

As a manufacturer of aviation gasoline, we would like to inform you that as of 01 January 2025, **WA 91UL aviation gasoline** sold by Warter Fuels S.A., which meets the ASTM D7547 standard, is dyed red. The other quality parameters of the petrol have not changed.

With the ongoing development of aviation unleaded gasolines, *ASTM International*, the organization that develops quality standards, is working on a selection of dyes for unleaded gasolines to help identify the gasoline grades operating in the market.

ASTM D7547-23 Standard Specification for Hydrocarbon Unleaded Aviation Gasoline mandates that UL 91 aviation gasoline be coloured red and UL94 gasoline be coloured purple.

In research report D02-2049, *ASTM International* stresses that the introduction of colour alone is not sufficient to protect against the risk of confusion during refuelling, as it is only by mixing petrols of different colours in a ratio of 80% : 20% that the colour difference can be visually perceived. Therefore, please take care during storage and unloading operations.

Appearance of WA91 UL petrol coloured red - left sample and result of blending WA91UL petrol 80% with 100 LL petrol 20% (blue) - right sample



Photo 1 - 100% WA 91 UL - red



Photo 2 - Colour after mixing 20% AVGAS 100 LL blue + 80% WA 91UL red



Warter Group



WARTER FUELS SPÓŁKA AKCYJNA

02-967 Warszawa, ul. Korolowa 60

Quality certificate no.

250BR_IN/A/4

07-01-2025

Product: Aviation gasoline type WA UL 91

Specifications according to: WT-06/OBRPR/PD/68

Research unit: WARTER FUELS SPÓŁKA AKCYJNA

Producer: WARTER FUELS SPÓŁKA AKCYJNA

Sample no. 240BR_IN/1755

Lot no: 24/IN/409

Lot size:

Tank no: BB 076

Tanker no.

Date of sampling: 24-12-2024 17:00

Date of sample delivery: 24-12-2024

Date of the test: 07-01-2025

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 4176-22 METODA 1
2	Colour	--	red	red	WT-06/OBRPR/PD/68
3	Research Octane Number	-	98	min. 95	ASTM D2699-24A PROCEDURA A
4	Motor Octane Number MON	-	92,8	min. 91	ASTM D2700-24B PROCEDURA A
5	Initial Boiling Point	°C	32,8		ASTM D 86-23AE2
6	10 %(V/V)	°C	64,9	max. 75	ASTM D 86-23AE2
7	40 %(V/V)	°C	98,2	min. 75	ASTM D 86-23AE2
8	50 %(V/V)	°C	101,8	max. 105	ASTM D 86-23AE2
9	90 %(V/V)	°C	108,3	max. 135	ASTM D 86-23AE2
10	Final Boiling Point	°C	126,6	max. 170	ASTM D 86-23AE2
11	Recovery volume percent	%(V/V)	98,4	min. 97	ASTM D 86-23AE2
12	Residue	%(V/V)	1,1	max. 1,5	ASTM D 86-23AE2
13	Loss	%(V/V)	0,5	max. 1,5	ASTM D 86-23AE2
14	Sum of 10% and 50% Evaporated Temperatures	°C	166,7	min. 135	ASTM D 86-23AE2
15	Sulfur	%m/m	<0.00030	max. 0.05	ASTM D 2622-24
16	Lead Content	g Pb/l	<0.0026	max. 0.013	ASTM D 5059-21 METODA C
17	Density at 15 °C	kg/m3	716,4		ASTM D 4062-22
18	Specific energy	MJ/kg	43,654	min. 43.5	ASTM D 3338/D3338M-20A
19	Freezing point	°C	<-61.0	max. -58	ASTM D 2388-19
20	Corrosion copper strip 2h at 100 C	klasa	1	max. 1	ASTM D 130-19
21	Water Reaction - volume change	ml	0	max. 2	ASTM D 1094-24
22	Electrical conductivity at 20 C	pS/m	1	min. 50 - max. 450	ASTM D 2624-22
23	Reid vapour pressure at 37,8 C	kPa	47,4	min. 38 - max. 49	ASTM D 5191-22
24	Potential gum	mg/100ml	1,00	max. 6	ASTM D 873-22
25	Precipitate	mg/100ml	<1	max. 2	ASTM D 873-22
26	Existent gum	mg/100ml	<1	max. 3	ASTM D 381-22
27	Colour in Lovibond - B	-	0		IP 569/09 (2019)
28	Colour in Lovibond - N	-	1		IP 569/09 (2019)
29	Colour in Lovibond - R	-	8,2	min. 6,7 - max. 9,1	IP 569/09 (2019)
30	Colour in Lovibond - Y	-	2,5		IP 569/09 (2019)

decision QC:

antioxidant additive (2,6-di-tert-butyl-4-methylphenol RDE/A/607) max 12mg/l of gasoline - 10 mg/l

colouring additive (1-(2-methyl-4-(2-methylphenylazo)phenylazo)-2-naphthol) max 2,3 mg/l of gasoline

No Stadis 450 has been added

Anticorrosive additive max 22.5mg/l.

Aviation gasoline WA UL 91 meets ASTM D 7547

Photo 3 - Example of quality certificate