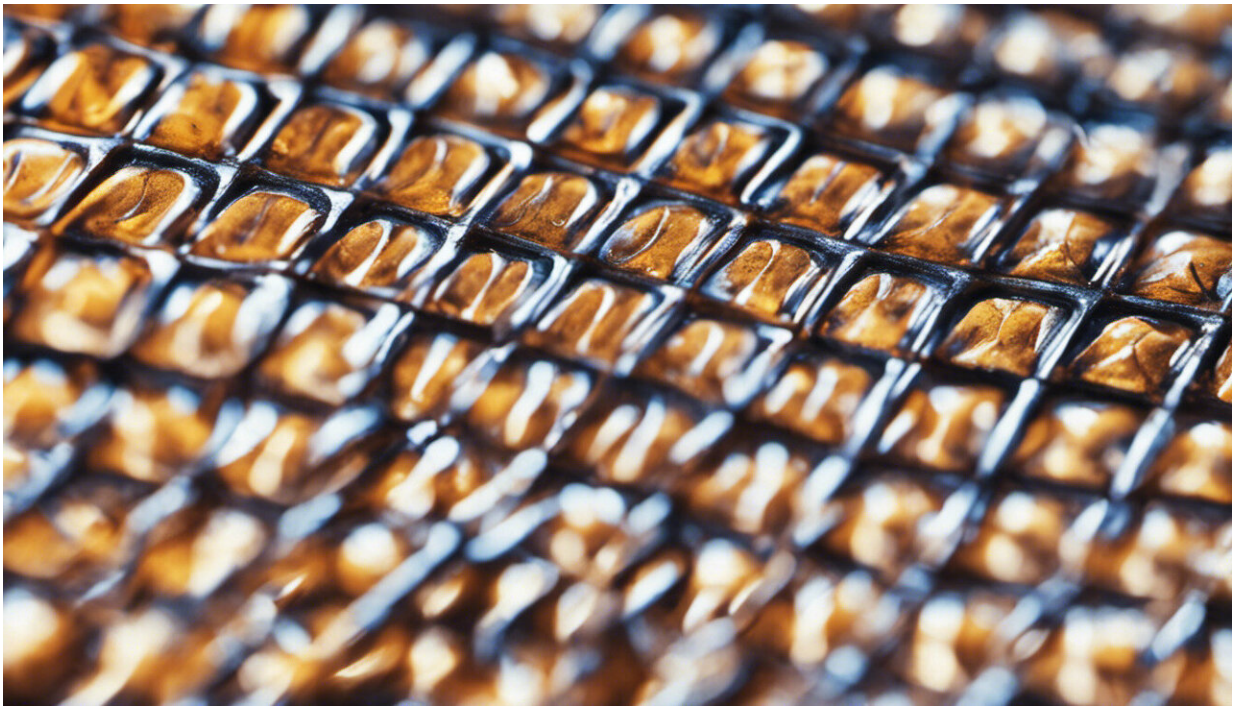
Companies should take charge of the potential toxins in common products

May 31 2017, by Dana Cordell, Dena Fam And Nick Florin



Credit: AI-generated image (disclaimer)

Every year thousands of new contaminants enter the market in common consumer products and are washed down our drains without treatment. They end up in the water we drink, the fish we eat, and other marine life. These contaminants are lawfully produced and sold by the chemical, pharmaceutical and cosmetics industries.

Contaminants can range from microbeads and nanoparticles in cosmetics, to microthreads or cancer-causing NPEs and pthalates in synthetic clothing and flame retardants. They can also be antimicrobials and endocrine disruptors from our medication.

Regulations are unable to keep up with the barrage of potentially dangerous contaminants entering the market. Instead, we believe companies should take more responsibility for the damage they cause our environment and public health, by making sure their products aren't toxic before they hit the market.

Tens of thousands of contaminants

Contaminants in common products like shampoos, toothpaste and makeup are almost impossible to manage once they hit our shelves. Once sold, they almost inevitably end up washed down the drain, where the burden of dealing with them falls largely on the taxpayer-funded wastewater system.

US researchers have identified some 80,000 chemical contaminants in wastewater sludge, while the European Union has identified at least 140,000. It is hard to say how many exist in Australian wastewater, but given that Australian consumers buy and use similar products to Americans and Europeans, we can safely assume broadly similar levels.

This makes for a vast range of substances for regulators to consider. Furthermore, restricted pollutants, such as bisphenol A (BPA), can be substituted with compounds that haven't attracted the same level of scrutiny. Current guidelines mostly focus on a narrow list of "mainstream" contaminants, such as heavy metals like lead and mercury.

The environmental risk is increased by the changing ways we manage solid waste and wastewater, especially as waste is increasingly diverted

for use in energy and food production. We need to act on the potential threat of chemical compounds in our wastewater that don't break down or become concentrated in higher quantities as they move up the food chain. And wastewater contaminants are typically much harder than solid waste to trace back to their original source.

The potential impacts on the environment, human health and infrastructure are broad and in many cases unknown. Some contaminants can exert their toxic effects in local aquatic ecosystems very quickly. An example is the impact of oestrogen on the feminisation of fish.

While other countries have begun regulating these hazardous compounds, we are falling behind. A Greenpeace report, Toxic Threads, singled out Australia as at risk of becoming the dumping ground of the Western world.

Presently, much of the burden to manage these risks falls on wastewater service providers, environmental protection authorities, regulatory bodies and ultimately ratepayers. However, we have the opportunity to transform how we manage tens of thousands of emergent and existing contaminants. We have the potential to involve the companies that produce these contaminants in their responsible life cycle management to ensure environmental and public health is maintained.

Extending responsibility to producers

These companies can take a lesson from the solid waste sector. A good example is the EU, where manufacturers of everything from cars to carpets can be legally required to take back their products at the end of their life. This is known as "extended producer responsibility", or product stewardship.

A UN project, Chemicals in Products, helps fill in knowledge gaps along

product supply chains to ensure potentially hazardous chemicals can be traced back to their source. In Australia, more than 20 predominantly voluntary industry-led initiatives promote active responsibility for products across their lifespan, including after they have been discarded.

These schemes can help to drive innovations in product and process design, such as building computers and refrigerators for easy disassembly and reuse. Currently, such rules only apply to solid waste products, but the federal government's Product Stewardship Act (2011) is soon to be reviewed. There's an opportunity to expand this type of extended producer responsibility approach to a broader range of products and contaminants that end up in wastewater to better share management and the burden of clean-up among manufacturers, retailers, waste service providers and consumers.

Transforming our approach

Given the rate at which new contaminants of unknown toxicity enter our cosmetics, pharmaceuticals and cleaning products (and end up in our waterways), the precautionary principle may need to apply.

For example, companies could be required to prove their new chemical compounds have a benign effect on the environment and human health before being released onto the market.

This precautionary principle, which puts the burden of proof on companies, was first applied to hazardous chemicals introduced to the European market. This pre-market approach has since been implemented in California and China.

Mitigating risks of individual contaminants will require a range of possible policy, industry and consumer responses. In the case of microbeads, for example, consumers can choose to avoid buying such

products, and governments can and are banning microbeads.

Extended producer responsibility provides an incentive for industry to avoid contaminants altogether at the product design stage. In the pharmaceutical industry there are examples of companies adopting "green chemistry" approaches that avoid the use of hazardous ingredients in the production of medicines and the need for downstream waste treatment. Either way, questions about the potential risks and environmental impact of the different approaches taken will need to be answered.

However, managing unknown risks of thousands of emergent contaminants in wastewater for which there is little traceability – and hence accountability – may require an integrated and precautionary approach. But the question still remains: whose responsibility?

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