



BV - VLSFO ISO 8217

VLSFO 380 Cst – February 15, 2026



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In February 2026, the independent and accredited laboratory Bureau Veritas analyzed a sample of Very Low Sulphur Fuel Oil 380 treated with **XBEE Enzyme Fuel Technology**. The analysis demonstrated that such fuel, also known as VLSFO 380, remains in compliance with the ISO 8217:2017 standard.

Conclusions:

Testing was performed after laboratory hand-blend XBEE fuel treatment at 4,000:1 XBEE, followed by a two-week retention period at constant temperature. The tested sample, blended with XBEE technology copes with the specification limits of RMG 380 grade specifications according to ISO 8217:2017 standard.

Analyses	Methods	Without XBEE	With XBEE	Units	Limits
Density at 15°C	ASTM D 4052	960.8	961.0	kg/m ³	991.00 max
Micro carbon residue	ASTM D 4530	8.7	9.0	% m/m	18.00 max
Viscosity at 50°C	ASTM D 445	133.1	140.5	mm ² /s	-
Flash point PM – Proc. B	ASTM D 93	98.0	97.5	°C	60 min
Sulphur content (EDF)	EN ISO 8754	0.50	0.49	% m/m	1.50 max
Ash content	ASTM D 482	0.029	0.033	% m/m	0.10 max
Water by distillation	ASTM D 95	0.15	0.15	% v/v	0.50 max
Pour point	ASTM D 97	-3	-3	°C	30 max
Acid number	ASTM D 664	0.11	0.15	mgKOH/g	2.5 max
Hydrogen sulphide	IP 570-Proc. A	<0.60	<0.60	mg/kg	2.00 max
CCAI	Ref. Annex F	834	833	quotation	870.00 max
Total sediment - Potential	ISO 10307-2	0.02	<0.01	% m/m	0.10 max
Aluminum (Al) + Silicon (Si)	IP 501	44	39	mg/kg	60 max
Sodium (Na)	IP 501	23	19	mg/kg	100 max
Calcium (Ca)	IP 501	13	13	mg/kg	30 max
Zinc (Zn)	IP 501	5	5	mg/kg	15 max
Vanadium (Va)	IP 501	10	10	mg/kg	350 max
Phosphorous	IP 501	6	6	mg/kg	15 max

Annexes

Original reports

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Certificate of Analysis

Our ref	BEANT-25-11573-XXV1999883	Asset	Submitted Sample
Location	Not specified	Seals	None
Product	VLSFO 380	Packed	Plastic
Reference id	XBEE	Submitted by	Ourselves
Sample received	13-02-2026	End of analysis	06-03-2026
Subject	Submitted samples		
Sample from	Sample as received		

Test	Method	Unit	Result
Density at 15 °C (a)	ASTM D4052	kg/m ³	960.8
Micro Carbon Residue	ASTM D4530	% m/m	8.7
Viscosity at 50 °C (a)	ASTM D445	mm ² /s	133.1
Flash Point PM - Proc. B (a)	ASTM D93	Deg C	98.0
Sulphur (EDF) (a)	EN ISO 8754	% m/m	0.50
Ash Content	ASTM D482	% m/m	0.029
Water by Distillation	ASTM D95	% v/v	0.15
Pour Point	ASTM D97	Deg C	-3
Acid number	ASTM D664	mg KOH/g	0.11
Hydrogen Sulphide	IP 570 - Proc. A	mg/kg	<0.60
CCAI	ref Annex F		834
Total Sediments - Potential	ISO 10307-2	% m/m	0.02
Metals	IP 501	-	-
Vanadium (V) - ICP	-	mg/kg	10
Sodium (Na) - ICP	-	mg/kg	23
Aluminium (Al) - ICP	-	mg/kg	24
Silicon (Si) - ICP	-	mg/kg	20
Aluminium + Silicon (Al+Si)	-	mg/kg	44
ULO metals content (a)	-	-	free of
_Zinc (Zn) - ICP	-	mg/kg	5
_Phosphorus (P) - ICP	-	mg/kg	6
_Calcium (Ca) - ICP	-	mg/kg	13

Unless specified, the latest version at our disposal of the test methods has been used.
The results relate only to the items tested.

AUTHORIZATION

Certified to ISO 9001
Trade Register Antwerp 333.309
VAT nr. BE 0465.326.123

Cynthia Bresseleers (Submitted Analysis Coordinator)

All tests marked by (a)
are accredited by
BELAC ref. 486-TEST
ISO/IEC 17025



All services are rendered in accordance with Bureau Veritas's General Terms and Conditions of Business, available on request or at <https://commodities.bureauveritas.com/general-conditions-of-service>.
Laboratory Measurement Uncertainties are not taken into account for the evaluation of specification limits. If product is outside method scope; precision and accuracy of result cannot be guaranteed.

Method Validation data is available upon request.

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p.1/2

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p.2/2

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Certificate of Analysis

Our ref	BEANT-25-11573-XXV1999885	Asset	Submitted Sample
Location	Not specified	Seals	None
Product	VLSFO 380 with XBEE additive	Packed	Plastic
Reference id	XBEE	Submitted by	Ourselves
Sample received	13-02-2026	End of analysis	13-03-2026
Subject	Submitted samples		
Sample from	Sample as received		

Test	Method	Unit	Result
Density at 15 °C (a)	ASTM D4052	kg/m ³	961.0
Micro Carbon Residue	ASTM D4530	% m/m	9.0
Viscosity at 50 °C (a)	ASTM D445	mm ² /s	140.5
Flash Point PM - Proc. B (a)	ASTM D93	Deg C	97.5
Sulphur (EDF) (a)	EN ISO 8754	% m/m	0.49
Ash Content	ASTM D482	% m/m	0.033
Water by Distillation	ASTM D95	% v/v	0.15
Pour Point	ASTM D97	Deg C	-3
Acid number	ASTM D664	mg KOH/g	0.15
Hydrogen Sulphide	IP 570 - Proc. A	mg/kg	<0.60
CCAI	ref Annex F		833
Total Sediments - Potential	ISO 10307-2	% m/m	<0.01
Metals	IP 501	-	-
Vanadium (V) - ICP	-	mg/kg	10
Sodium (Na) - ICP	-	mg/kg	19
Aluminium (Al) - ICP	-	mg/kg	21
Silicon (Si) - ICP	-	mg/kg	18
Aluminium + Silicon (Al+Si)	-	mg/kg	39
ULO metals content (a)	-	-	free of
_Zinc (Zn) - ICP	-	mg/kg	5
_Phosphorus (P) - ICP	-	mg/kg	6
_Calcium (Ca) - ICP	-	mg/kg	13

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p.1/2

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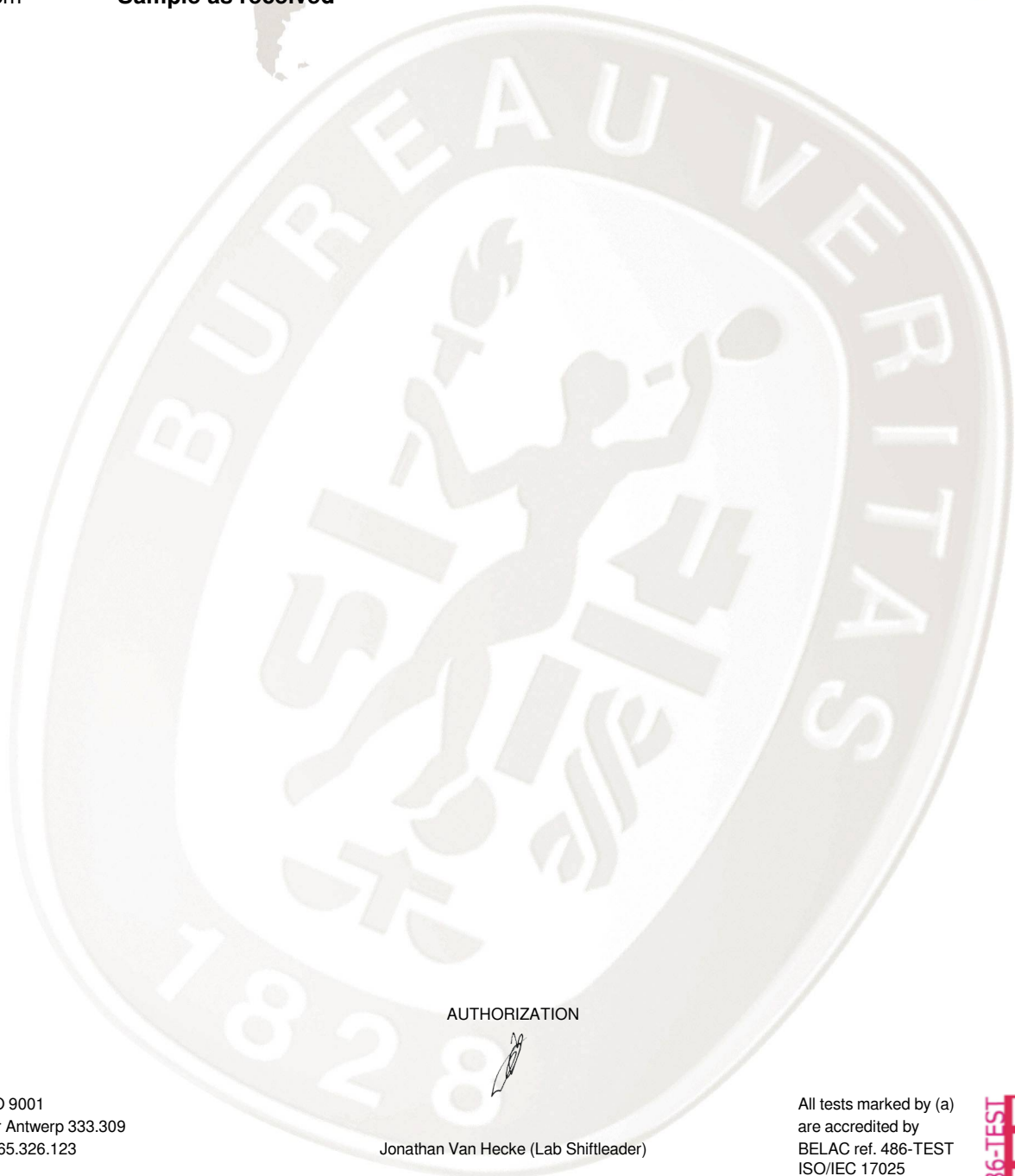


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