



# The Future of Unleaded Avgas



Avfuel Corporation  
Ann Arbor, Michigan

# Current State of 100LL

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- Supply is stable; demand in U.S. is flat to falling
- Public pressure to eliminate lead from aviation fuel is growing
- August, 2021 – California’s Santa Clara County petitioned EPA asking for endangerment finding
- January 1, 2022 – Reid-Hillview (KRHV) banned the sale of leaded avgas
- Threat to 100LL availability most likely to come from local or federal mandates, not lack of supply

# Wish List for an Unleaded Avgas

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- ☑ Must be safe to store, handle and burn
- ☑ Functional in all existing piston aircraft and fuel systems
- ☑ No aircraft modifications necessary
- ☑ Affordable
- ☑ Miscible with 100LL
- ☑ Use existing 100LL infrastructure

# Unleaded Initiative – Pathway #1

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- PAFI – Piston Aviation Fuels Initiative
  - Early pathway to UL avgas approval; disbanded in 2019
- EAGLE – Eliminate Aviation Gas Lead Emissions
  - Industry group formed in 2022 to facilitate unleaded solution
  - Self-imposed deadline of 2030
  - Four Pillars:
    - Regulatory and Policy
    - Unleaded Fuel Testing and Qualification
    - Research and Development
    - Supply Chain Infrastructure and Deployment
  - Afton Chemical/Phillips66 and LyondellBasell/VP-Racing



# Unleaded Initiative – Pathway #2

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- FAA Supplemental Type Certificate (STC)
  - FAA testing has been on-going for years
  - Swift Fuels
    - STC available for UL-94, covering 75% of piston fleet
    - Working on approval of 100-octane unleaded avgas (100R)
  - GAMI (General Aviation Modifications, Inc.)
    - Has received functional FAA fleet-wide approval for 100-octane unleaded fuel (G100UL)

# About Swift Fuels

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- Developing and testing Swift 100R to replace 100LL
- Designed to work in all piston engines and aircraft
- Certification program includes best practices from PAFI, OEM's, and ASTM methods
- \$100 Forever STC works for UL94 now and 100R in future
- Aiming for FAA approval of 100R in 2024



# About GAMI G100UL

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- G100UL is 100-Octane unleaded avgas
- Miscible with 100LL in storage as well as aircraft fuel systems
- Will not require changes to aircraft fuel systems to burn G100UL
- G100UL is estimated to cost \$.60 - \$.85 per gallon more than a comparable gallon of 100LL
- Savings on aircraft maintenance costs are anticipated
- Demonstrated 3.5 year duration real-world hot & humid weather storage

# Commercialization - Distribution and Availability

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- Any approved unleaded avgas will expand gradually over a period years, driven by:
  - Market demand
  - Number and location of new producers and blenders
  - Possible future mandates (EPA, local pressure)
  - First users likely to be flight schools
  - Role of EAGLE in process



# Common Questions

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- Will we end up with multiple approved replacements for 100LL?
- Why does EAGLE think it will take until 2030 for a replacement to be identified?
- Will additional refiners or blenders produce an unleaded aviation gasoline?
- What is Avfuel's role in distributing G100UL?



# Additional Information

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- <https://www.avfuel.com/Fuel/Alternative-Fuels/Unleaded-Avgas#FAQ>
- <https://www.faa.gov/unleaded>
- <https://www.aopa.org/advocacy/100-unleaded-avgas>
- <https://www.avweb.com/author/paulb/>

