BUREAU VERITAS - ISO 8217 DMA

Marine Gas Oil - August 17, 2018

In August 2018, the independent and accredited laboratory Bureau Veritas analyzed a sample of Marine Gas Oil treated with the XBEE Enzyme Fuel Technology.
The analysis demonstrated that such fuel, also known as MDO (Marine Diesel Oil) remains in compliance with the ISO 8217:2017 DMA 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.

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 DMA grade specifications according to ISO 8217:2017 standard."

Tests	Methods	W/o XBEE	With XBEE +15 days	Units	Limits
Appearance	Visual	Clear & Bright	Clear & Bright	-	Clear & Bright
Density @ 15°C	ISO 12185	846.10	846.10	Kg/m³	890.00 max
Cetane Index	EN ISO 4264	50.90	50.90	Index	40.00 min
Viscosity @ 40°C	ISO 3104:1994	3.401	3.389	mm²/s	2.00 – 6.00
Flashpoint	EN ISO 2719	67.0	66.0	°C	60.0 min
Oxidation Stability	ISO 12205	21	23	g/m³	25 max
Sulfur Content	ASTM D4294-16	0.049	0.049	% wt	1.00 max
Carbon Residue (on 10% dist. Residue)	EN ISO 10370	0.050	0.070	% wt	0.30 max
Ash Content	EN ISO 6245	<0.005	<0.005	w wt	0.01 max
Lubricity, wsd @1.4 KPa, 60°C	EN ISO 12156-1	392	390	µm	520 max
Water Content	EN ISO 12937	<0.05	<0.05	% vol	-
Fatty Acid Methyl Ester Content (FAME)	EN 14078	<0.05	<0.05	% vol	-
Cloud Point	ISO 3015	+4	+4	°C	-
Cold Flow Properties (CFPP)	EN 116	-2	-4	°C	-
Total sediments by hot filtration	ISO 10307-1	<0.01	<0.01	% wt	-
Pour Point	ISO 3016	-15	-15	°C	0 max
Acidity	ASTM D-974-14	0.08	0.08	mgKOH/g	0.5 max
H2S in Liquid	IP-570-14	<0.60	<0.60	mg/kg	2.00 max

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

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BUREAU VERITAS
EXPLOITATION

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CERTIFICATE OF ANALYSIS N° 68180806

Operation : Testing
Oil Product : Marine Diesel Oil
Client : XBEE DISTRIBUTION NETWORK
Contract Ref. : 797225/180704-0037 Rev0
Grade : DMA ISO 8217:2017

Sample origin : Bunkering
Zone : Med.
Sampling date : 27/07/2018
Sample type : Genuine prior additivation
Bureau Veritas Ref. : 8139722

Tests	Methods	Units	Results	Limits	Status
Density @ 15°C	ISO 12185	Kg/m3	846,1	890,0 max	
Appearance	Visual	-	Clear & Bright	Clear & Bright	
Sulfur Content	ASTM D-4294-16	% wt	0,049	1,00 max	
C.F.P.P	EN 116:2015	Deg C	-2	-	
Water content	EN ISO 12937	% Vol	<0,05	-	
Ash	ISO 6245:2002	w wt	<0,005	0,01 max	
Total sediments by hot filtration	ISO 10307-1	% wt	<0,01	-	
Pour Point	ISO 3016:1994	Deg C	-15	0 max	
Cetane Index	EN ISO 4264:1997	Index	50,9	40 min	
Acidity	ASTM D-974-14	mgKOH/g	0,08	0,5 max	
Cloud Point	ISO 3015:1992	Deg C	+4	-	
Lubricity, wsd at 1,4 KPa, 60ºC	ISO 12156-1-2007	µm	392	520 max	
Flash Point	EN ISO 2719	Deg C	67,0	60,0 min	
Oxydation stability	ISO 12205:1996	g/m^3	21	25 max	
Viscosity @40°C	ISO 3104:1994	mm^2/s	3,401	2,000 - 6,000	
Fame Content	EN 14078:2010	% Vol	<0,05	-	
Carbon Residue (on 10%dist. Residue)	EN ISO 10370	% wt	0,050	0,30 max	
H2S in liquid	IP-570-14	mg/kg	<0,60	2,00 max	

Comments

All results matching specification limits.

Certificate of analyis issued

On : 08/08/2018

Tested on : 08/08/2018

Adèle Bruntz

BUREAU VERITAS **EXPLOITATION**

info@fr.bureauveritas.com
66 rue de Villiers 92300 Levallois-Perret
Tél : + 33 (0)1 55 24 80 89
SAS au capital social de 36 315 050 € - RCS Nanterre 790 184 675

www.bureauveritas.fr

BUREAU VERITAS
EXPLOITATION

BUREAU VERITAS

CERTIFICATE OF ANALYSIS N° 68180808

Operation : Testing
Oil Product : Marine Diesel Oil
Client : XBEE DISTRIBUTION NETWORK
Contract Ref. : 797225/180704-0037 Rev0
Grade : DMA ISO 8217:2017

Sample origin : Bunkering
Zone : Med.
Sampling date : 27/07/2018
Sample type : After hand-blend
Bureau Veritas Ref. : 8139722

Tests	Methods	Units	Results	Limits	Status
Density @ 15°C	ISO 12185	Kg/m3	846,1	890,0 max	
Appearance	Visual	-	Clear & Bright	Clear & Bright	
Sulfur Content	ASTM D-4294-16	% wt	0,049	1,00 max	
C.F.P.P	EN 116:2015	Deg C	-4	-	
Water content	EN ISO 12937	% Vol	<0,05	-	
Ash	ISO 6245:2002	w wt	<0,005	0,01 max	
Total sediments by hot filtration	ISO 10307-1	% wt	<0,01	-	
Pour Point	ISO 3016:1994	Deg C	-15	0 max	
Cetane Index	EN ISO 4264:1997	Index	50,9	40 min	
Acidity	ASTM D-974-14	mgKOH/g	0,08	0,5 max	
Cloud Point	ISO 3015:1992	Deg C	+4	-	
Lubricity, wsd at 1,4 KPa, 60ºC	ISO 12156-1-2007	µm	390	520 max	
Flash Point	EN ISO 2719	Deg C	66,0	60,0 min	
Oxydation stability	ISO 12205:1996	g/m^3	23	25 max	
Viscosity @40°C	ISO 3104:1994	mm^2/s	3,389	2,000 - 6,000	
Fame Content	EN 14078:2010	% Vol	<0,05	-	
Carbon Residue (on 10%dist. Residue)	EN ISO 10370	% wt	0,070	0,30 max	
H2S in liquid	IP-570-14	mg/kg	<0,60	2,00 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 DMA grade specifications according to ISO 8217:2017 standard.

Certificate of analyis issued

On : 17/08/2018

Tested on : 16/08/2018

Adèle Bruntz

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info@fr.bureauveritas.com
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