



Fuels Technical Data Sheet

Avgas 100 / Avgas 100LL

Product Description

Avgas 100 and Avgas 100LL (the “LL” indicating low-lead) are the principal grades of aviation gasoline in use today. Their specifications are identical in all respects except for lead content and the grade-identifying colour. The two major specifications defining these grades are ASTM D910 and DEF STAN 91-90. Whilst both grades are designed for use primarily in larger, turbocharged aircraft piston engines, the low-lead Avgas 100LL can also be used in smaller, normally-aspirated engines which were originally certified on Avgas 80 and where Avgas 100LL has been certified as an alternative fuel.

Product Application

Avgas 100 and/or Avgas 100LL can be used in aircraft spark-ignition piston engines, for which the engine manufacturer has approved this grade of fuel. Although having the same performance in terms of anti-knock ratings, the two grades are distinguishable by tetra-ethyl lead (TEL) content and colour (see typical properties table below). Whilst engines certified on Avgas 100 will happily operate on Avgas 100LL, engines originally certified on lower performance grades such as Avgas 80 may perform well on Avgas 100LL but should not be exposed to the higher lead content Avgas 100 grade.

Features/Benefits

Avgas 100 and Avgas 100LL are manufactured to provide the balanced set of properties required for satisfactory performance in piston-engined aircraft, viz: good anti-knock performance, tightly controlled volatility, resistance to oxidation, adequate low temperature flow characteristics. Avgas 100 and Avgas 100LL are manufactured, stored, distributed and delivered under the most stringent quality assurance procedures to ensure that only clean, dry, on-specification fuel is supplied to aircraft.

Care & Handling

Before handling refer to the Material Safety Data Sheet. This product is only to be used in accordance with equipment manufacturers' recommendations.

Health & Safety Information

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application and the recommendations provided in the Material Safety Data Sheet are followed.



Fuels Technical Data Sheet

Typical Properties

Property	Max Value	Min Value
Knock Rating, Lean Mixture (Motor Method) Octane Number		99.5
Knock Rating, Rich Mixture (Supercharge Method) Performance Number		130
Freezing Point °C	-58	
Distillation end point °C	170	
Reid Vapour Pressure @ 38°C kPa	49	38
Sulphur content %m	0.05	
Tetraethyl lead content gPb/l Avgas 100 Avgas 100LL	0.85 0.56	
Colour Avgas 100 Avgas 100LL		Green Blue

The Avgas 100/100LL specification contains many more parameters, several of which are specific to aviation gasolines. Regarding fuel additives, only those specifically approved by the aircraft and engine manufacturers are permitted. For full details refer to the specification.

Specifications

The main, internationally recognised, specifications for this grade are:
ASTM D 910 (Grades Avgas 100 and Avgas 100LL)
DEF STAN 91-90
Other, similar, national specifications may also exist.

Date of Issue: October 2007 (v1.0)

Product Number: 002C0937 (Avgas 100)

002D0717 (Avgas 100LL)

002C0199 (Avgas 100LL (<0.1% benzene))

This data sheet and information it contains is considered to be accurate as of the date of printing. No warranty of representation, express or implied, is made as to the accuracy for completeness of the data and information contained in this publication. It is the user's obligation to evaluate and use products safely and to comply with all applicable laws and regulations. No statement made in this publication shall be construed as a permission, recommendation or authorization given or implied to practice any patented invention without valid license. The (Shell) Group shall not be responsible for any damage or injury resulting from abnormal use of the material from any failure to adhere to recommendations, or from hazards inherent in the nature of the material.