



Veritas Petroleum Services
Europe B.V.
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Commerce Rotterdam
No. 56889402

SAMPLE REPORT

Report No. : LR20180014
Report Date : 29 October 2018
Page : 1 of 2

To whom it may concern,

Subject : XBEE (PRODUCT DEVELOPMENT)

Sample Details

Sample Number : SNG1836417 Date Received : 13 September 2018
Product Grade : XBEE FUEL ADDITIVE
Seal Details : SELF LOCKING (Non VPS, Intact)

Analysis Details

Parameter	Units	Results	Test Methods
Density @ 15°C	kg/m ³	797.3	ISO 12185
Viscosity @ 40°C	mm ² /s	1.822	ISO 3104
Water	%V/V	< 0.01	ASTM D6304-C
Micro Carbon Residue	%m/m	< 0.10	ISO 10370
Sulfur	%m/m	< 0.03	ISO 8754
Total Sediment Existent	%m/m	< 0.01	ISO 10307-1
Total Sediment Potential	%m/m	0.01	ISO 10307-2
Total Sediment Accelerated	%m/m	< 0.01	ISO 10307-2
Ash	%m/m	< 0.010	LP 1001
Vanadium	mg/kg	< 1	IP 501
Sodium	mg/kg	1	IP 501
Aluminium	mg/kg	< 1	IP 501
Silicon	mg/kg	< 1	IP 501
Iron	mg/kg	< 1	IP 501
Nickel	mg/kg	< 1	IP 501
Calcium	mg/kg	< 1	IP 501
Magnesium	mg/kg	< 1	LP 1101
Lead	mg/kg	< 1	LP 1101
Zinc	mg/kg	< 1	IP 501
Phosphorus	mg/kg	< 1	IP 501
Potassium	mg/kg	< 1	LP 1101
Pour Point	degC	< 0	LP 1306
Flash Point	degC	> 70.0	ISO 2719-B
Asphaltene	%m/m	< 0.01	ASTM D3279
Acid Number	mg KOH/g	< 0.10	ASTM D664
Carbon	%m/m	84.6	ASTM D5291
Hydrogen	%m/m	14.7	ASTM D5291
Nitrogen	mg/kg	2.1	ASTM D4629
Oxygen	%m/m	0.6	ASTM D5291 Ext

Base Number (mg KOH/g) outside the scope of method ASTM D2896.



The results are obtained on the sample as received. This analysis report may not be reproduced, except in full, without our written approval. Regarding precision of applied test methods, we refer to "Test methods used by VPS-Europe". This document can be forwarded upon request.

For Veritas Petroleum Services Europe B.V.

T.H. Krijgsman
Laboratory Manager

A handwritten signature in blue ink, appearing to be 'T.H. Krijgsman', is written over a horizontal line. Below the signature, the date '31/10/2018' is written in blue ink.



To : XBEE
Attn. : Mr Kai Juoperi
Email : kai.juoperi@wartsila.com
Cc : Mr Ronan Pennec
Email : ronan.pennec@xbee.com

DET NORSKE VERITAS AS

DNV Petroleum Services

Your ref. : SFA UND071112
From : DNV Petroleum Services, Norway
Date : 04 January 2008
Our ref. : N107001374-DATRO

Veritasveien 1,
N-1322 HØVIK, Norway
Tel: +47 67 57 99 00
Fax: +47 67 57 93 93
<http://www.dnv.com>
Org.No: NO 945748931 MVA

Subject : Analysis of sample from XBEE

Please find enclosed identification and results of analysis of 1 sample (4 bottles) received at our laboratory on 04 December 2007.

The sample was sent from FRANCE and has been identified and registered with reference to emails and SFA.

The sample was assigned DNVPS sample number: N107001374.

The sample has been analysed according to the short form agreement (SFA) UND071112.

In addition we have tested for Carbon, Hydrogen, Oxygen and Nitrogen at a sub-contracted laboratory.

Please do not hesitate to contact us if you have any questions regarding the analysis results.

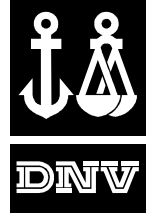
Best regards
for Det Norske Veritas AS

Dag Tanner Rosvik
DNV Petroleum Services.

Reference to part(s) of this report which may lead to misinterpretation is prohibited.

TEST REPORT

From : DNV Petroleum Services, Norway
 Our ref. : N107001374-DATRO
 Name : XBEE

**Sample Information**

Sample number : N107001374
 Product type : Diesel Additive
 Description : XBEE
 Sampling date : -
 Sample container : Plastic
 Seal data : No Seal

Test Results

Test	Unit	Method	N107001374
Density @ 15°C	kg/m ³	ISO 12185	800.5
Viscosity @ 40°C	mm ² /s	ISO 3104	1.823
Water Content	% V/V	ASTM D6304 Proc. C	<0.10
Micro Carbon Residue	% m/m	ISO 10370	<0.10
Sulfur	% m/m	ISO 8754	<0.05
Total Sediment Accelerated	% m/m	ISO 10307-2	<0.01
Total Sediment Existent	% m/m	ISO 10307-1	<0.01
Total Sediment Potential	% m/m	ISO 10307-2	<0.01
Ash	% m/m	LP 1001	<0.01
Vanadium	mg/kg	IP 501	<1
Sodium	mg/kg	IP 501	<1
Aluminium	mg/kg	ISO 10478	<1
Silicon	mg/kg	ISO 10478	<1
Iron	mg/kg	IP 501	<1
Nickel	mg/kg	IP 501	<1
Calcium	mg/kg	IP 501	<1
Magnesium	mg/kg	LP 1101	<1
Lead	mg/kg	LP 1101	<1
Zinc	mg/kg	IP 501	<1
Phosphorus	mg/kg	IP 501	<1
Potassium	mg/kg	LP 1101	<1
Flash Point	°C	ISO 2719, Procedure A	>70
Pour Point	°C	ISO 3016	<0
Asphaltene	% m/m	ASTM D3279	<0.20
Acid Number	mg KOH/g	ASTM D664	0.01
Base Number	mg KOH/g	ASTM D2896	0.00
Carbon	% m/m	ASTM D5291	85.49
Hydrogen	% m/m	ASTM D5291	14.52
Nitrogen	% m/m	ASTM D3228	0.002
Oxygen	% m/m	ASTM D5291	<0.10

Comments:

Strong Acid No, mgKOH/g, ASTM D664-04: 0.00
 Acid No, mgKOH/g, ASTM D664-04: 0.05