



Warter Group



WARTER FUELS SPÓŁKA AKCYJNA

02-967 Warszawa, ul. Koralkowa 60

Quality certificate no.

18OBR_IN/A/109

26-04-2018

Product: Aviation gasoline AVGAS 100LL

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

Research unit: WARTER FUELS SPÓŁKA AKCYJNA

Producer: WARTER FUELS SPÓŁKA AKCYJNA

Sample no. 18OBR_IN/257

Lot no: 18/IN/107

Lot size: 88000 l

Tank no: BB 069

Tanker no.

Date of sampling: 06-04-2018 20:00

Date of sample delivery: 06-04-2018

Date of the test: 10-04-2018

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 (2014)
2	Colour	--	blue	blue	ASTM D 2392-15
3	Density at 15 °C	kg/m ³	721.1		ASTM D 4052-16
4	Initial Boiling Point	°C	36.8		ASTM D 86-17
5	10 %(V/V)	°C	64.4	max. 75	ASTM D 86-17
6	40 %(V/V)	°C	95.1	min. 75	ASTM D 86-17
7	50 %(V/V)	°C	100.9	max. 105	ASTM D 86-17
8	90 %(V/V)	°C	108.9	max. 135	ASTM D 86-17
9	Final Boiling Point	°C	124.6	max. 170	ASTM D 86-17
10	Performance	%(V/V)	97.9	min. 97	ASTM D 86-17
11	Residue	%(V/V)	1.2	max. 1.5	ASTM D 86-17
12	Loss	%(V/V)	0.9	max. 1.5	ASTM D 86-17
13	Sum of 10% and 50% Evaporated Temperatures	°C	165.3	min. 135	ASTM D 86-17
14	Reid vapour pressure at 37,8 C	kPa	43.5	min. 38 - max. 49	ASTM D 5191-15
15	Electrical conductivity at 20 C	pS/m	151	min. 50 - max. 450	ASTM D 2624-15
16	Lead Content	g/liter	0.422	max. 0.56	ASTM D 5059-14 METODA A
17	Freezing point	°C	<-60	max. -58	ASTM D 2386-15E1
18	Motor Octane Number MON	-	101.5	min. 99.6	ASTM D 2700-17
19	Performance number	-	134.1	min. 130	ASTM D 909
20	Sulfur	%m/m	0.0009	max. 0.05	ASTM D 2622-16
21	Specific energy	MJ/kg	43.68	min. 43.5	ASTM D 4529-17
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 (2017)
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 569/09 (2014)
28	Colour in Lovibond - N	-	0.8		IP 569/09 (2014)
29	Colour in Lovibond - R	-	0		IP 569/09 (2014)
30	Colour in Lovibond - Y	-	0.8		IP 569/09 (2014)

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 - 0,2 mg/l Intertek Nederland B.V Office/Laboratory, AB Hoogvliet Rt, Leerlooierstraat 135, Intertek Nederland B.V Office/Laboratory, 14-03-2018.
Performance number rewritten from the laboratory opinion No. Nr 18-003945-0-RDAM-001-00,
Aviation gasoline AVGAS 100LL meets WT 09/OBR PR/PD/48 wyd VIII
and ASTM D 910, DEF-STAN 91-90 ISSUE 4

Signature

Date: 10-04-2018

QC: 5, Boguszewska Beata