



In April 2018, the independent and accredited laboratory Bureau Veritas analyzed a sample of road Diesel Oil treated with the XBEE Enzyme Fuel Technology. The analysis demonstrated that such fuel, also known as Gasoil, remains in compliance with the EN 590 standard.

Conclusions by Bureau Veritas

"Testing was performed after laboratory hand-blend at 1:4000 Xbee additive doping rate, followed by two week retention period at constant temperature. The tested sample, blended with Xbee technology copes with the specification limits of EN590 standard."



Bureau Veritas is a worldwide leading laboratory.

Professional inspection services are critical to custody of goods transfers between buyers and sellers of petroleum cargo.

Bureau Veritas offers certificates that are trusted for their integrity by all contractual parties, including financial institutions and insurance companies.






Tests	Methods	W/o XBEE	With XBEE +15 days	Units	Limits
Appearance @ 20°C	Visual	Clear & Bright	Clear & Bright	-	Clear & Bright
Density @ 15°C	ISO 12185		833.90	Kg/m ³	820.00-845.00
Cetane Number	EN 15185		52.90	index	51.00 min
Cetane Index	EN ISO 4264		53.40	Index	46.00 min
Viscosity @ 40°C	ISO 3104:1994		2.757	mm ² /s	2.00 - 4.50
Flashpoint	EN ISO 2719		59.5	°C	55.0 min
Copper corrosion	EN ISO 2160		1A	Class	Class 1
Total Contamination	EN 12662	<12	<12	mg/kg	24 max
Oxidation Stability	ISO 12205		2.6	g/m ³	25 max
Sulfur Content	EN 24260		8.30	mg/kg	10.00 max
Carbon Residue (on 10% dist. Residue)	EN ISO 10370		<0.01	% (m/m)	0.30 max
Ash Content	EN ISO 6245		<0.001	% (m/m)	0.01 max
Distillation	EN ISO 3405				
% (v/v) recovered @ 250°C	-		35.70	% (v/v)	65% max
% (v/v) recovered @ 350°C	-		95.50	% (v/v)	85% max
95% (v/v) recovered @	-		353.00	°C	360°C max
Lubricity	EN ISO 12156-1		210	µm	460 max
Conductivity	ISO 6297		521	pS/m	150 min
Polycyclic Aromatic Content (PAH)	EN 12916	1.8	1.8	% (m/m)	8.0 max
Water Content	EN ISO 12937	30	30	mg/kg	200.00 max
Fatty Acid Methyl Ester Content (FAME)	EN 14078	7.20	7.11	% (v/v)	8.00 max
Cloud Point	ISO 23015		-8	°C	-5 max
Cold Flow Properties (CFPP)	EN 116		-28	°C	-15 max
Mg Content	EN 16576		<1.0	mg/l	2.0 max

The XBEE Enzyme Fuel Technology has been awarded the Lean & Green Tools Certificate.

CERTIFICAT D'ANALYSES N° 68180406

Opération : Essai en laboratoire
Produit : Gazole EN590
Client : Xbee
Référence client : Contrat signé en date du 8 mars 2018

Origine de l'Echantillon : Station Total Mulhouse
Nature de l'échantillon : Pompe 2
Date de l'échantillonnage : 23/03/2018
Référence Bureau Veritas : 8104240/1

Tests	Méthodes	Unités	Résultats	Limites	Conformité
Aspect	Visuelle	-	Clair et Limpide	Clair et Limpide	
Teneur en eau	NF EN ISO 12937	mg/kg	30	200 max	
Contamination totale	NF EN 12662	mg/kg	<12	24 max	
Teneur en EMAG	NF EN 14078	% (v/v)	7,2	8,0 max	
Hydrocarbures aromatiques Polycycliques	NF EN 12916	% (m/m)	1,8	8,0 max	

Commentaires

Résultats conformes aux limites fixées par la spécification CSR 4-0-06 du 15 Novembre 2016

Emission du rapport d'essai

Emis le : 10/04/2018
Analysé le : 23/03/2018

Adèle Bruntz



CERTIFICATE OF ANALYSIS N° 68180407

Operation : Testing
Product : Diesel EN590
Client : Xbee
Client's ref. : Contract dated March 8th 2018

Sample Origin : Total oil station Mulhouse
Sample type : Flowmeter # 2
Testing on sample : After 1/4000 Xbee hand blend
Sampling date : 23/03/2018
Bureau Veritas Ref : 8104240/2

Tests	Methods	Units	Results	Limits	Interpretation
Visual aspect @ 20°C	Visual	-	Clear & Bright	Clear & Bright	
Density @ 15°C	EN ISO 12185	kg/m3	833,9	820,0-845,0	
Distillation	EN ISO 3405	-	-	-	
% (v/v) recovered @ 250°C	-	% (v/v)	35,7	65% max	
% (v/v) recovered @ 350°C	-	% (v/v)	95,5	85% min	
95% (v/v) recovered @	-	° C	353,0	360°C max	
Viscosity @ 40°C	EN ISO 3104	mm2/s	2,757	2,00-4,50	
Sulfur content	EN 24260	mg/kg	8,3	10,0 max	
Water content	EN ISO 12937	mg/kg	30	200 max	
Total contamination	EN 12662	mg/kg	<12	24 max	
Ash content	EN ISO 6245	% (m/m)	<0,001	0,01 max	
Cetane Number	EN 15185	indice	52,9	51,0 min	
Cetane Index	EN ISO 4264	indice	53,4	46,0 min	
Carbon Residue (on 10% distillation)	EN ISO 10370	% (m/m)	<0,01	0,30 max	
Copper corrosion	EN ISO 2160	Classe	1A	Classe 1	
Oxydation stability	EN ISO 12205	g/m3	2,6	25 max	
Flash Point	EN ISO 2719	° C	59,5	55 min	
Lubricity	EN ISO 12156-1	um	210	460 max	
Cloud Point	EN 23015	° C	-8	-5 max	
CFPP	EN 116	° C	-28	-15 max	
Conductivity	ISO 6297	pS/m	521	150 min	
Polycyclic aromatic content	EN 12916	% (m/m)	1,8	8,0 max	
Mg content	EN 16576	mg/l	<1	2,0 max	
FAME content	EN 14078	% (v/v)	7,11	8,0 max	

Comments

Testing was performed after laboratory hand-blend at 1/4000 Xbee additive doping rate, followed by two week retention period at constant temperature. The tested sample, blended with Xbee technology copes with the specification limits of EN590 standard.

Certificate of analysis issued on and by

Issued on : 10/04/2018
Tested on : 04-10/04/2018

Adèle Bruntz

