

**Using Unleaded Petrol (Mogas) in
Aircraft**

Safety Leaflet



Using Unleaded Petrol (Mogas) in your Aircraft

The aircraft owner/operator is responsible for the grade of fuel used in their aircraft. Many light aircraft are approved to use Unleaded Petrol, sometimes called “Mogas,” conforming to EN 228, as amended. This Safety Leaflet outlines some precautions which pilots should be aware of when operating an aircraft on Unleaded Petrol.

“Fuel Stretching”

Fuel stretching involves adding cheaper liquids like kerosene, ethanol or methanol to fuel. In light of recent media coverage (Oct/Nov 2014) citing increases of incidents of suspected “Fuel Stretching,” pilots are being urged to be extra vigilant in sourcing unleaded petrol.

Revenue and An Garda Síochána have agreed joint actions in investigating the serious nature of problems arising from suspected interference with petrol according to Revenue. Over 90 complaints about contaminated fuel have been received in 2014, by Revenue, with the majority reported in the last three months and largely concerning the Borders and Midlands West regions. The Society of the Irish Motor Industry (SIMI) received calls from “all over the country” regarding engines that were showing signs of “petrol stretching.”

Contaminated petrol can contain up to 20% kerosene, sometimes with a further 5% methanol. This fuel causes serious damage to engines and may result in engine failure. The IAA has received reports of engine damage and engine failure possibly as a result of running on contaminated fuel.

There is currently no easy test to check if the fuel is contaminated.

Pilots are urged to be extra vigilant when choosing their fuel source. The advice is to be wary of cheap fuel. Pilots are reminded that flight over congested areas of cities, towns or settlements or over an assembly of persons must be at a height as would permit, in the event of the failure of a power unit, a safe forced landing to be made, or higher if required by Rules of the Air.

Precautions detailed in this Safety Leaflet should be observed when using Unleaded Petrol (Mogas) in aircraft.

Further Information:

IAA Aeronautical Advisory Memorandum 01/14
IAA Aeronautical Notices A16A and A16B
EGAST Safety Promotion Leaflet ‘Piston Engine Icing’
SFAA Special Airworthiness Information Bulletin CE-07-06

Irish Aviation Authority



Airworthiness Standards Department,
The Times Building,
11-12 D’Olier Street,
Dublin 2.

Precautions

- Use only freshly obtained supplies.
- If you need to transport the fuel, use designated containers which are free from contamination.
- Check the fuel for presence of water and alcohol (ethanol) prior to the first flight of the day.
- During the daily check and other maintenance inspections, pay particular attention to non-metallic fuel pipes and seals for signs of leakage or deterioration.
- Pay particular attention to the serviceability of carburettor heating (if fitted). If carburettor heating is selectable, ensure that a satisfactory RPM drop is obtained when heating is selected during pre-take-off checks.
- The ability to maintain take-off power must be verified before the aircraft is committed to completing a take-off.
- Alcohol (ethanol) in Mogas can adversely affect seals and elastomers; it also affects the fuel’s vapour pressure, leading to an increase probability of vapour lock.
- Ethanol absorbs water which increases the likelihood of carburettor icing.
- An engine will use more fuel as the percentage of added alcohol increases.
- Ethanol mixed with water is corrosive and may attack part of the fuel system. In long-term storage, ethanol may oxidise with exposure to air. This process produces a mild acidic solution which can attack fuel system fittings.
- Some elastomers used in old aircraft models and which are otherwise compatible with Avgas may deteriorate on contact with ethanol.

Please report any problems encountered using Unleaded Petrol (Mogas) to the IAA Airworthiness Standards Department and the AAIU, as applicable.

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