



Warter Group



OBR Joint Stock Company

09-411 Plock, ul. Chemików 5

Quality certificate no.

14OBR_IN/A/472

17-10-2014

Product: Aviation gasoline AVGAS 100LL

Specifications according to: WT 09/OBR PR/PD/48 wyd. VI

Research unit: OBR Joint Stock Company

Producer: OBR Joint Stock Company

Sample no. 14OBR_IN/1310

Lot no: 14/IN/407

Lot size: 157000 l

Tank no: BB 012

Tanker no.

Date of sampling: 16-10-2014 03:00

Date of sample delivery: 16-10-2014

Date of the test: 17-10-2014

FULL SPECIFICATION TEST

No.	Properties	Unit	Results	Limits	Method
1	Appearance	--	pure clear liquid no particles solid and undissolved water in temperature environments		ASTM D 4176-04(2009) metoda 1
2	Colour	--	blue	blue	ASTM D 2392-96(2011)
3	Density at 15 °C	kg/m ³	718,5		ASTM D 4052-11
4	Initial Boiling Point	°C	37,3		ASTM D 86-12
5	10 %(V/V)	°C	60,1	max. 75	ASTM D 86-12
6	40 %(V/V)	°C	90,4	min. 75	ASTM D 86-12
7	50 %(V/V)	°C	99,6	max. 105	ASTM D 86-12
8	90 %(V/V)	°C	116,2	max. 135	ASTM D 86-12
9	Final Boiling Point	°C	146,3	max. 170	ASTM D 86-12
10	Performance	%(V/V)	98,3	min. 97	ASTM D 86-12
11	Residue	%(V/V)	1,2	max. 1.5	ASTM D 86-12
12	Loss	%(V/V)	0,6	max. 1.5	ASTM D 86-12
13	Sum of 10% and 50% Evaporated Temperatures	°C	159,7	min. 135	ASTM D 86-12
14	Reid vapour pressure at 37,8 C	kPa	47,3	min. 38 - max. 49	ASTM D 5191-12
15	Electrical conductivity at 20 C	pS/m	238	min. 50 - max. 450	ASTM D 2624-09
16	Lead Content	g/liter	0,436	max. 0.56	ASTM D 5059-07 metoda A
17	Freezing point	°C	<-60	max. -58	ASTM D 2386-06(2012)
18	Motor Octane Number MON	-	101,5	min. 99.6	ASTM D 2700:2009
19	Performance number	-	132	min. 130	ASTM D 909
20	Sulfur	%m/m	0,0013	max. 0.05	ASTM D 2622-10
21	Specific energy	MJ/kg	43,717	min. 43.5	ASTM D 4529-01(2011)
22	Water Reaction - volume change	ml	0	max. 2	ASTM D 1094-07(2013)
23	Corrosion copper strip 2h at 100 C	klasa	1	max. 1	ASTM D 130-12
24	Existent gum	mg/100ml	<1	max. 3	ASTM D 381-12
25	Potential gum	mg/100ml	<1	max. 6	ASTM D 873-12
26	Precipitate	mg/100ml	<1	max. 2	ASTM D 873-12
27	Colour in Lovibond - B	-	3	min. 1.7 - max. 3.5	IP 17:2010
28	Colour in Lovibond - N	-	0,8		IP 17:2010
29	Colour in Lovibond - R	-	0		IP 17:2010
30	Colour in Lovibond - Y	-	0,8		IP 17:2010

decision QC:

antiknock compound (ethyl fluid TEL - B) Max 0,56 gPb/l of gasoline - see report of analyses

colouring additive (1,4 - dialkilo-aminoantrachinone) max 2,7 mg/l of gasoline - 1,30 mg/l

antioxidant additive (2,6-ditertiary-butyl-4metyl-phenol) max 12 mg/l - 10 mg/l; anti-electrostatic additive(STADIS 450) Max 3,0 mg/l of gasoline - 0,31 mg/l

Performance number rewritten from the laboratory opinion No. Nr 14-004530-0-WTHU , ITS Testing Service (UK) Caleb Brett House, 734 London Road, Essex 19-09-2014.

Aviation gasoline AVGAS 100LL meets WT 09/OBR PR/PD/48 wyd VI

and ASTM D 910, DEF-STAN 91-90 ISSUE 3

Signature

Date: 17-10-2014

QC: 5, Boguszewska Beata