

Review of the SIA PFAS Consortium Paper
“Background on Semiconductor Manufacturing and PFAS”

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“Background on Semiconductor Manufacturing and PFAS,” dated May 17, 2023, was the first of the Semiconductor PFAS Consortium’s publicly available papers. On the positive side, it shows that the producers of chips and chipmaking equipment are taking a systematic approach to waste management and pollution prevention, prompted both by the specter of greater regulation and the potential withdrawal of additional PFAS from the market. They have developed a comprehensive research agenda, or at least an outline of such an agenda.

On the other hand, they are hoping that research on the environmental behavior and toxicity of PFAS-containing materials will reduce or preclude restrictions on such chemicals. They oppose moves to treat PFAS as an environmental class of compounds. Like other industries, the semiconductor industry has introduced chemicals without adequate environmental health and safety screening, and I believe that the characteristics of PFAS that make them useful also contribute to their negative health and environmental impacts. In finding current workplace practices protective, the industry relies upon high (unprotective) detection limits and occupational exposure standards that bear little relationship to the protection of worker health.

I am convinced that PFAS materials are at this time integral to the production of state-of-the-art chips, even though they represent a tiny fraction of finished product mass. However, in the Consortium papers thus far there is little quantitative data on the uses or releases of PFAS. Such data would be helpful in setting priorities for both research and regulation. Without such knowledge, protecting worker health, public health, and the environment is difficult. Even reporting the presence of PFAS in semiconductor products is currently impractical.

I am also persuaded that eliminating PFAS substances from chip production without hamstringing the industry will be difficult and time-consuming. Yet I believe it to be necessary. So once again, it’s important to set reasonable priorities.

The Consortium has done a good job in defining its research and development needs for reducing PFAS risks, but it has left out input from experts and activists representing the industry’s production workforce and host communities. Government funding, in both the U.S. and Europe, should be conditioned on such public engagement. If the semiconductor industry is willing to work with labor, environmental, and community organizations, then we may be able to advocate for timely government funding of such research. Alternatively, we may organize such research activity ourselves.

As someone who lives in a community where decades of semiconductor pollution have created the need for major, ongoing cleanup, I would like to see the industry create a comprehensive database of PFAS chemicals used, now and in the past, and support the development and acceptance of analytical techniques capable of measuring all of them in the environment in the parts per trillion. Since standards and analytical techniques for the best known PFAS compounds have become more stringent in the past several years, it is not only likely that

there is widespread PFAS pollution—above health based-standards—in soil, ground water, and surface water, but it is also likely that treatment systems designed to remove other contaminants, such as volatile organic compounds, in the parts per billion have actually spread PFAS.

The SIA PFAS Consortium is made up of chipmakers and their suppliers of equipment and materials. To sign up to receive their technical papers, go to <https://www.semiconductors.org/pfas/>