



# HAZARDOUS SUBSTANCES

The presence of toxic substances in products is one of the greatest obstacles for developing a cost effective, resource-efficient, circular economy. If the full health and environmental cost of any toxic materials in a product were included in the price, that product would probably never reach the market. Today, however, these societal costs are

never fully accounted for in the price consumers pay. The result is that recycling or repair activities are hampered by the presence of toxic substances in certain products. It is therefore crucial that both products and recycled material are toxic-free. This will help encourage the take-up of re-used and recycled material.

## WHAT IS THE SITUATION?

Today more than 100 million chemical substances have been identified [1], with more than 100,000 of them expected to have been released into the European environment, including flame-retardants in computers, preservatives in foods and softeners in plastics. Hundreds of synthetic chemicals are found in human breast milk and even in the umbilical cord of newborn children [2] [3] [4] [5] [6]. Although some tests have been conducted on some of these substances before entering the market, many harmful properties are only revealed after a certain amount of time by measuring their impact on large segments of the population or ecosystems. This underlines how important tackling hazardous substances is for a circular economy where materials get re-used many times.

Risks to people and environment should therefore be mitigated if we want to create a circular economy.

First, substances identified as hazardous should not be included in a product. This should be addressed at the design stage. If the substance is not substitutable, it should be removable from products and materials at the end-of-life stage. If an authorisation is granted, review periods should be as short as possible.

Second, there should not be a trade-off between hazardous materials and recycling. Removing toxics from our economy should take priority over recycling as prevention is better than cure.

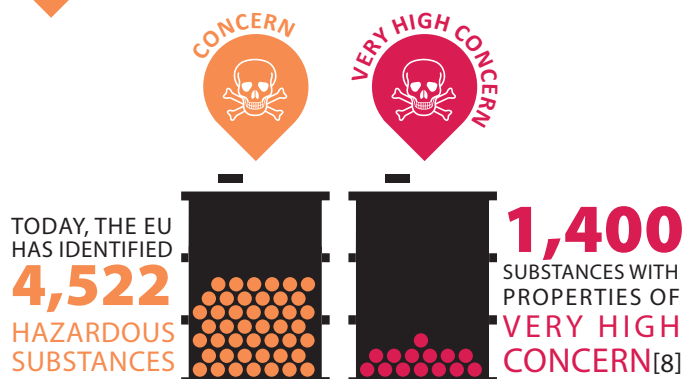
Third, there should be a strengthening of the hazard-based approach with a long-term perspective when looking at toxic substances in recycled material. The precautionary principle must prevail. Hazardous, brominated flame retardants coming from recycled plastic have been found in recycled kitchen appliances that we put to our mouths [7]. This must be stopped, as materials will be reused several times in a circular economy without knowing exactly how many times when they are introduced for the first time on the market.

Finally, hazardous waste, when unavoidable, must be treated in specific facilities. Too often, local authorities allow the burial of hazardous material in conventional, non-hazardous landfills or their burning in conventional incinerators. This prevents the proper elimination or consignment of hazardous waste, creates problems for human health and the environment and must come to an end.

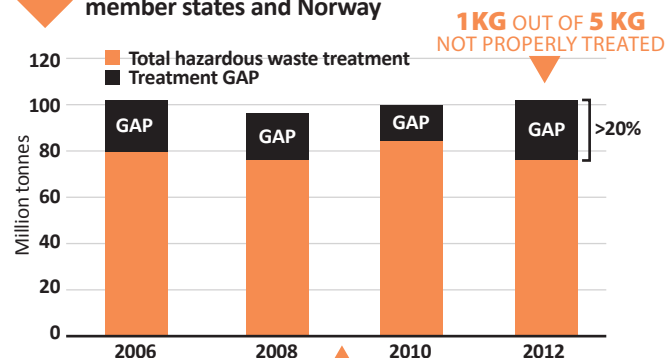
## FACTS AND FIGURES



## B Number of hazardous substances



## C Hazardous waste generated and treated in EU member states and Norway



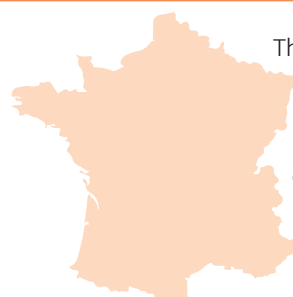
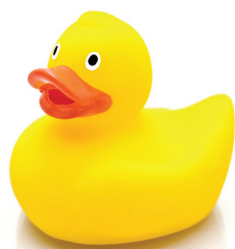
In a 2015 report, the European Environmental Agency (EEA) highlights what appears to be a **GROWING GAP** between the **AMOUNT OF HAZARDOUS WASTE GENERATED** and the **HAZARDOUS WASTE THAT IS TREATED**. This suggests there are potential 'leakages', sub-standard treatment and non-notified exports of hazardous substances to other countries [10].

## CASE STUDIES



In 2012, **DENMARK** decided to ban four industrial chemicals linked to disruption of the human endocrine system (DEHP, DBP, DIBP and BBP). These phthalates are linked to reduced sperm count, causing male sterility, and are thought to bring about puberty early in young girls. Among other harmful effects, they cause liver cancer in rats.

Nevertheless, in 2014, Denmark decided to scrap its national ban on the four phthalates after the European Commission considered that this ban would be against EU rules, even though safer alternatives are available. This refusal by the Commission to restrict the four phthalates creates a problem for the future when recycling will take place and these used substances could be inserted into virgin material.



The **FRENCH SENATE** has approved a ban on the use of bisphenol A (BPA) in all food and drink packaging since 2015, and since the beginning of 2013 for foodstuffs intended for children under 3 years of age. The legislation also establishes special labelling for packages containing BPA and intended for pregnant women or children, a category considered especially vulnerable. BPA is used in the manufacturing of plastics and resins. It is found in many everyday objects, like cutlery, kettles, coffee machines, food mixers, food packaging, toys and bottles. BPA helps to preserve the flavour of foods and protect them against contamination from microorganisms. Numerous studies have demonstrated the negative health effects of exposure to bisphenol A, particularly for the reproductive system, the mammary glands, the kidneys and the liver. There are safer alternatives available. The European Commission has now recognized BPA as reproductive toxicant [11] and it is now up to member states to now take action to make sure the French ban becomes the rule rather than the exception in order to ease recycling and avoid future legacy problems.

## POLICY RECOMMENDATIONS

- Speed up chemical safety assessment, the identification of substances of very high concern in the REACH candidate list and eventual restrictions to help designing hazardous chemicals out of products
- Ensure a systematic disclosure of chemical contents in products, notably substances of very high concern, through a publicly easy-to-access product database that fulfils the 'right to know' principle
- Use Ecolabel, Green Public Procurement rules and corporate purchasing guidance to reinforce the market uptake of clean products
- Require the same rules and hazardous substance thresholds in recycled material as for virgin materials to avoid re-injecting toxic substances into the economy through recycling
- Limit authorisations for hazardous substance use to the few cases where no substitutes are available yet. Impose a clear marking of those authorised products to allow traceability, quick detection and good sorting along the supply chain
- Eliminate derogations which allow hazardous waste to be disposed of in conventional landfills or incinerators. Hazardous waste must be disposed of in purpose-built incinerators or landfills which can safely destroy or embed the hazardous material

## FOR MORE INFORMATION

The European Environmental Bureau, Friends of the Earth Europe, CHEM Trust and Zero Waste Europe – 'Circular economy and REACH, an essential partnership' – [www.eeb.org/index.cfm/library/the-circular-economy-and-reach-an-essential-partnership](http://www.eeb.org/index.cfm/library/the-circular-economy-and-reach-an-essential-partnership)