

RESEARCH & DEVELOPMENT CENTER
of the REFINING INDUSTRY JOINT-STOCK COMPANY

Following No 244 / 2010

Data 17.08.2010

CERTIFICATE OF QUALITY

Product name: Aviation gasoline /AVGAS /100 LL

Specifications according to: WT- 09/OBR PR / PD/48 meeting the DEF-STAN 91-90 (DERD 2485) norm

Lot No. / Data of production: 391 / 17.08.2010

Results of the check test

Item	Kind of specifications	Test method	Limits	Test results
1	Apperance	ASTM D 4176-4	Clear , bright and visually free from solid matter and undissolved water at ambient temperature	OK
2	Colour , Visual	Visual examination	Blue	Blue
3	Knock rating			
	- Lean mixture motor method octane number /LOM /	ASTMD2700/IP236	Min 99,5	101,2
	- Performance number *)	ASTM D 909/IP119	Min 130	137,0*
4	Distillation :	PN-81/C-04012		
	-initial boiling point fuel evaporated, °C	gr . 2 ASTM D 86	Report	41,1
	-10 vol% recovered at , °C		Max75	62,8
	-40vol% recovered at , °C		Min 75	86,2
	-50vol% recovered at , °C		Max 105	94,7
	-90vol% recovered at , °C		Max 135	107,4
	-end boiling point		Max 170	121,9
	-residue , vol.%		Max 1,5	1,1
	-loss , vol%		Max 1,5	0,9
	Sum of 10%+50% evaporated temperatures		Min 135	157,5
5	Reid vapour pressure at 37,8°C, kPa (DVPE)	PN-EN 130161 ASTM D 5191	38 - 49	45,1
6	Tetraethyl lead content ,gPb/l	PN-92/C-04195 met.B	Max 0,56	0,52
7	Existant gum , mg / 100ml	ASTM D 381/IP131	Max 3	< 1
8	Freezing point , °C	ASTM D 2386/IP16 ADTM D 7153	Max (- 60)	< (-60)
9	Water reaction ,ml	ASTMD1094/IP289		
	-volume change ,ml		Max 2	0,0
10	Total sulfur. ppm	ASTM D 4294-90	Max 500	< 3
11	Corrosion copper strip 2h at 100 °C	ASTM D 130/IP154	Max 1	1

12	Electrical conductivity at 20°C, pS/m	ASTMD2624/IP274	50 - 600	235
13	Density at 15°C, kg/m ³	ASTM D 1298/IP160 ASTM D 4052	Report	722,2
14	Specific energy, MJ/kg	ASTM D 4529	Min 43,5	43,59
15	Oxidation stability 16h at 100°C	ASTM D 873/IP138	Max 6	< 1
	- potential gum, mg/100ml		Max 2	< 1
	-precipitate, mg/100ml			

Product meets / ~~does not meet~~ the specifications

Certificate of Quality was issued on the basis of the report (s): 1030/2010, 1096/2010

Product corresponds to the DEF-STAN 91-90 (DERD 2485) norm within the range of parameters indicated

*¹) rewritten from the laboratory opinion 10-005018-0-WTHUB, ITS Testing Service (UK) Caleb Brett House, 734 London Road, Essex, 27-Jul-10.

Signature of the person issuing:

Wydział Naftowych
I. FOTOG
Bożena Czerzniewska

Name and quantity of the additions introduced:

- antiknock compound (ethyl fluid TEL – B)
Max 0,56 gPb/l of gasoline - 0,52 gPb/l
- colouring additive (1,4 –dialkilo-aminoantrachinone)
0, 80 to 1, 51 mg/l of gasoline - 1,30 mg/l
- antioxidant additive (2,6-dithertbutylo – 4 – methylphenol)
Max 24, 4 mg/l of gasoline - 20 mg/l
- anti-electrostatic additive (STADIS 450)
Max 3, 0 mg/l of gasoline - 0,31 mg/l