Huge Cost of Lead in AvGas Eclipses Minor Cost of Ending Leaded Fuel

All the lead in all the leaded AvGas in the world is very likely Australian lead

By Elizabeth O'Brien, Lead Scientist and Lead Advisor, orchestrated by Ian Smith, Systems Analyst, using OpenClaw on top of Claude AI and Ollama local AI models where possible, on solar-powered infrastructure. *© The LEAD Group Inc. November 2026*

As far as The LEAD Group is aware, all the lead in all the leaded Aviation Gasoline (AvGas) in all the world is Australian lead, and this has been the case for all leaded fuel (MoGas for motor vehicle fuel up until 2021 when it was eliminated globally for road use) and AvGas for general aircraft (not jets), since 1994 when the North American fuel lead additive manufacturer closed down, leaving only the United Kingdom (UK) fuel lead additive manufacturer which has used Australian lead since it began manufacturing in 1956.

Although lead occurs in crude oil (due to the plants taking up lead from the soil before they became oil underground) leaded fuel has extra lead additive (tetraethyl lead) deliberately added. Aviation gasoline for piston-engine aircraft or PEAs (called AvGas 100LL) now contains 0.56 grams of tetraethyl lead per litre, and that lead must be expelled from the engine during normal operation to prevent fouling, dispersing lead and lead compounds into the air and soil around general-aviation airfields (Mills and Peckham 2022) and under flightpaths. If The LEAD Group is right in believing that the lead for that tetraethyl lead is Australian, then a share of the responsibility for childhood lead exposure around every piston-aircraft airfield on Earth traces back to Australia, and Australia carries a corresponding responsibility to end it.



2020 Volcano Art Prize (VAP) Entry. Artist: Dr Michael Hindmarsh. Title: Lead in AVGAS. Lead-Safety Message: "It's too late for concern about me being a Vet and a Bush Pilot over Northern Queensland spreading Tetra Ethyl Lead with gay abandonment, but we MUST ban lead in aviation fuel ASAP." Description of Work: annotated results of a web search, with a sourced image on aviation-fuel composition and lead contamination.

https://volcanoartprize.com/portfolio-item/lead-in-avgas/ [LID 19822]

The health and economic costs of childhood lead exposure are devastatingly high, completely eclipsing the minor operational cost of transitioning aircraft to unleaded fuel. Because lead is a potent neurotoxin with no safe exposure threshold for children or pregnant women, medical economists measure its damage to a community primarily through lost lifetime earnings (due to intelligence quotient (IQ) reduction), specialised education costs and chronic healthcare burdens.

Public health models evaluate these immense community costs across several categories:

1. Lost lifetime productivity

This is the largest and best-quantified category. Lead lowers childhood IQ, and lower IQ tracks, across a population, into lower lifetime earnings. In the first nationwide assessment of its kind, Wolfe et al (2016) modelled the lead emitted by general-aviation piston aircraft, which they note are now the single largest source of lead emitted to the air in the United States (US), and found that aircraft-attributable lead causes about **US$1.06 billion a year** (2006 dollars) in damages from reduced lifetime earnings, with an uncertainty range of $0.01 to $11.6 billion. Using dynamic, economy-wide methods that capture the knock-on effects of a less productive workforce, the figure rises as high as $11.3 billion a year (Wolfe et al 2016). A summary for journalists put the headline numbers at roughly $1.63 billion annually in lost productivity and $1.06 billion in lost wages (Trilling 2016).

These are annual, recurring figures, and they flow from a surprisingly small quantity of fuel: the United States burned about 248 million gallons of leaded AvGas in 2008 (Wolfe et al 2016). For scale, the total lead burden carried by a single year's birth-cohort of American children, across all lead sources, has been estimated at between $110 and $319 billion (Wolfe et al 2016).

2. Specialised education costs

The productivity figure captures only lost earnings. It does not count what communities spend trying to remediate the damage while children are still in school. Lead exposure produces learning difficulties and behavioural problems, and children living or schooling near general-aviation airfields have been shown to carry blood-lead levels raised to clinically significant degrees (Mills and Peckham 2022). The remedial and special-education costs that follow are borne by families and school systems, not by the fuel's producers or users, not by the tetraethyl lead manufacturer, not by the lead refiner, not by the lead smelter and not by the Australian lead mining companies that keep digging lead out of the ground despite the global health economic costs of lead exposure.

3. Chronic healthcare burdens

Lead's harm does not stop at childhood or at the brain. Beyond the developmental delays, learning difficulties and lower IQ it causes in children, lead exposure in adults is linked to

high blood pressure, joint pain and reproductive problems, and long-term exposure raises the risk of kidney damage, anaemia and cancer (ESA 2023). These are lifelong, cumulative costs to the health system, and like the others they are socialised: paid by the public, not the polluter.

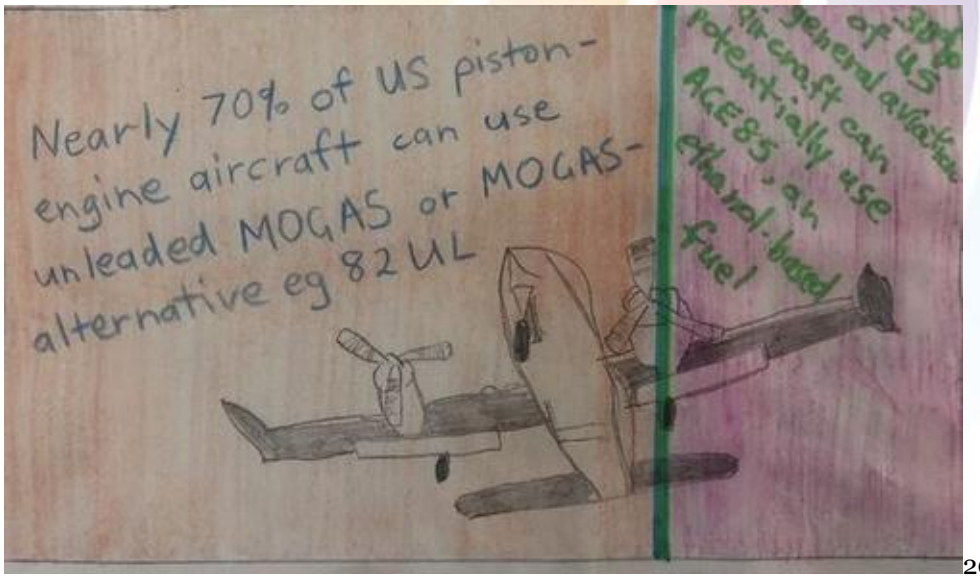
A global problem, formally recognised

This is not a United States peculiarity. Mills and Peckham (2022) reviewed the situation in the United Kingdom and issued a call for action, noting that although road fuel was de-leaded decades ago, piston-engine aircraft (PEA) fuel was left untouched, and that while the problem is acknowledged by the US Environmental Protection Agency (US EPA) and mandatory action required in US EPA regulations once a risk that can be mitigated has been identified, it has received little attention in the UK. The same leaded fuel flies over the same kinds of suburbs the world over. Every country needs regulations which mandate action once a clearly preventable risk is identified.

In the United States the recognition is now formal. On 18 October 2023 the EPA issued its Clean Air Act endangerment finding, determining that "lead emissions from aircraft engines that operate on leaded fuel cause or contribute to air pollution that may reasonably be anticipated to endanger public health and welfare" (ESA 2023).

The minor cost of ending it

Against these billions of health and economic costs of AvGas lead exposure borne by individuals worldwide, sits the cost of stopping leaded AvGas being used, which is modest and, increasingly, in the US at least, already being paid. Unleaded replacement fuels for high-compression piston engines exist and are advancing through certification: General Aviation Modifications, Inc.'s (GAMI's) G100UL (unleaded), Swift Fuels' 100R and UL100E among them. The United States National Academies, asked to examine the transition away from leaded AvGas, treated it as a logistical and infrastructure transition to be managed rather than a technical wall to be broken (US National Academies 2026), and the US Federal Aviation Administration's Eliminate Aviation Gasoline Lead Emissions (EAGLE) plan targets the removal of leaded 100LL by the end of 2030 (US FAA 2026). The obstacles are supply chains, storage, certification paperwork and a temporary price gap, real, but finite, one-off, and small beside a billion-dollar annual harm that compounds in every exposed child for life.



2021 Volcano Art Prize (VAP) Entry. Artist: Elizabeth O'Brien. Title: Most piston-engine planes can use non-leaded fuel. Lead-Safety Message: "Nearly 70% of US piston-engine aircraft can use unleaded MOGAS or MOGAS-alternative eg 82UL while 30% of US general aviation aircraft can potentially use AGE85, an ethanol-based fuel." Description of Work: China wax pencil for blue text, recycled highlighter for green text, and a lead pencil for a propeller-aeroplane sketch, on a Derwent Aquarelle background. https://volcanoartprize.com/portfolio-item/most-piston-engine-planes-can-use-non-leaded-fuel/ [LID 27733]

The arithmetic, and the responsibility



The comparison is not close. On one side, a recurring health cost measured in the billions each year, falling hardest on children who had no say in it. On the other, a bounded, manageable transition cost that the aviation industry is already absorbing elsewhere. By the ordinary logic of cost-benefit analysis, the case for ending leaded AvGas was made years ago; what remains is the will to act on it.

2026 Volcano Art Prize (VAP) Entry. Artist: Grandma Lead. Title: Dream of Electric Planes. Lead-Safety Message: "I dreamed a dream that every national leader set a sunset date for the phase-out in their country of leaded AvGas-using propellor planes..." Description of Work: a crayon drawing of an electric plane, photographed and saved as a phone sticker, then combined with skyscape photographs. https://volcanoartprize.com/portfolio-item/dream-of-electric-planes/ [LID 29869]

For Australia the case is sharper still. If the lead in the world's AvGas is Australian lead, then Australia is not a bystander to this harm but its wellspring, and has a double obligation: to end leaded AvGas in its own skies, over Point Cook and everywhere else, and to stop supplying the lead that poisons children around airports and under PEA flight paths in every other country.

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