

### CERTIFICATE OF QUALITY

**Grade:** HJELMCO AVGAS 91/96 UL<sup>®</sup> Meets and exceeds requirements for AVGAS UL91  
**Extank:** C111 + C112 Västerås Sweden  
**Complies with:** DEF STAN 91-090 issue 5. Hjelmco company standard, Swedish law. Meets and exceeds requirements for grade 91 in DEF STAN 91-090 issue 5 dated Dec. 2019  
**Batch No:** 095/2021  
**Certificate No:** 102

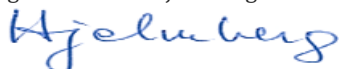
### AVIATION GASOLINES

**Laboratory reports:** 11601/00060348.3/L/21  
**Applies to:**  
**Destination:**  
**Date sampled:** 15 February 2021

Analyses	Test method	Unit	Limits	Test results
Appearance	Visual		Clear	Pass
Knock value, lean mixture Octane number, Aviation Rating (table 8)	ASTM D 2700		Min 91,0	92,9
Knock value, rich mixture Octane number	ASTM D 909		Min 98	*****
Knock value*, lean mixture Motor octane method number	ASTM D 2700		Min 90,8	92,6
Knock value, research number	ASTM D 2699		Min 98,0*	98,9
Lead* Pb	ASTM D 3237	mg/L	Max 13	<2,5
Colour	Visual		transparent	transparent**
Net heat of combustion	ASTM D 3338	MJ/kg	Min 43,5	43,696
Density at 15 degr. C.	ASTM D 4052	kg/m <sup>3</sup>	Report	716,1
Initial Boiling Point	ASTM D 86 group 2	degrees C.	Report	34,7
Fuel evaporated 10 volume % at		degrees C.	Max 75	67,1
Fuel evaporated 40 volume % at		degrees C.	Min 75	99,7
Fuel evaporated 50 volume % at		degrees C.	Max 105	102,6
Fuel evaporated 90 volume % at		degrees C.	Max 135	109,2
Final Boiling Point		degrees C.	Max 170	133,4
Sum of 10 % + 50 %, evaporated temperatures		degrees C.	Min 135	169,7
Recovery		volume %	Min 97,0	98,0
Residue		volume %	Max 1,5	1,2
Loss		volume %	Max 1,5	0,8
Vapour Pressure DVPE	ASTM D 5191	kPa	38,0-49,0	46,4
Freezing Point	ASTM D 2386	degr. C.	Max (-58)	<-70
Sulphur	ASTM D5453	mg/kg	Max 500	2,9
Corrosion, copper strip 2 hours at 100 degr. C.	ASTM D 130		Max 1	1a
Existent Gum* unwashed (160 degr. C.)	ASTM D 381	mg/100 mL	Max 3	<1
Oxidation stability, Potential gum (16 hours aging)	ASTM D 873	mg/100 mL	Max 6	2
Lead precipitate	ASTM D 873	mg/100 mL	Max 2	<1
Water reaction*, Interface Rating	ASTM D 1094	as per table	Max 2	1
Water reaction*, Separation Rating	ASTM D 1094	as per table	Max 1	1
Water reaction, Volume change	ASTM D 1094	mL	Max +/- 2	<0,5
Benzene*	EN238	volume %	Max 0,1	<0,1
Electrical conductivity at + 6,2 degr. C.	ASTM D 2624-15	pS/m	Max 600	215
Conductivity improver Stadis 450 <sup>®</sup> RDE/A/621		mg/L	Max 3	0,26
Colouring additive essentially 1,4-dialkylamino anthraquinone (blue)		mg/L	Max 3,1	0,0 **
Colouring additive essentially benzene-azo-2-naphthol (orange)		mg/L	Max 6,0	0,0 **
Colouring additive essentially ... azobenzene-4-azo-2-naphthol (red)		mg/L	Max 2,7	0,0 **
Antioxidant additive 2,6-ditertiary-butyl - tert-tritert butyl phenols RDE/A/609		mg/L	Max 24	19,05

\*Hjelmco Oil company standard. \*\*Swedish law requires unleaded gasoline to be undyed. \*\*\*Not run for unleaded gasoline. \*\*\*\*Calculated. \*\*\*\*\* optional not run \*\*\*\*\* Conductivity improver not added. 1) All analyses incl. lead but excluding additive concentrations performed by independent laboratories.

Signature: Lars Hjelmberg 2021-February-19



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HJELMCO OIL AKTIEBOLAG.

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