DRAKENSBERG ENERGY TRADING

PRODUCT SPECIFICATION

Marine residual fuel - 0.50% sulphur

Document: DE-SPEC-VLSFO-0-50-MARINE | Revision 1.1 | 20 March 2026 | English

Drakensberg Energy Europe EOOD | UIC 208760847

Technical source: Burgas CTS 1-52 | Revision 02 | 13 January 2020

Property	Unit	Requirement	Test method
Density at 15°C	kg/m³	Maximum 991.0	BDS EN ISO 3675; BDS EN ISO 12185
Kinematic viscosity at 50°C	mm²/s	Maximum 380.0	BDS EN ISO 3104+AC; ASTM D 445
Calculated carbon aromaticity index	-	Maximum 870	Not specified
Sulphur	% (m/m)	Maximum 0.50	BDS EN ISO 8754; ASTM D 4294
Flash point	°C	Minimum 60	BDS EN ISO 2719; ASTM D 93(B)
Hydrogen sulphide	mg/kg	Maximum 2.00	IP 570; Mobil M 1404
Acid number	mg KOH/g	Maximum 2.5	ASTM D 664
Total sediment, thermal ageing (A)*	% (m/m)	Maximum 0.10	BDS ISO 10307-2; IP 390
Micro carbon residue	% (m/m)	Maximum 18.00	BDS EN ISO 10370
Pour point (upper)	°C	Maximum 30	BDS EN ISO 3016
Water	% (V/V)	Maximum 0.50	BDS EN ISO 3733
Ash	% (m/m)	Maximum 0.100	BDS EN ISO 6245
Vanadium	mg/kg	Maximum 350	IP 501; IP 470
Sodium	mg/kg	Maximum 100	IP 501; IP 470
Aluminium + silicon	mg/kg	Maximum 60	IP 501; IP 470; ISO 10478

Specification notes

Fuel must be free of used lubricating oil. Source detection criteria: Ca >30 mg/kg together with Zn >15 mg/kg, or Ca >30 mg/kg together with P >15 mg/kg. Methods: IP 501 / IP 470.

* Umpire method. Sampling: BDS EN ISO 3170. Source designation: marine residual fuels, category ISO-F. The separate CTS 1-52.01 aromatic-content guarantee is not part of this specification.

Source: https://neftochim.lukoil.com/FileSystem/9/510462.pdf

Refinery specification reference. Values identify the stated grade and source revision; the consignment quality certificate records actual results. This document is separate from the safety data sheet.

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