



EASA Safety Information Bulletin

SIB No.: 2007-01R1
Issued: 12 January 2011

- Subject:** Use of Automotive Gasoline (Mogas) containing Bio-Ethanol
- Revision:** This SIB revises Safety Information Notice (SIN) 2007-01 dated 05 January 2007.
- Ref. Publications:** EASA research report [Safety Implication of Bio-fuels in Aviation](#) (SloBiA) and FAA Special Airworthiness Information Bulletin (SAIB) [CE-07-06](#).
- Applicability:** All aircraft certificated or validated under Part (CS) VLA, 22, 23 or 27 and equipped with spark-ignited piston engines, approved for operation with Mogas by the aeroplane TC holder or through STC modification.
- Description:** Several piston-engine aeroplane and rotorcraft type designs are approved for operation with Mogas, either by the TC-holder or through accomplishment of an STC-approved modification. These approvals may be limited to the use of Mogas that does not contain low-molecular weight alcohols (methanol or ethanol). However, not all (Supplemental) Type Certificated products have this limitation.
- The current European fuel standard EN 228 allows up to 3 vol-% methanol and 5 vol-% ethanol without further declaration. While in the past, most of the fuel did not contain methanol or ethanol, this situation has changed due to implementation of [Directive 2003/30/EC](#) of the European Parliament and of the Council of 8 May 2003, on “*the promotion of the use of bio fuels or other renewable fuels for transport*” in the EU Member States and associated countries. It is anticipated that the amount of ethanol added to the fuel will increase even further in the future.
- The unauthorised use of fuel containing methanol or ethanol in aircraft can cause the following problems, potentially resulting in engine in-flight shut downs or fires, due to leakages:
- Increased risk for vapour lock due to different volatility.
 - Incompatibility with several materials in the fuel system.

- Phase separation into an alcohol-rich aqueous phase and an alcohol-poor hydrocarbon phase when the fuel is cooled (e.g. at high altitude) and not free of water.
- Improper fuel quantity indication, regardless of the quantity of methanol and/ or ethanol, especially when capacitive fuel quantity gauging systems are used.

At this time, EASA has determined that this airworthiness concern is not an unsafe condition that would warrant airworthiness directive (AD) action under Regulation (EC) [1702/2003](#), Part 21A.3B.

Recommendations: Owners and operators of affected aircraft are recommended to take the following actions:

- Check whether your aircraft is approved for operation with Mogas containing low-molecular weight alcohols (methanol or ethanol).
- If not, do not use Mogas without having evidence that it is free of methanol or ethanol by asking for a certificate from the fuel supplier or performing a test for the methanol or ethanol content. Contact the STC holder (e.g. the European representative for Petersen Aviation, [Innovative Aero GmbH](#) or the [Deutscher Aero Club](#) for test equipment) or refer to FAA SAIB CE-07-06 for a simple test method.
- If the aircraft is approved for operation with Mogas containing methanol or ethanol, when reading the fuel quantity indication system, take into consideration that such fuel has lower energy content (higher fuel consumption) and may cause possible over-reading of fuel quantity on the capacitive measurement system.

Contact the holder of the TC or STC, as applicable, to determine whether the calibration of the fuel quantity indication system has been made with the conservative assumptions.

For maintenance of these capacitive measurement systems, or if new calibration is necessary, contact the holder of the TC or STC, as applicable, to insure the correct conservative calibration will be used.

The holders of a TC or STC approval for operation of Mogas with capacitive measurement systems are expected to specify the appropriate method for calibration of that system in the applicable maintenance manual (supplement).

Contact: For further information contact the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA; E-mail: ADs@easa.europa.eu.