EAGLE Stakeholder Q&A on the Environmental Protection Agency's (EPA) Endangerment Finding on Lead Emissions Decision

This document is a product of the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative and does not necessarily represent the views or policies of any U.S. governmental organization or agency.

EPA ENDANGERMENT FINDING

What is the EPA endangerment finding?

The EPA issued a determination that lead emissions from aircraft engines can cause or contribute to air pollution that may reasonably be anticipated to endanger public health and welfare. For official EPA statements on this finding, please refer to EPA's website "Regulations for Lead Emissions from Aircraft."[1]

With the final finding, the EPA is now subject to a duty under the Clean Air Act to propose and issue regulatory standards for lead emissions from certain aircraft engines. Under its own authorities, the FAA now has the authority and obligation to develop standards that address the composition or chemical or physical properties of an aircraft fuel or fuel additive to control or eliminate aircraft lead emissions. In other words, this action begins a multi-year regulatory process that EAGLE expects will conclude with the eventual elimination of lead from aviation gasoline. EPA is not proposing aircraft engine lead emission standards with this action.

By law, under the Clean Air Act the EPA and FAA must consult with each other on these rulemaking requirements so they are developed in a manner that does not adversely impact aviation safety.

What does the EPA's endangerment finding *not* do?

The EPA's endangerment finding does not ban 100 low lead (100LL) fuel from use at the nation's airports. It also does not mean that airports should stop offering 100LL, as that would adversely impact safety and hinder commerce. This action does not cause aircraft to be grounded or become prohibited from using 100LL.

To the contrary, 100LL is needed throughout the safe transition period, until we achieve full use of unleaded fuels.

Why did the EPA release an endangerment finding?

The EPA has been studying emissions of lead from aircraft operating on leaded fuel and the contribution of these emissions to lead air pollution for many years. In response to petitioners to the EPA, the Agency announced in January 2022 that it was developing a proposal under the Clean Air Act regarding the "endangerment finding." On October 17, 2022, EPA announced its proposed determination, which then underwent public notice and comment. After evaluating comments on the proposal, the EPA announced its final determination on October 18, 2023.

[1] https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-lead-emissions-aircraft

IMPACT TO GENERAL AVIATION, PILOTS, AIRPORTS

How will the EPA's endangerment finding impact general aviation?

It shouldn't, as the general aviation industry has been collaboratively working toward the EAGLE goal to remove lead from aviation fuel, but in a safe and smart way by 2030 or sooner. As part of the safe and smart transition to unleaded fuel, airports and local communities should maintain a supply of 100 low lead (100LL) at our nation's airports for those aircraft that need it to fly safely.

What should pilots and the general public know about the EPA's endangerment finding?

It's important for pilots and other constituents to know that the EPA's endangerment finding does not ban 100 low lead (100LL) fuel from use at the nation's airports. It also does not mean that airports should stop offering 100LL, as it would adversely impact safety and hinder commerce. This action does not cause aircraft to be grounded or become prohibited from using 100LL.

To the contrary, 100LL is needed throughout the safe transition period until we achieve full use of unleaded fuels.

The general aviation industry, along with the FAA, has been working hard toward the goal of removing all lead from avgas by 2030 or sooner, and good progress is being made.

Will the EPA's endangerment finding force pilots and airports to take any measures?

Not at this point. The EPA's endangerment finding does not ban 100 low lead (100LL) fuel from use at the nation's airports. As part of the safe and smart transition to unleaded fuel, airports and local communities should maintain a supply of 100LL at our nation's airports for those aircraft that need it to fly safely.

It also does not mean that airports should stop offering 100LL, as it would adversely impact safety and hinder commerce. This action does not cause aircraft to be grounded or become prohibited from using 100LL.

Should I refrain from buying an aircraft that requires 100 low lead (100LL) due to the time it takes to get to an unleaded fuel?

That is the personal decision of the prospective buyer; however, the general aviation industry and the FAA are working hard to eliminate all lead in aviation fuel as soon and safely as possible.

FUELS and OPERATIONS

Will the EPA's endangerment finding prevent 100 low lead (100LL) from being used?

No, the EPA's endangerment finding does not ban 100LL fuel from use at the nation's airports. As part of the safe and smart transition to unleaded fuel, airports and local communities should maintain a supply of 100LL at our nation's airports for those aircraft that need it to fly safely.

What progress is being made to find an unleaded fuel that can be used by all general aviation (GA) pilots across the country?

Good progress is being made toward the goal of removing all lead from avgas by 2030 or sooner. The general aviation industry, along with the FAA, have been working hard toward this goal.

Currently, there are four high octane fuels in the testing, approval and commercialization process. These include fuels developed by GAMI, Swift, Afton/Phillips 66 and LyondellBasell/VP Racing.

What actions do aircraft owners and operators need to take to safely operate on the new fuel under the fleet authorization or supplemental type certificate (STC) pathways?

It is important to note that under both the fleet authorization pathway and the STC pathway, aircraft owners and operators will need to take specific actions in order to safely operate using the fuel:

- Aircraft owners must take specific actions to implement a fleet authorization by revising the operating limitations in the flight manual on their particular aircraft and replacing the fuel placard. Detailed instructions for doing so will be included as a part of each authorization.
- To implement the STC, aircraft owners must take specific actions to implement changes to the aircraft, typically via service bulletins or installation of an STC.
    - For aircraft with a standard airworthiness certificate, the alteration is performed by a certificated mechanic or authorized entity and must comply with the type certificate (TC)/STC.
    - Owners of Special Light Sport Aircraft (SLSA) can implement the authorization after the SLSA aircraft manufacturer issues an authorization to do so.
    - Owners of experimental aircraft must individually determine appropriate unleaded fuels. Those owners may develop their own compatibility or solicit input from the TC/STC holder for data pertinent to their aircraft.
    - Many experimental aircraft have engines and fuel systems in common with aircraft with standard airworthiness certificates.

GAMI's G100UL is already approved; why can't I buy it?

G100UL received supplemental type certificate (STC) approval from the FAA, and GAMI is currently working to commercialize the fuel and bring it to the nation's general aviation airports. EAGLE fully supports GAMI's efforts, as well as the efforts of all fuel companies currently in the process of developing safe, unleaded aviation gasoline formulations.

Why is there lead in aviation gasoline (avgas), especially since it was eliminated from automobile fuel years ago?

In many piston engines, lead in avgas prevents damaging detonation that can result in a sudden engine failure. For general aviation aircraft that need 100-octane fuel to prevent detonation, the only current option is 100LL. The industry fully supports a smart transition toward a 100 unleaded (UL) solution that will work for the entire general aviation fleet, and good progress is being made.

What is the FAA doing now to prepare for an unleaded future for piston-engine aircraft?

The FAA has two pathways available to obtain FAA authorization for the use of a new unleaded fuel: the FAA aviation fuel fleet authorization process established by Congress and the traditional FAA aircraft type certification (TC)/supplemental type certification (STC) processes.

Under the fleet authorization process, fuels are evaluated through a collaborative industry/government testing program called the Piston Aviation Fuels Initiative (PAFI). Two unleaded fuel candidates are currently undergoing testing and evaluation as part of the PAFI program. The candidates are teams from LyondellBasell/VP Racing team and Afton Chemical/Phillips 66. Both teams are completing significant engine durability testing. Upon successful completion of these tests, the fuel candidate(s) will enter full scale engine and aircraft flight testing, anticipated to take 12-18 months. Once successfully completed, the FAA will then issue a fleet authorization which aircraft owners can use to modify their individual aircraft to safely use the fuel.

The FAA plans to authorize the use of a lower octane unleaded fuel (UL94/UL91) later this year (2023) through the fleet authorization process to facilitate broader use and experience with the transition. Due to the lower octane than 100LL, we expect approximately 68 % of the general aviation fleet will be eligible to use UL94/UL91.

Through FAA's traditional TC/STC processes, the FAA reviews and approves applications to determine compliance with safety requirements and issues a TC/STC. The FAA has issued approvals to use unleaded fuels, such as General Aviation Modifications, Inc.'s (GAMI's) G100UL and Swift Fuels' UL94. The FAA is also currently working with Swift Fuels on an STC for limited aircraft and engine approvals for a 100R unleaded fuel solution.

Additional information regarding unleaded aviation gasoline activities can be found at: https://www.faa.gov/about/initiatives/avgas and www.flyeagle.org.

What is the EPA going to do to make sure that any fuel selected to replace leaded aviation gasoline does not also present a risk to children and the general population? For example, I heard that one of the replacement fuels FAA is evaluating contains manganese.

EPA does not have regulatory authority over fuel used in aircraft, however, understand that it is an important issue and one that needs consideration by a broad group of stakeholders, including FAA, EPA, industry, state and local air quality and health officials, and Tribes. This issue will be part of the ongoing unleaded fuel evaluation occurring in the FAA-industry partnership to Eliminate Aviation Gasoline Lead Emissions and Piston Aviation Fuels Initiative (PAFI): www.flyeagle.org.

AIRPORTS

Does 100LL really pose a risk to those living near airports?

While levels of airborne lead in the United States have declined 99% since 1980, there is still more work to be done to lower risks of lead exposure to communities adjacent to general aviation airports. Accordingly, the general aviation industry and the FAA are working hard to eliminate all lead in aviation fuel as soon and safely as possible.

Will groups try to use the EPA's endangerment finding to close airports?

During the safe and smart transition to unleaded fuel, airports are expected to face continued challenges from local activists looking to close or significantly reduce operations. That is why it is important to remain factual about what the endangerment finding means (and doesn't mean) for the aviation community, the dedicated industry/government collaborative commitment and progress toward eliminating lead in all aviation fuel.

What actions can airports take to minimize lead exposure and aid in the transition?

In the short-term, airports, Fixed-Base Operators (FBO), and airport users can take steps to reduce or minimize potential exposure to aircraft lead emissions:

- Work to offer additional unleaded fuel types to facilitate the transition.
    - A key enabling step may include installing additional fuel infrastructure, e.g., an additional tank or a fuel truck. Alternately, airports may be able to utilize a spare tank.
- Minimize engine idling time and run-up times of piston-engine aircraft.
- Promote airport and pilot awareness.
- Increase distance between pre-flight/maintenance run-up locations and people on/off airport by relocating run-up locations or distributing run-ups to multiple locations.

These measures are summarized at: FAA.gov – What can airports do in the short-term?

TIMING and NEXT STEPS

What is the timing on the regulatory efforts?

EPA and FAA have already begun work to consider regulatory options to address lead emissions from aircraft engines and will announce timelines as soon as possible. This will be a multi-year effort and is part of the process to remove lead from aviation gasoline. EPA and FAA are working together in partnership and will engage all interested stakeholders and the general public as the two agencies develop their separate regulatory actions.

What are the next steps now that the EPA has made its final determination?

With the final determination, EPA now becomes subject to a duty to propose and promulgate regulatory standards for lead emissions from aircraft engines.

Under FAA's own statutes, the FAA is now subject to a duty to prescribe standards for the composition or chemical or physical properties of aircraft fuel to control or eliminate aircraft lead emissions.

This action does not establish new control measures regarding aircraft lead emissions, nor does it ban or impose restrictions on the use, sale, distribution, dispensing, and general availability of leaded aviation gasoline.

In the future, as EPA develops emissions standards, it will consult with FAA and use the public rulemaking process that includes notice and comment and an opportunity for a public hearing.

EPA and FAA are committed to working together and with the full range of stakeholders to address this issue.