



## WHY IT MATTERS

### *Harm from hazardous chemicals and the case for safer materials*

Chemicals are everywhere, from the food we eat, to the clothes we wear, to the air we breathe. Hazardous chemicals – substances that are dangerous to people, wildlife, and the environment at any stage of their life cycle – are also, unfortunately, ubiquitous.

The chemical industry converts raw materials such as oil, gas, minerals, and metals into useful materials and products via a series of chemical reactions, and also produces a vast array of chemicals for use in the manufacturing sector. These manufacturing chemicals may be added to a material during production to enhance its properties (e.g., flame retardants, preservatives etc.), or may be used in manufacturing processes, where they are mostly consumed and rarely end up in products except as contaminants or by-products. (Catalysts, acids & bases, lubricants etc.).

### **Hazardous Chemicals Impacts**

Some chemicals, such as hydrogen, occur in nature, whereas others, such as di(2-ethylhexyl) phthalate (DEHP), are man-made. Some chemicals, such as water, are inherently safe, but some chemicals, such as mercury and perfluorooctanoic acid, (PFOA) are intrinsically hazardous. Hazardous chemicals create risk to human and animal health, the environment and property; and although some hazardous chemicals are regulated, many are not.<sup>1</sup>

Because a wide array of chemicals, including those harmful to health and the environment, have specific properties that make them useful in aspects of product design and functioning, the market is inundated with products that contain hazardous chemicals or are manufactured using hazardous chemicals, or both. This means that humans and the environment are constantly exposed to these hazardous substances. Countless negative impacts on human health and the environment have been documented, and vulnerable groups suffer disproportionate impacts from chemical exposure. Children, workers, women, indigenous people, and the poor are all particularly vulnerable to hazardous chemical impacts, due to biological, occupational, economic and geographic factors.

### **Lack of Testing**

Despite the known harmful impacts of many chemicals, the vast majority of chemicals in commerce have simply not been studied for safety by any government agency in the United States. The Environmental Protection Agency (EPA) is required by law to test tens of thousands of unregulated chemicals currently on market. However, at the current rate of testing and funding, it would take the agency centuries to finish the review year (PBS 2016), and roughly 2,000 new chemicals are introduced each year. Under US law, untested chemicals are allowed to remain on the market until and unless testing reveals significant potential for harm – and even then, industry pushback on regulators' findings can prevent action for many more years. Given the lack of safety and environmental data for tens of thousands of chemicals, a precautionary approach that looks to use only substances proven safer is desirable.

## Barriers to recycling and circular economy

Specifications for more environmentally friendly products often include recycled materials, in order to minimize waste and reduce greenhouse gas emissions. However, recycled materials, especially plastics, often contain hazardous chemicals, including legacy chemicals that are recognized as harmful and no longer used, or volatile substances that do not meet current emissions requirements based on updated understanding of health and environmental impacts. These chemicals, previously considered necessary but now substituted with lower-hazard alternatives, reduce the net benefit of recycling, and the possibility of a truly circular economy. Removing chemical roadblocks and implementing safer chemistry is paramount to enable a circular economy.

## Availability of Alternatives

The vast majority of hazardous chemicals exposure and injury is unnecessary. Safer alternatives are available for many hazardous substances currently in use, and methodologies for developing safer chemistries are well advanced. What is lacking is the motivation and the will to enact necessary changes that may involve costs for research, alternatives testing, closer scrutiny of production settings and tighter controls on waste management.

By requesting, preferring, and eventually requiring the use of safer chemistry, and by making informed purchasing choices focused on products with safer ingredients, the procurement community can help to drive changes at the scale and scope needed to vastly reduce the use of hazardous chemicals. If we do that, our water will be safer, the air will be cleaner, and the products that we use will be produced without causing illness and injury to workers or end users.

<sup>1</sup> For more on specific chemicals of concern, their uses, impacts and current regulatory status, see the Chemicals of Concern Factsheet in this Toolkit

