)	max.	20,00	80,00	180,0	380,0	500,0	ISO 3104
		min.	2.000 (c)	20,00	80,00	120,0	380,0	
Density @ 15°C	kg/m3	max.	955,0	991,0			1010,0	**ISO 3675** or **ISO 12185**
CCAI		max.	860	870				Dens/Visc formula
Sulfur	% mass	max.	Statutory requirements (d)					ISO 8754 or ISO 14596 or **ASTM D4294** or **ASTM D2622**
Flash Point	°C	min.	60,0					ISO 2719 Proc. B
Hydrogen Sulfide	mg/kg	max.	2,00					IP 570
Acid Number	mg KOH/g	max.	2,5					ASTM D664 Proc. B
Carbon Residue, Micro (MCR)	% mass	max.	10,00	15,00		18,00	20,00	ISO 10370
Pour Point (upper) (e)	°C	max.	6	30				ISO 3016
Water Content	% vol.	max.	0,30	0,50				ISO 3733
Ash Content	% mass	max.	0,070	0,100			0,150	ISO 6245
Vanadium	mg/kg	max.	150	350			450	**IP 501**, IP 470 or ISO 14597
Sodium	mg/kg	max.	50	100				**IP 501** or IP 470
Aluminium + Silicon	mg/kg	max.	40	60				**IP 501**, IP 470 or ISO 10478
Unrefined Used lubricating Oil (ULO)	mg/kg		Ca > 30 and Zn > 15 or Ca > 30 and P > 15					**IP 501**, IP 470 or IP 500
Potential Total Sediment (TSP)	% mass	max.	0.10 (f)					ISO 10307-2 Proc. A
Accelerated Total Sediment (TSA)	% mass	-	Report (g)					ISO 10307-2 Proc. B
Existent Total Sediment (TSE)	% mass	-	Report (g)					ISO 10307-1
FAME Content	% mass	-	Report (h)					**ASTM D7963** or **IP 631**
Net Heat of Combustion (LCV)	MJ/kg	-	Report (g)					ASTM D240

Bold = Reference test method for FAME and FAME blends when there are more than one test methods shown
(a) Actual viscosity to be reported to the ship. For fuels with high pour point, the viscosity can be calculated provided that the kinematic viscosities at two temperatures are known
(b) 1 mm2/s = 1 cSt
(c) For fuels with viscosity in the range of 2 mm2/s to 5 mm2/s, the minimum viscosity requirement of the engine should be checked against the original equipment manufacturers' recommendations
(d) The buyer is expected to define the maximum sulpfur content according to relevant statutory limitations
(e) The buyer should confirm that this pour point is suitable for the ship's intended area of operation
(f) This limit applies to 10 g og test specimen only. Failure to complete filtration of 10 g within 25 min means the fuel does not meet the specification
In such case and for information only, 5 g filtration results can be reported according to the test method
(g) The value shall be reported according to the test method given
(h) The seller shall report the FAME content according to the test method given or as per blend ratio (stating whether it is a mass or volume ratio)