

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

Sample Drawn :	Location s. Tomsk								
Sample Description : Dark-colored product which is liquid at room temperature Tresting Performed By:	Product :			ceived On: 30.07.2014					
Tresting Performed By:	·			•					
Tests Units Method¹ Specification limits Result Reputitibility 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 50°C mm²/s ASTM D 445 unknown 2.95 — Kinematic Viscosity at 100°C mm²/s ASTM D 445 unknown 2.95 — Kinematic Viscosity at 100°C mm²/s ASTM D 445 unknown 4.829 — Kinematic Viscosity at 100°C mm²/s ASTM D 445 unknown 4.829 — Viscosity assumed (Engler) at 100°C © E conversion unknown 4.829 — Viscosity assumed (Engler) at 100°C © E conversion unknown 4.829 — Viscosity assumed (Engler) at 100°C © E conversion unknown 4.829 — Viscosity assumed (Engler) at 100°C © C ASTM D 445 unknown 4.00 — Monon									
Density at 15 deg C	-	1	<u> </u>	Specification		Result Within			
Density at 20 deg C	Density at 15 deg C	ka/l	ASTM D 4052		1.0584	Орестиватот			
ASTM D 445		_			1				
Viscosity assumed (Engler) at 50°C	, ,	-							
ASTM D 445	·	+							
Viscosity assumed (Engler) at 100°C	, , , , ,								
Sulphur content %mass ASTM D 4294 unknown 0.0096	·	+	conversion	unknown					
Flash Point, closed Cup	, , ,	%mass		unknown	1				
Water content %mass ASTM D 95 unknown 0.08	·	+			†				
Pour Point (upper)	, ,		` '						
Total Nitrogen			1						
Aniline Point (mixed) O C ASTM D 611 (A) unknown 25.03 — Conradson carbon Residue (CCR) %mass ASTM D 189 unknown 11.6 — Vacuum Distillation (50 - 30 mm Hg): Initial bolling point O C unknown 202 — 10% vol recovered O C unknown 210 — 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 316 — 50% vol recovered O C unknown 316 — 50% vol recovered O C unknown 360 — 50% vol recovered O C unknown 413 — 50% vol recovered O C unknown 475 — 50% vol re			ł						
Conradson carbon Residue (CCR)									
Vacuum Distillation (50 - 30 mm Hg): Initial bolling point 0 C mod. unknown 202	, ,		` '						
Initial bolling point	` '					_			
5% vol recovered ° C unknown 210	` -	° C		unknown	202				
10% vol recovered	<u> </u>					_			
20% vol recovered									
30% vol recovered									
40% vol recovered						_			
50% vol recovered ° C unknown 279						_			
60% vol recovered ° C unknown 316 _ 70% vol recovered ° C unknown 360 _ 80% vol recovered ° C unknown 413 _ 90% vol recovered ° C unknown 455 _ 95% vol recovered ° C unknown 475 _ 95% vol recovered ° C unknown 475 _ Loss %vol unknown 0.0 _ Residue %vol aSTM D 1160 unknown 5.0 _ Recovered at 360 °C % vol ASTM D 1160 unknown 70 _ Bromine number(cut 360 °C) gBr/100g ASTM D 1159 unknown 54.0 _ Saturated, aromatic and polar compounds IP 469 _ _ _ Saturated hydrocarbons %mass 42.0 _ Aromatics hydrocarbons %mass 49.0 _ Polar compounds I %mass 9.0 _						_			
270% vol recovered									
20% vol recovered	70% vol recovered								
90% vol recovered	80% vol recovered	о C							
95% vol recovered ° C unknown 475 Final Boiling Point /cracking ° C unknown 475 Loss %vol unknown 0.0 Residue %vol unknown 5.0 Recovered at 360 °C % vol Mod. unknown 70 Bromine number(cut 360 °C) gBr/100g ASTM D 1159 unknown 54.0 Saturated, aromatic and polar compounds Saturated hydrocarbons %mass Aromatics hydrocarbons %mass Polar compounds I %mass Polar compounds I %mass 9.0 Polar compounds II %mass 9.0		о C		unknown	455				
Final Boiling Point /cracking C Loss Wool Residue Recovered at 360 °C Bromine number(cut 360 °C) Saturated, aromatic and polar compounds Saturated hydrocarbons Aromatics hydrocarbons Polar compounds II Wool Wool ASTM D 1160 mod. ASTM D 1160 mod. ASTM D 1159 unknown 70 — MASTM D 1159 unknown 54.0 — IP 469 Saturated hydrocarbons Aromatics hydrocarbons Wmass Polar compounds II Mass Polar compounds II Mass Polar compounds II Mass Polar compounds II Polar compou	95% vol recovered					_			
Loss	Final Boiling Point /cracking	о C							
Residue	Loss	%vol							
Bromine number(cut 360 °C) Saturated, aromatic and polar compounds Saturated hydrocarbons Aromatics hydrocarbons Polar compounds I Polar compounds II Wmass Woll mod.	Residue								
Bromine number(cut 360 °C) gBr/100g ASTM D 1159 unknown 54.0 Saturated, aromatic and polar compounds Saturated hydrocarbons %mass absence Aromatics hydrocarbons %mass 42.0 Polar compounds I %mass 9.0	Recovered at 360 °C	% vol		unknown	70	_			
Compounds Saturated hydrocarbons Saturated hydrocarbons Meass Aromatics hydrocarbons Winass W	Bromine number(cut 360 °C)	gBr/100g		unknown	54.0	_			
Aromatics hydrocarbons %mass 42.0	Saturated, aromatic and polar compounds		IP 469						
Polar compounds I %mass 49.0 Polar compounds II %mass 9.0	Saturated hydrocarbons	%mass			absence	_			
Polar compounds II %mass 9.0 _	Aromatics hydrocarbons	%mass			42.0	_			
	Polar compounds I	%mass			49.0				
Toluene equivalent % vol EXXON 79-004 unknown 100 (not passes) _	Polar compounds II	%mass	<u> </u>		9.0				
	Toluene equivalent	% vol	EXXON 79-004	unknown	100 (not passes)				

Tests	Units	Method ²	Specification limits	Result	Result Within Specification?
Toluene equivalent	% vol	EXXON 79-004	unknown	29	_
Toluene Insolubles	%mass	(paragraph 6.2)	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





This Analytical Report applies only to the samples tested.

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