



Warter Group



WARTER FUELS SPÓŁKA AKCYJNA

02-967 Warszawa, ul. Korolowa 60

Quality certificate no.

18OBR_IN/A/125

26-04-2018

Product: Aviation gasoline type WA UL 91

Specifications according to: WT-06/OBRPR/PD/66 wyd. IX

Research unit: WARTER FUELS SPÓŁKA AKCYJNA

Producer: WARTER FUELS SPÓŁKA AKCYJNA

Sample no. 18OBR_IN/311

Lot no: 18/IN/125

Lot size: 94000 l

Tank no: BB 056

Tanker no.

Date of sampling: 24-04-2018 05:00

Date of sample delivery: 24-04-2018

Date of the test: 24-04-2018

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 4178-04 (2014)
2	Colour	--	transparent natural	transparent natural	WT-06/OBRPR/PD/66 WYD. IX
3	Research Octane Number	-	99.6	min. 96	ASTM D 2699-12
4	Motor Octane Number MON	-	92.1	min. 91	ASTM D 2700-17
5	Initial Boiling Point	°C	33.3		ASTM D 86-17
6	10 %(V/V)	°C	65.2	max. 75	ASTM D 86-17
7	40 %(V/V)	°C	100.1	min. 75	ASTM D 86-17
8	50 %(V/V)	°C	102.6	max. 105	ASTM D 86-17
9	90 %(V/V)	°C	107	max. 135	ASTM D 86-17
10	Final Boiling Point	°C	122.5	max. 170	ASTM D 86-17
11	Performance	%(V/V)	97.9	min. 97	ASTM D 86-17
12	Residue	%(V/V)	1	max. 1.5	ASTM D 86-17
13	Loss	%(V/V)	1.1	max. 1.5	ASTM D 86-17
14	Sum of 10% and 50% Evaporated Temperatures	°C	167.8	min. 135	ASTM D 86-17
15	Sulfur	%m/m	<0.0003	max. 0.05	ASTM D 2622-16
16	Lead Content	g Pb/l	<0.0026	max. 0.013	ASTM D 5059-14 MET. C
17	Density at 15 °C	kg/m ³	724.1		ASTM D 4052-16
18	Specific energy	MJ/kg	43.626	min. 43.5	ASTM D 4529-17
19	Freezing point	°C	<-60	max. -58	ASTM D 2386-15E1
20	Corrosion copper strip 2h at 100 C	klasa	1	max. 1	ASTM D 130-12
21	Water Reaction - volume change	ml	0	max. 2	ASTM D 1094-07(2013)
22	Electrical conductivity at 20 C	pS/m	2	min. 50 - max. 450	ASTM D 2624-15
23	Reid vapour pressure at 37,8 C	kPa	48.4	min. 38 - max. 49	ASTM D 5191-15
24	Potential gum	mg/100ml	<1	max. 6	ASTM D 873-12
25	Precipitate	mg/100ml	<1	max. 2	ASTM D 873-12
26	Existent gum	mg/100ml	<1	max. 3	ASTM D 381-12 (2017)

decision QC:

antioxidant additive (2,6-dithertbutylo-4-methylphenol) max 12mg/l of gasoline - 10 mg/l

On customer's request no Stadis 450 has been added.

Aviation gasoline WA UL 91 meets

ASTM D 7547 and DEF STAN 91-90

Signature

Date. 24-04-2018

QC: 5, Boguszewska Beata