

Client TNK-BP
S-Peterburg no. 7652-1916-11
Date of report 29.12.2011
Object Shore tank 3000
Location "Russkoe mectorozhdenie"

Product :		Crude Oil		Received: 10.12.2011	
Sample Drawn :		Sample is provided by the client		Date sampled: 29.11.2011	
Sample Description :		Viscous liquid, black in color			
Testing Performed By:		Intertek S-Petersburg Laboratory		Date: 11-14, 29.12.2011	
Tests	Units	Method	Specification limits	Result	Result Within Specification?
Density at 15 deg C	g/ml	ASTM D 1298	n/a	0.9450	n/a
Density at 20 deg C	g/ml	GOST 3900	n/a	0.9413	n/a
API at 60 F		calculated	n/a	18.15	
Kinematic Viscosity at 20 °C	mm ² /s	ASTM D 445	n/a	595.8	n/a
Sulphur content	% mass	ASTM D 4294	n/a	0.389	n/a
Water content	% mass	ASTM D4006	n/a	0.50	n/a
Pour Point (heated to 45 ° C)	°C	ASTM D 5853 (Procedure A)	n/a	minus 24	n/a
Pour Point (without heating)	°C	ASTM D 5853 (Procedure A)	n/a	minus 24	n/a
Sediment content	% mass	GOST 6370	n/a	0.024	n/a
Sediments by extraction	% mass	ASTM 473		0.02	
Conradson Carbon Residue(Micro Method)	% mass	ASTM D 4530	n/a	3.32	n/a
Ash	% mass	ASTM D 482		0.026	n/a
Concentration Chloride salts	mg/dm ³	GOST 21534	n/a	254	n/a
Chloride salts content	mg/kg	ASTM D 3230		226	n/a
Total ORGANIC CHLORIDE	mg/kg(ppm)	IP 510	n/a	26	n/a
Hydrogen Sulphide	mg/kg(ppm)	IP 399	n/a	1.28	n/a
Mercaptan Sulphidet	mg/kg(ppm)	ASTM D 3227	n/a	24.6	n/a
Metals (AAS):		IP 470			
Vanadium	mg/kg (ppm)		n/a	2	n/a
Nickel	mg/kg (ppm)		n/a	2	n/a
Sodium	mg/kg (ppm)		n/a	35	n/a
Aluminium	mg/kg (ppm)		n/a	less 5 (0.6)	n/a
Iron	mg/kg (ppm)		n/a	4	n/a
Calcium	mg/kg (ppm)		n/a	3	n/a
Zinc	mg/kg (ppm)		n/a	less 1 (0.3)	n/a
Silicon	mg/kg (ppm)		n/a	less 10 (6)	n/a
Distillation (760 mm Hg)		GOST 2177 Method B			
Initial bolling point (IBP)	°C		n/a	220.0	n/a
240° C recovered	% vol		n/a	1.5	n/a
260° C recovered	% vol		n/a	2.5	n/a
280° C recovered	% vol		n/a	5.0	n/a
300° C recovered	% vol		n/a	6.5	n/a
320° C recovered ¹	% vol		n/a	8.0	n/a
340° C recovered ¹	% vol		n/a	12.0	n/a
350° C recovered ¹	% vol		n/a	12.5	n/a
Distillation (760 mm Hg)		ASTM D 86 ²			
200° C recovered	% vol		n/a	Nil	n/a
300° C recovered	% vol		n/a	7.0	n/a
Acid Number	mg KOH/g	ASTM D 664	n/a	less 0.05	n/a
Wax conernt	% mass	UOP 46	n/a	0.71	n/a
Simulated distillation (Boiling Range Distribution by Gas Chromatography)		ASTM D 5307 ³			
Initial bolling point (IBP)	°C		n/a	211	n/a
gases dissolved (C1-C4)	% mass		n/a	Nil	n/a
recovered fractions up to 220° C	% mass		n/a	0.27	n/a
220-230° C	% mass		n/a	0.41	n/a

Tests	Units	Method	Specification limits	Result	Result Within Specification?
230-240 ^o C	% mass		n/a	0.50	n/a
240-250 ^o C	% mass		n/a	0.64	n/a
250-260 ^o C	% mass		n/a	0.69	n/a
260-270 ^o C	% mass		n/a	0.75	n/a
270-280 ^o C	% mass		n/a	0.76	n/a
280-290 ^o C	% mass		n/a	0.82	n/a
290-300 ^o C	% mass		n/a	0.93	n/a
300-310 ^o C	% mass		n/a	1.06	n/a
310-320 ^o C	% mass		n/a	1.09	n/a
320-330 ^o C	% mass		n/a	1.00	n/a
330-340 ^o C	% mass		n/a	1.17	n/a
340-350 ^o C	% mass		n/a	1.16	n/a
Recovered (IBP- 350) ^o C				11.25	
Recovered (350 - 538) ^o C	% mass		n/a	22.69	n/a
Total recovered (IBP- 538) ^o C	% mass		n/a	33.94	n/a
Residue (538+ ^o C)	% mass		n/a	65.51	n/a
Loss	% mass		n/a	0.55	n/a
Flash Point Pensky-Martens (Closed Cup)	^o C	ASTM D 93	n/a	107.0	n/a
Flash Point Cleveland (Open Cup)	^o C	ASTM D 92	n/a	128	n/a

Note 1. According to the method of determination of the amount of condensate at a given temperature is not provided. Values made at the request of the Customer.

Note 2. Method is not applicable for this product. The test is made at the request of the Customer

Note 3. Results obtained by this method are equivalent to the ASTM D 2892. An additional advantage of the method ASTM D 5307 is that it gives out the results of fractions to 538 ° C, while the method ASTM D 2892, to 400 ° C.

Note 4. Dewatering of crude oil (up to 0.1 wt%) using demulsifier (GOST 2177 p.6.2.2.2 Method B), was carried out only when tested by methods GOST 2177, ASTM D 86, ASTM D 5307. For all other methods of preparation and dewatering (where it requires a method) of the sample was carried out in accordance with the standards for testing.

INTERTEK S-Petersburg
LABORATORY MANAGER: P.Obukhova



Date : 29.12.2011

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