

EPA SCIENCE ASSESSMENT FOR AIRBORNE LEAD SEEN BOLSTERING NEW RULES

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EPA's most-recent update to its science on health and environmental effects of airborne lead helps build the case for tougher regulation of lead in multiple media, as the agency seeks to reduce exposures in air, water and soil, public health advocates say, even as the update does not depart radically from prior findings that identify no safe level of the metal.

In its final integrated science assessment (ISA) released in January, and announced in the Federal Register last month, **EPA** marginally strengthens its findings from earlier science assessments to support regulation of lead under the national ambient air quality standards (NAAQS).

The final ISA is also slightly tougher than an earlier draft version from 2023.

"**EPA's** conclusions reinforce its overall efforts to reduce people's exposure to lead," says advocacy group Unleaded Kids in a Feb. 15 blog post.

The ISA is used to identify various adverse health and environmental effects of airborne lead, and will inform a forthcoming risk and exposure assessment and then a policy assessment document giving the **EPA** administrator options to revise or retain the NAAQS for lead.

EPA last reviewed the lead NAAQS in 2016, but declined to tighten the existing limit of 0.15 micrograms per cubic meter (ug/m³) set in 2008 for both the "primary" health-based standard and the "secondary" welfare-based limit. The 2008 standard tightened tenfold the original NAAQS limit of 1.5 ug/m³ set in 1978.

ISAs assign a likelihood that a given pollutant will "cause" an adverse effect, with a "causal" determination expressing certainty that the pollutant is responsible for the effect, and various other determinations finding less-definitive evidence of causation. Other designations include "likely causal," and the weaker finding that evidence is only "suggestive" of a causal relationship. **EPA** in recent NAAQS reviews has based decisions on regulatory standards largely on findings in the causal and likely causal categories.

The final ISA upgrades findings from the last ISA issued in 2013, and issues some entirely new findings for certain health outcomes.

For example, **EPA** issues a new finding that lead exposure is causal of cardiovascular mortality; upgrades cognitive effects in adults from likely causal in 2013 to causal; upgrades renal effects to causal, from suggestive in 2013;

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upgrades pregnancy and birth outcomes to likely causal from suggestive in 2013; and upgrades female reproductive function effects to likely causal, from suggestive in 2013.

Separately, EPA has recently "quantified for the first time the socioeconomic benefits of reducing lead in drinking water that are associated with fewer premature adult cardiovascular disease deaths, [attention deficit/hyperactivity disorder] cases, and low birth weight in babies in addition to improved IQ," Unleaded Kids adds in its blog post.

The ISA also makes minor changes from a March 2023 draft version reviewed by EPA's Clean Air Scientific Advisory Committee (CASAC).

The panel recommended several changes to causality determinations, some of which the agency has now adopted. CASAC Advice

For example, EPA's decision to upgrade adult cognitive decline to causal status followed criticism from CASAC, which recommended a causal finding instead of the likely causal determination featured in the 2023 draft. Also, CASAC recommended one downgrade that EPA adopted, finding lead exposure suggestive of causing immunosuppression in the final document rather than likely causal as stated in the draft.

But EPA did not adopt all of CASAC's recommendations. For example, EPA adopted likely causal status for pregnancy and birth outcomes, a lower designation than the causal status CASAC had sought.

The strengthened findings do not necessarily indicate that EPA will find overall risks from lead exposure sufficiently high to justify tightening of the lead NAAQS, one public health advocate notes. Nevertheless, the ISA may still support EPA's moves to regulate air emissions of lead, and also its broader strategy to reduce lead exposures in other contexts such as lead pipes.

"Even though the agency did not tighten the NAAQS in 2016, I have seen how EPA has leveraged the conclusions to buttress its actions" such as an "endangerment finding" on aviation fuel "and the proposed [lead] smelter rules -- the primary industrial source of lead. Therefore, I think the ISA has an impact and this revision will too," the advocate says. "Plus it can help strengthen the agency's willingness to act."

In the context of air regulation, EPA in October issued its final finding that lead emissions from piston-engine aircraft using leaded fuel "cause or contribute to air pollution which may reasonably be anticipated to endanger public health and welfare." Such aircraft collectively are the largest source in the United States of lead emissions into air.

EPA's conclusion obligates it to regulate aircraft engines under Clean Air Act section 231 and triggers an obligation by the Federal Aviation Administration (FAA) to regulate aircraft fuel. But any phaseout of leaded aviation fuel is still likely years away, as alternative fuels must be readily available and certified as safe by the FAA. -- Stuart Parker (sparker@iwnews.com)

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