

American Scientists – MATS and Scientific Research on Mercury

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## America's Leading Mercury Scientists Call for Strong Air Pollution Standards

By [Kritee](#) | [Bio](#) | Published: December 14, 2011

The U.S. Environmental Protection Agency is expected to announce its long-awaited [Mercury and Air Toxics Standards](#) any day now.

The new standards would place the first-ever national limits on mercury and other toxic air pollution from coal- and oil-fired power plants, and the issue is already being examined from every possible angle – politics, economics, business, health, you name it.

Now a new group is weighing in.

Just yesterday, 23 of the country's leading scientific experts on mercury wrote a [letter to the White House](#) about the proposed new standard and its importance to the health and safety of all Americans. And I had the honor of joining them!

Together, our group of scientists represents at least **a million hours of study on mercury and its effects**. But this is the first time we've publicly weighed in, as a group, to support this vitally important standard.

We felt compelled to write to President because, during recent Congressional hearings – despite voluminous scientific literature to the contrary – a few people actually claimed that there is no science to back up the health benefits of decreasing pollution from power plants.

[Our letter](#) is our answer to that ridiculous claim:

**As mercury scientists and physicians, we strongly refute such statements**

And we:

... affirm our belief that the Mercury and Air Toxics Standards (MATS) will protect the health of thousands of Americans each year.

Some of us have studied how mercury travels in our air, soils or waters — and [how it ends up in our bodies](#). Some of us specialize in how various forms of mercury affect everything from our individual enzymes and cells all the way to our ecosystems. We have, collectively, traced

mercury all the way from smokestacks to the cells in our bodies. We also represent physicians who actually treat patients, including children, who have chronic pulmonary, cardiovascular, and neurological diseases caused by air pollution.

And we all came to the same conclusion, which we put into [our letter](#):

... minimizing all mercury exposure is essential to improving human, wildlife and ecosystem health because *exposure to mercury in any form places a heavy burden on the biochemical machinery within cells of all living organisms.*

Our letter both affirms our support for the scientific findings of EPA's Science Advisory Board on the health impacts of methylmercury, and goes a step further – to highlight the toxicity of all forms of mercury.

Here are our key points:

- **The neurological development, particularly brain maturation, of fetus and young children are severely affected by methylmercury**, the form of mercury that collects and concentrates in aquatic food chains.
- While the neurotoxicity of methylmercury to the young has been widely acknowledged, the effects on children and adults through exposure to all other forms of mercury have not been effectively publicized. **No form is mercury is safe.**
- **Mercury has no biologically beneficial function**; indeed, each atom that ends up in the body can be toxic to all types of cells.
- Mercury is such a potent toxin because it bonds very strongly to functionally important sites of proteins including enzymes, antibodies and nerve growth-cones that keep cells alive, "intelligent" and safe.

One of my personal heroes is the late Dr. Kathryn R. Mahaffey, who conducted careful studies for over a decade to test the mercury levels in the blood of women of child bearing age in the U.S. Her research is the reason we know that about 10 percent of babies born in America each year have mercury levels sufficient to cause adverse neurological and developmental health effects. Along with her collaborators, she also carefully compiled information on the effects of all forms of mercury on our endocrine system, including hormones that control functioning of our reproductive system.

The pioneering research tools and methodologies developed by several of the mercury research giants who have signed on to this letter helped Dr. Mahaffey reach her conclusions. Some of the signatories are now building on Dr. Mahaffey's work in insightful ways. For example, Dr. Chad Hammerschmidt from Wright State University has written that unless we decouple mercury emission from power production, **we could have as many as 30 percent of children born in the U.S with too much mercury in their blood.** Along with their collaborators, Drs. David Evers, Charlie Driscoll and Thomas Holsen identified that local mercury emissions are linked to such high mercury concentrations in multiple biological species that these areas of high mercury emissions were referred to as **biological mercury hotspots.**

I would love to write more about the fundamental ways in which the signatories of this letter have added to the understanding of the transport, transformations and toxicity of mercury, and I encourage you [read the entire letter](#) to see who they are, and to learn more about the work they do.

We fully understand the remaining uncertainties in our understanding of the global mercury cycle. Yet we believe there is irrefutable proof for:

- The local and regional deposition of mercury from coal-fired power plants within the U.S.
- The toxicity of each and every atom of mercury in any form, and
- Rapid reductions in mercury levels in many biological species upon reductions in mercury emissions from local sources

Thus, we attest to the wisdom of stringent national-level mercury regulation. Now we need our policy makers to act. We need them to create and support a strong [Mercury and Air Toxics Standards](#).