ANALYTICAL REPORT No: 0787-LQ-14

Client SIBUR International GmbH
S-Peterburg № 7652-0488-14/6
Date of report 08.08.2014
Object OOO "Tomskneftekhim"
Location s. Tomsk

Product : Heavy pyrolysis resin [1] **Received On:** 30.07.2014
Sample Drawn : Sample is selected and provided customer representative.
Sample Description : Dark-colored product which is liquid at room temperature
Testing Performed By: Intertek S-Petersburg Laboratory **Date:** 30.07÷08.08.2014

Tests	Units	Method[2]	Specification limits	Result	Result Within Specification?
Density at 15 deg C	kg/l	ASTM D 4052	unknown	1.0584	_
Density at 20 deg C	kg/l	ASTM D 4052	unknown	1.0545	_
Kinematic Viscosity at 50ºC	mm^2/s	ASTM D 445	unknown	20.68	_
Viscosity assumed (Engler) at 50ºC	º E	conversion	unknown	2.95	_
Kinematic Viscosity at 100ºC	mm^2/s	ASTM D 445	unknown	4.829	_
Viscosity assumed (Engler) at 100ºC	º E	conversion	unknown	1.38	_
Sulphur content	%mass	ASTM D 4294	unknown	0.0096	_
Flash Point, closed Cup	º C	ISO 2719(A)	unknown	56.0	_
Water content	%mass	ASTM D 95	unknown	0.08	_
Pour Point (upper)	º C	ASTM D 97	unknown	minus 33	_
Total Nitrogen	%mass	ASTM D 3228	unknown	0.0063	_
Aniline Point (mixed)	º C	ASTM D 611 (A)	unknown	25.0[3]	_
Conradson carbon Residue (CCR)	%mass	ASTM D 189	unknown	11.6	_
Vacuum Distillation (50 - 30 mm Hg):		ASTM D 1160 mod.			
Initial bolling point	º C		unknown	202	_
5% vol recovered	º C		unknown	210	_
10% vol recovered	º C		unknown	214	_
20% vol recovered	º C		unknown	220	_
30% vol recovered	º C		unknown	230	_
40% vol recovered	º C		unknown	247	_
50% vol recovered	º C		unknown	279	_
60% vol recovered	º C		unknown	316	_
70% vol recovered	º C		unknown	360	_
80% vol recovered	º C		unknown	413	_
90% vol recovered	º C		unknown	455	_
95% vol recovered	º C		unknown	475	_
Final Boiling Point /cracking	º C		unknown	475	_
Loss	%vol		unknown	0.0	_
Residue	%vol		unknown	5.0	_
Recovered at 360 ºC	% vol	ASTM D 1160 mod.	unknown	70	_
Bromine number(cut 360 ºC)	gBr/100g	ASTM D 1159	unknown	54.0	_
Saturated, aromatic and polar compounds		IP 469			
Saturated hydrocarbons	%mass			absence	_
Aromatics hydrocarbons	%mass			42.0	_
Polar compounds I	%mass			49.0	
Polar compounds II	%mass			9.0	_
Toluene equivalent	% vol	EXXON 79-004	unknown	100 (not passes)	_

Intertek St.Petersburg.
21,Rozenshteina,St.Petersburg,Russia
tel(7-812) 363 12 00; (7-812) 930 17 52

Tests	Units	Method[2]	Specification limits	Result	Result Within Specification?
Toluene equivalent	% vol	EXXON 79-004 (paragraph 6.2)	unknown	29	_
Toluene Insolubles	%mass		unknown	0.09	_
Xylene equivalent		BP 230	unknown	100 (not passes)	_
P-value		SMS 1600	unknown	1.7	_
Hot Filtration potential	% (m/m)	IP 390(A)/IP 375	unknown	0.07	_
Metals:					
Vanadium	mg/kg	IP 470	unknown	2	_
Sodium	mg/kg	IP 470	unknown	3	_
Nickel	mg/kg	IP 470	unknown	3	_
Aluminium	mg/kg	IP 470	unknown	less 5 (0.2)	_
Silicon	mg/kg	IP 470	unknown	less 10 (0)	_
Iron	mg/kg	IP 470	unknown	4	_
Zinc	mg/kg	IP 470	unknown	less 1(0)	_
Calcium	mg/kg	IP 470	unknown	less 3 (0)	_
Colour ASTM (dilution)		ASTM D 1500	unknown	D 8 ASTM Color	_
Asphaltenes	%mass	IP 143	unknown	10.5	_

Note 1 This product is not included in the Scope of accreditation laboratory.

Note 2. All these methods are intended to record for analysis of residual oil. Sample testing is proposed for petrochemicals. Thus, the results can not be interpreted as the results obtained in the framework of the above methods. Terms perform some tests had to pick from the properties of the product.

Note 3. The result is difficult to accurately fix. This value is taken as the average value between 23 - 26 degrees C.

LABORATORY MANAGER: P.Obukhova

Intertek
St. Petersburg LABORATORY

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21,Rozenshteina,St.Petersburg,Russia
tel(7-812) 363 12 00; (7-812) 930 17 52