Environmental Health Sciences
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Testimony of John Peterson Myers, Ph.D., Board Chair and Chief Scientist of Environmental Health Sciences (EHSciences.org), to the U.S. Senate and Public Works Committee on Chemical Safety, Waste Management, Environmental Justice and Regulatory Oversight's Hearing: Examining the Impact of Plastic Use and Identifying Solutions for Reducing Plastic Waste.

15 December 2022

Thank you for the opportunity to provide testimony today on this critical topic. My name is Pete Myers and I am the founder, Board Chair and Chief Scientist of Environmental Health Sciences, a 501(c3) that promotes public understanding of key issues in how environmental factors affect human and wildlife health. I am also Adjunct Professor of Chemistry at Carnegie Mellon University and a Founder and Board Member of Sudoc.com.

You have invited me to address the issue of plastic additives and human health. Over the last 30 years a huge scientific literature has arisen that explores this wide and deep issue. There are many dimensions to it. I will cover highlights and point to sources that go deeper. But let me begin by reporting that I have read Judith Enck's testimony and strongly endorse each point she makes. Fixing the plastics issue is a wicked problem that requires federal and international leadership. Too many decisions about plastic safety were made in ignorance. And now we live and suffer with the consequences.

Here are two overarching realities of plastic:

- There is no single "plastic"... there are virtually an unlimited number of plastics that vary in composition because of:
    - choice of monomer (the basic building block of the polymer chain),
    - choice of additives (thousands of ingredients that can be added to change the material characteristics of the plastic into something a chemical engineer can use to make a product, and
    - "non-intentionally added substances" or NIAS, which are there because of impurities in ingredients that are intentionally added, because of reactions between the chemicals, because of air pollution in the facilities where the plastic is being made, etc.
- Each of these three choices can introduce toxicities into plastics. Therefore, I am going to broaden your request to me to consider all three, not just additives.

Plastic is not inert. Biologically it can be very active. How active depends upon the choice of monomer, the additives and the NIAS. It also depends upon the wear and tear of the plastic, for example, because worn plastic can leach ingredients more rapidly.

The combined effect of these two realities is that plastic cannot be considered "safe" until it is thoroughly tested. And no plastic has ever been thoroughly tested using the tools of modern, 21st century medical science. The closest to a thorough test has been Bisphenol A (BPA) in the US NIEHS/FDA/NTP $30M