



Unleaded Avgas Conversion Considerations for Aviation Fuel Providers

Purpose

The National Air Transportation Association (NATA), along with other industry and government stakeholders, supports the Eliminate Aviation Gasoline Lead Emissions (EAGLE) Initiative¹ goal of a lead-free future for U.S. piston-engine aircraft by 2030. EAGLE aims to eliminate the use of leaded fuels by the existing general aviation (GA) fleet without adversely impacting its safe and efficient operation – which includes maintaining 100LL availability across the country during the transition. The regulatory process put in motion by the Environmental Protection Agency to issue an endangerment finding² against leaded Avgas is prompting airports in some communities to consider a transition to unleaded (UL) Avgas before a fleet authorization, lead-free alternative is available.

Note: A ban on the sale or use of 100LL at a federally obligated airport is inconsistent with Grant Assurance 22(a), Economic Non-Discrimination (49 U.S.C. 47107(a)(1)³) and conflicts with the self-service provision of this grant assurance.

NATA suggests four key phases for fuel providers offering UL Avgas in addition to 100LL: Discovery, Preliminary Communications, Infrastructure Considerations, and Final Communications.

- **Discovery** – This preliminary phase will help fuel providers decide if there is sufficient demand and regulatory approval for offering Avgas (see NATA's UL Avgas Fact Sheet⁴ for more information on current state of UL Avgas availability) at their operations. Steps may include:
 - Complete an airport survey to determine the number of aircraft based at the airport that are compatible and approved for use with UL Avgas.
 - Consider availability of supply and local market demand based on survey results.
 - Verify regulatory requirements with state and local authorities (i.e., state environmental agencies, local fire authorities, etc.).

¹ <https://www.faa.gov/unleaded>

² <https://www.epa.gov/newsreleases/epa-evaluate-whether-lead-emissions-piston-engine-aircraft-endanger-human-health-and>

³ https://www.faa.gov/airports/aip/grant_assurances

⁴ [https://www.nata.aero/assets/Site_18/files/Safety_1st documents/Misfueling/UnleadedAvGasFactSheet.pdf](https://www.nata.aero/assets/Site_18/files/Safety_1st_documents/Misfueling/UnleadedAvGasFactSheet.pdf)

- **Preliminary Communication** – If the discovery phase proves a viable demand for UL Avgas, preliminary stakeholder communications are essential for a successful project and may include:
 - Provide initial notice of the intention to offer UL Avgas to all stakeholders and users.
 - Hold a series of informational/educational meetings with those stakeholders, including:
 - Airport sponsors
 - FBOs
 - Flight Schools
 - Tenants (pilots)
 - A&P mechanics- Supplement Type Certificate (STC) process
 - Local communities and governments
 - Develop a misfueling prevention training program to ensure delivery of the correct grade of fuel at every refueling.
 - NATA's Safety 1st Program provides free misfueling prevention training at www.preventmisfueling.com.
 - Confirm fuel supplier, delivery, contract, and product liability insurance.
- **Infrastructure Considerations** –UL Avgas requires its own grade dedicated storage tanks, refueling trucks, and systems on airports. Aviation fuel providers who wish to convert existing 100LL refueling systems must consult with their fuel supplier(s) to confirm specific requirements necessary for converting 100LL storage tanks, self-serves, and/or mobile refuelers to UL Avgas. The following considerations are generalized and offered only in reference to conversion of on airport 100LL systems to UL Avgas. Converting airport refueling systems from other fuel types will require additional measures, including:
 - Remove as much fuel as possible from fuel storage tank(s) and/or mobile refuelers of 100LL consistent with UL supplier recommended acceptable fuel mix ratio. (ASTM specifications for UL Avgas allow for a maximum of 0.0130 g Pb/l of Tetraethyl lead).
 - Introduce UL Avgas to the tank and flush downstream piping, filter vessels, and hose(s) until nozzle end samples are visually clear and bright.
 - Flushing helps prevent carry-over of residual blue dye from 100LL and mitigates the risk of UL Avgas being visually misidentified as 100LL.
 - Typically, this requires at least 1.5 times the total volume of associated piping and hoses.

- Replace all filter elements.
 - Elements will contain residual TEL (tetra-ethyl lead) and require proper disposal.
- Update identification markings.
 - All 100LL Avgas identification markings (placards, labels, decals, etc.) must be removed and replaced with identification markings for the UL Avgas being dispensed.
- Update self-serve dispenser terminals.
 - Fueling terminals (i.e.: QT Pod) should be updated to include prompts for pilots to enter the Supplemental Type Certificate (STC) number for their aircraft.
- **Final Communications** – Once UL Avgas is available, final actions should include:
 - Update Spill Prevention Control and Counter Measure (SPCC) plan to reflect additional storage tanks and/or change of fuel grade for existing tanks.
 - Inform nationwide trade groups, such as NATA or NASAO of the change.
 - Inform stakeholders and users via press release, advertisement, etc.
 - Update Airport Master Record – FAA 5010.
 - Add changes to website(s), including:
 - Company
 - Airport
 - Flight planning (I-flight Planner, Global Air, AirNav, etc.)
 - Maintain recurrent misfueling prevention training.
 - NATA recommends annual misfueling prevention training through the Safety 1st Training Center, NATA's Safety 1st OnSITE program, or [preventmisfueling.com](https://www.preventmisfueling.com).