



How green are consumer products?

Greenpeace briefing on consumer products in the home.

Hazardous substances are commonly used as chemical additives in everyday consumer products such as electronic goods, clothing, cosmetics, cleaning products, interior decoration and furnishings. Greenpeace commissioned independent research that found nonylphenol in children's pyjamas, toys, household paints and cleaners. Brominated flame retardants can be found in certain computers, televisions, carpets and upholstered furniture. Chlorinated paraffins can be found in bathroom sealants and plastics and phthalates in PVC plastics, perfume and shampoos. Artificial musk compounds can be found in detergents and air fresheners.

Hazardous chemicals - even if they are bound into the products that contain them - can migrate out over time during use. Hazardous chemicals are also discharged into the environment during production and at end of life. They are consistently found in breast milk and umbilical cord blood, which demonstrates their wide, uncontrolled and undesired dispersion: even before humans are born, we are exposed to hazardous, manmade chemicals. Greenpeace testing of house dust revealed that the ongoing use of hazardous chemicals in consumer products is leading to ubiquitous and complex contamination of the home environment across the EU.ⁱ Greenpeace has also found that hazardous, man-made chemicals are widespread in rainwater across European countries.ⁱⁱ

Environmental and health damage from hazardous substances

Infants and children are the most vulnerable, being exposed to the highest concentrations of hazardous chemicals, beginning with exposure in the womb. Health effects caused during development may cause permanent irreversible damage and some effects may not even become apparent until later in life. This is no longer acceptable, particularly when safer product design and chemical substitution is feasible.

Chemicals such as **brominated flame retardants** have become widespread contaminants and are now detectable even in marine mammalsⁱⁱⁱ from remote areas as well as more generally in human blood and breast milk. Their toxicity includes birth defects, liver and kidney damage, thyroid imbalances and neurological damage to animals and humans.

Phthalates – used as plasticisers in soft PVC, as well as products such as cosmetics, are widespread contaminants in the global environment. Some phthalates are known to be reproductive and developmental toxicants, or are known to disrupt the endocrine system.

Tributyl tin (TBT), one of a group of chemicals known as **organotins** that are also used in PVC as stabilisers, and in other products, has caused "abundant, undisputed and world-wide population-level effects in wildlife... Over 100 species of marine molluscs have been adversely affected by TBT, and in at least some cases it...has led to total disappearance of species..."^{iv}

Over 25% of EU rivers have levels of **nonylphenols** "regularly in excess of the no effect concentration".^v Nonylphenol is a hormone disrupter; preliminary studies also show that nonylphenol may disrupt the human immune system by adversely affecting groups of white blood cells.^{vi}

Short chain **chlorinated paraffins** are now detected in "higher predatory animals and human breast milk, which may produce irreversible effects in humans (e.g. cancer)".^{vii}

Artificial musks, used as fragrances, are persistent and bioaccumulative chemicals. They have been linked with reproductive toxicity and affects on the endocrine system in humans.^{viii}

Bisphenol A, which is used in electrical products, and as laminate coatings in food tins and bottle tops, has been identified in a wide variety of human blood and tissue samples. Numerous studies have demonstrated that bisphenol A alters male reproductive organs and affects behaviour in animals at doses only a little above the amount that human infants are exposed to.^{ix}

Correspondence with manufacturers

As proposals for a reform of chemicals policy within the EU have developed over the last few years, Greenpeace has been contacting a range of companies that produce consumer products. The aim is to find out which products contain, or are likely to contain the hazardous substances that are of the highest concern. Greenpeace is especially concerned about chemicals that are persistent, toxic or bioaccumulative, with the focus on a list identified by OSPAR for priority action.^x

This correspondence with companies was initiated by Greenpeace UK and Greenpeace Netherlands. More recently, other Greenpeace organisations across Europe and globally have also corresponded with companies relevant to their country, as well as global multinational companies. The products that we focussed on internationally are:

Cosmetics and Household Goods
(Food Tins)
Toys
Trainers
Paints
Mobile Phones
Computers

Further product sectors have also been covered by Greenpeace organisations across Europe, including The Netherlands, Italy, Spain, Austria and France.

Grading of products

Products have been allocated one of three colours (red, amber or green) to indicate whether or not they contain harmful pollutants. The three ratings are:

Red – those products which manufacturers have told us contain harmful chemical pollutants OR those products manufactured or retailed by companies who have not replied or refused to provide the information we have asked for, and which we therefore assume to contain harmful chemical pollutants.

Amber – those products which manufacturers or retailers have told us contain harmful chemical pollutants, but with a planned removal of those chemicals by a specified date.

Green – those products that manufacturers or retailers have told us explicitly do not contain harmful chemical pollutants.

Aims of the database

The primary aim of the database is to provide information to consumers about the hazardous substances that may be present in consumer products. Consumers have a right to know precisely which chemicals (and other ingredients) are contained in the products they buy, and manufacturers and retailers should be both able and prepared to provide such information.

A further outcome of publishing this information is to encourage manufacturers to give more priority to substituting hazardous substances with safer alternatives. We hope that this will lead to a speedier phase out of hazardous substances, and will allow the public to choose from a wider range of greener products in the future.

Besides the international database, national product databases will be available on Greenpeace websites in several European languages, including Dutch, Spanish, Italian, French and German.

The main issues concerning each specific product are summarised below.

Cosmetics and Household Goods

Cosmetics and household goods can contain a variety of different hazardous substances: phthalates are commonly found in cosmetic and personal care products, especially in nail polish, perfumes, hair sprays, household cleaners and deodorizers; artificial musks are cheap, easy-to-produce fragrances that are added to personal care and household products such as laundry detergents, shower gels, soaps, hand lotions and perfumes. Organotins and triclosan can also be found in certain products.

There are a large number of different brands, most of them owned by the same large multinational companies, such as Procter and Gamble and Unilever. Quite a few companies in this sector failed to reply or refused to supply information. Others refer to the responses given by trade associations on behalf of the industry as a whole, rather than giving product specific information, or refer to the relevant regulations that permit the use of many of these substances in 'safe' doses. Currently, none of the major brands can be classified as amber or green, although there are products made by smaller companies such as Ecover and Weleda that are graded green.

Toys

The main substances of concern found in toys are likely to be present through the use of soft PVC containing phthalate plasticisers. In 1999 the EU enacted emergency legislation to ban six phthalates from toys for children under three, designed to be put in the mouth. However, the ban unfortunately didn't cover other toys that could quite easily be chewed by children, such as squeeze toys, or toys for children over three. Plasticisers are also found in certain types of modelling clay.

Despite promises made by Mattel,^{xi} the market leader, to investigate plant-based plastics as an alternative that would eventually replace PVC, no progress has been made. Together with Hasbro, they simply evade the question of what hazardous substances are used in their products by saying they comply with relevant safety regulations. On the other hand, there are toy companies who take the lead on avoiding hazardous substances in their products, such as Playmobil, who phased out PVC 20 years ago, and Lego, which has phased out most uses of PVC.

Trainers

PVC is commonly used in trainers, and therefore organotins, phthalates and other hazardous chemicals that are used as additives can be present. In addition, harmful substances like brominated flame retardants and triclosan can be used in trainers.

Following a campaign by Greenpeace USA that focussed on the use of PVC in trainers, many of the companies that manufacture well-known brands of trainers, such as Nike, Adidas, and Asics are in the process of phasing out PVC. Reebok have completely phased out PVC, and have banned some other substances of concern. Most of these companies also have lists which restrict or ban some of the substances of concern, although there is a lack of clarity in some of the information presented.

Paints

The main substances of concern likely to be found in paints are alkyl phenol ethoxylates, chlorinated paraffins and phthalates. The levels of VOCs

(Volatile Organic Compounds) are also an issue, especially during application of the paint.

The major brands, such as Crown, have taken some of these issues on board, and it is now possible to buy paints which don't contain substances like alkyl phenols and with a low VOC content.

Mobile Phones

Mobile phones can contain a number of hazardous substances, such as brominated flame retardants, lead, mercury and hexavalent chromium. PVC is also used in mobile phones, which can contain phthalates, organotins and other hazardous substances. An EU Directive,^{xii} on the Restriction of Hazardous Substances (RoHS) requires the phase out of many of these hazardous substances by 1 July 2006; mercury, lead, hexavalent chromium, cadmium and some brominated flame retardants are included. This Directive has been a major catalyst for research and the adoption of alternatives, especially for lead-free solder in electronic equipment.

Some mobile phone manufacturers are implementing phase outs for these specific substances ahead of the RoHS Directive. However, in general their overall plans for phasing out other hazardous substances and PVC are less than ambitious.

Computers

Computers are manufactured using similar chemicals of concern to mobile phones, and are covered by the same EU Directive restricting certain hazardous substances, and pose similar problems regarding substitution with safer alternatives. All the companies contacted are in the process of restricting the hazardous substances we are concerned about; some of these are simply to comply with the EU RoHS Directive. Others, such as Sony, go beyond this and have specific phase out plans for PVC and have eliminated brominated flame retardants in some products.

ⁱ Santillo, D., Labunska, I., Davidson, H., Johnson, P., Strutt, M., Knowles, O., (2003), Consuming Chemicals, Hazardous chemicals in house dust as an indicator of chemical exposure in the home. Greenpeace Environmental Trust, May 2003, and Santillo, D., Labunska, I., Fairley, M., & Johnston P., (2003), Consuming Chemicals #2; Hazardous chemicals in house dust as indicators of chemical exposure in the home, Greenpeace Research Laboratories, Technical Note 02/2003 (GRE-TN-02-2003).

ⁱⁱ Greenpeace Netherlands (2003), Hazardous chemicals contaminate Europe's rainwater, Press Release, Monday May 26, 2003, <http://archive.greenpeace.org/docs/rainwater.pdf>

ⁱⁱⁱ Law RJ, Alaee M, Allchin CR, Boon JP, Lebeuf M, Lepom P, Stern (2003), Levels and trends of polybrominated diphenylethers and other brominated flame retardants in wildlife. ENVIRONMENT INTERNATIONAL 29(6): 757-770

^{iv} Royal Society (2000). Endocrine disrupting chemicals (EDCs). June 2000.

^v RPA and BRE Environment (2003). Impact of the new chemicals policy on health and environment. European Commission, June 2003.

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- ^{vi} Dorey, Catherine N., Chemical Legacy, Contamination of the Child. Greenpeace UK, October 2003, ISBN 1-903907-06-03
- ^{vii} RPA and BRE Environment (2003). Impact of the new chemicals policy on health and environment. European Commission, June 2003
- ^{viii} Eisenhardt S, Runnebaum B, Bauer K, Gerhard I (2001). Nitromusk compounds in women with gynaecological and endocrine dysfunction. Environ Res, 87 (3): 123-03. In Dorey, Catherine N., Chemical Legacy, Contamination of the Child. Greenpeace UK, October 2003, ISBN 1-903907-06-03
- ^{ix} Dorey, Catherine N., Chemical Legacy, Contamination of the Child. Greenpeace UK, October 2003, ISBN 1-903907-06-03
- ^x OSPAR (2003) OSPAR List of Chemicals for Priority Action (Up-date 2003) (Reference Number: 2003-19), Annex 12 to OSPAR 03/17/1, Summary Record of the Meeting of the OSPAR Commission, Bremen, 23-27 June 2003, available at www.ospar.org
- ^{xi} Mattel Inc. (1999), Press Release, EL SEGUNDO, California, 7 December 1999
- ^{xii} Directive 2002/95/EC, Restrictions of Hazardous Substances (RoHS).