BV - HFO ISO 8217

HFO 700 Cst – February 15, 2026

In February 2026, the independent and accredited laboratory Bureau Veritas analyzed a sample of Heavy Fuel Oil 700 treated with **XBEE Enzyme Fuel Technology**. The analysis demonstrated that such fuel, also known as HFO 700, 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 700 grade specifications according to ISO 8217:2017 standard.

Analyses	Methods	Without XBEE	With XBEE	Units	Limits
Density at 15°C	ASTM D 4052	956.8	956.8	kg/m³	991.00 max
Micro carbon residue	ASTM D 4530	11.9	11.9	% m/m	18.00 max
Viscosity at 50°C	ASTM D 445	633.9	646.9	mm²/s	-
Flash point PM – Proc. B	ASTM D 93	>110.0	>110.0	°C	60 min
Sulphur content (EDF)	EN ISO 8754	1.84	1.83	% m/m	1.50 max
Ash content	ASTM D 482	0.039	0.062	% m/m	0.10 max
Water by distillation	ASTM D 95	<0.05	0.05	% v/v	0.50 max
Pour point	ASTM D 97	+24	+24	°C	30 max
Acid number	ASTM D 664	0.10	0.10	mgKOH/g	2.5 max
Hydrogen sulphide	IP 570-Proc. A	<0.60	<0.60	mg/kg	2.00 max
CCAI	Ref. Annex F	813	813	quotation	870.00 max
Total sediment - Potential	ISO 10307-2	0.01	0.02	% m/m	0.10 max
Aluminum (Al) + Silicon (Sl)	IP 501	<15	<15	mg/kg	60 max
Sodium (Na)	IP 501	40	38	mg/kg	100 max
Calcium (Ca)	IP 501	3	3	mg/kg	30 max
Zinc (Zn)	IP 501	18	17	mg/kg	15 max
Vanadium (Va)	IP 501	97	102	mg/kg	350 max
Phosphorous	IP 501	3	<1	mg/kg	15 max

Annexes

Original reports

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Certificate of Analysis

Our ref	**BEANT-25-11573-XXV1999882**	Asset	**Submitted Sample**
Location	**Not specified**	Seals	**None**
Product	**HFO 700**	Packed	**Plastic**
Reference id	**XBEE**	Submitted by	**Ourselves**
Sample received	**13-02-2026**	End of analysis	**15-02-2026**
Subject	**Submitted samples**		
Sample from	**Sample as received**		

Test	Method	Unit	Result
Density at 15 °C (a)	ASTM D4052	kg/m^3	956.8
Micro Carbon Residue	ASTM D4530	% m/m	11.9
Viscosity at 50 °C (a)	ASTM D445	mm^2/s	633.9
Flash Point PM - Proc. B (a)	ASTM D93	Deg C	>110
Sulphur (EDF) (a)	EN ISO 8754	% m/m	1.84
Ash Content	ASTM D482	% m/m	0.039
Water by Distillation	ASTM D95	% v/v	<0.05
Pour Point	ASTM D97	Deg C	24
Acid number	ASTM D664	mg KOH/g	0.10
Hydrogen Sulphide	IP 570 - Proc. A	mg/kg	<0.60
CCAI	ref Annex F		813
Total Sediments - Potential	ISO 10307-2	% m/m	0.01
Metals	IP 501	-	-
Vanadium (V) - ICP	-	mg/kg	97
Sodium (Na) - ICP	-	mg/kg	40
Aluminium (Al) - ICP	-	mg/kg	5
Silicon (Si) - ICP	-	mg/kg	<10
Aluminium + Silicon (Al+Si)	-	mg/kg	<15
ULO metals content (a)	-	-	free of
_Zinc (Zn) - ICP	-	mg/kg	18
_Phosphorus (P) - ICP	-	mg/kg	<1
_Calcium (Ca) - ICP	-	mg/kg	3

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

AUTHORIZATION

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

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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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Certificate of Analysis

Our ref	**BEANT-25-11573-XXV1999884**	Asset	**Submitted Sample**
Location	**Not specified**	Seals	**None**
Product	**HFO 700 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	956.8
Micro Carbon Residue	ASTM D4530	% m/m	11.9
Viscosity at 50 °C (a)	ASTM D445	mm^2/s	646.9
Flash Point PM - Proc. B (a)	ASTM D93	Deg C	>110.0
Sulphur (EDF) (a)	EN ISO 8754	% m/m	1.83
Ash Content	ASTM D482	% m/m	0.062
Water by Distillation	ASTM D95	% v/v	0.05
Pour Point	ASTM D97	Deg C	24
Acid number	ASTM D664	mg KOH/g	0.10
Hydrogen Sulphide	IP 570 - Proc. A	mg/kg	<0.60
CCAI	ref Annex F		813
Total Sediments - Potential	ISO 10307-2	% m/m	0.02
Metals	IP 501	-	-
Vanadium (V) - ICP	-	mg/kg	102
Sodium (Na) - ICP	-	mg/kg	38
Aluminium (Al) - ICP	-	mg/kg	<5
Silicon (Si) - ICP	-	mg/kg	<10
Aluminium + Silicon (Al+Si)	-	mg/kg	<15
ULO metals content (a)	-	-	free of
_Zinc (Zn) - ICP	-	mg/kg	17
_Phosphorus (P) - ICP	-	mg/kg	<1
_Calcium (Ca) - ICP	-	mg/kg	3

Unless specified, the latest version at our disposal of the test methods has been used.
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Certificate of Analysis

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Location	**Not specified**	Seals	**None**
Product	**HFO 700 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**		

Remarks:

Testing was performed after laboratory hand-blend at 1/4000 Xbee additive doping rate by volume, followed by a two week retention period at constant temperature. The tested sample, blended with Xbee technology meets the specification limits according to the ISO 8217:2017 standard after the retention period.

Revision v.XXV1999884.13032026.1724 due to additional remark.

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