Science shows the need for better PBT criteria

Where PBT identification is concerned, it is important that real world examples of human and wildlife contamination are taken into account. This is, after all, how the PBT concept came into existence. The behaviour of chemicals in the laboratory can be very different to that in the real environment, e.g. chemicals can degrade under laboratory conditions but not in the salty ocean or in cold climates. New science has also revealed that there can be different mechanisms of bioaccumulation, not only through water but also through air, such that some chemicals may accumulate in air-breathing organisms (e.g. humans) in ways not revealed by our knowledge about aquatic organisms. The finding of persistent and toxic chemicals, such as PFOA, in European families, including children, shows the shocking lack of current protection levels (see WWF DETOX study Generations X). Biomonitoring information, as a reality check of whether REACH is working, will remain of vital importance in the years to come. In addition, better ways of predicting which chemicals will have these undesirable properties are needed. It is important to get these bioaccumulating chemicals off the market before they are found in elevated concentrations in wildlife and people.

What we want

WWF, HEAL and CHEM Trust call for the common sense, “better safe than sorry” approach for PBT and vPvB chemicals management. This includes replacing chemicals with these properties whenever safer alternatives are available as a matter of urgency, and phasing them out over the long term.

We call on:

- EU Commission and EU decision makers to ensure that real life data from measurements in humans and the environment play a crucial role in the determination of whether a substance is regarded as a PBT/vPvB chemical, and to use modelling techniques and all investigative screening mechanisms available to pick out potential PBT/vPvB chemicals that need detailed investigation.
- EU and national authorities to monitor contaminants in the environment, and particularly in humans and wildlife, to confirm that persistent and bioaccumulative chemicals are really being phased-out of use.
- EU Member States to propose more PBT/vPvB chemicals for the REACH candidate list, and to ensure that restrictions on their use swiftly follow.
- The European Chemical Agency (ECHA) and EU Member States to dedicate sufficient resources to evaluate whether industry’s own PBT assessments of their chemicals are adequate and accurate.
- Companies to avoid the use of PBT/vPvB and PBT/vPvB-like chemicals wherever possible, and to search for safer alternatives.
- EU authorities to regulate chemicals that are predicted to have PBT/vPvB properties if evidence to the contrary is not available.

Substitution is possible

Many companies have already successfully replaced chemicals which are persistent, bioaccumulative and toxic either with safer alternative chemicals or by using different manufacturing processes. Sometimes the solution is in using different materials which, for example, do not need potentially damaging stabilizers or flame retardants (a collection of cases studies is available in the report “Substitution 1.0” from Chemsec, 2008). European NGOs have, under the lead of Chemsec, published the SIN list 1.0 of substances of very high concern which REACH needs to tackle as soon as possible (www.sinlist.org). Several companies are using this list as a tool within their toxic use reduction strategies to find better solutions for their products.

How to reduce or avoid the intake of PBT/ vPvB chemicals

- Pay attention to product instructions and labels containing information on the chemicals used or avoided in certain products.
- Use the new information rights guaranteed by the EU chemicals law: Request information on hazardous chemicals present in products (sample letter available on: www.choosingourfuture.eu, under: “Take action”).
- Foods high in animal fat, such as meat, non-skimmed milk, fish and eggs (and foods produced from them) tend to be more contaminated with PBT/ vPvB chemicals. Therefore, try to reduce animal fat in your diet, which will anyway have other health benefits, and in particular, cut the fat off your meat.
- Try to avoid eating a lot of oily fish, although remember that having some oily fish in your diet is considered to be good for your heart and brain .
- As many problematic chemicals are released into indoor air and can be found in house dust, keep rooms well aired and dusted.
- Select soaps, shampoos, cosmetics and cleaning agents from environmentally friendly certified brands that use mainly natural and/or biodegradable ingredients.

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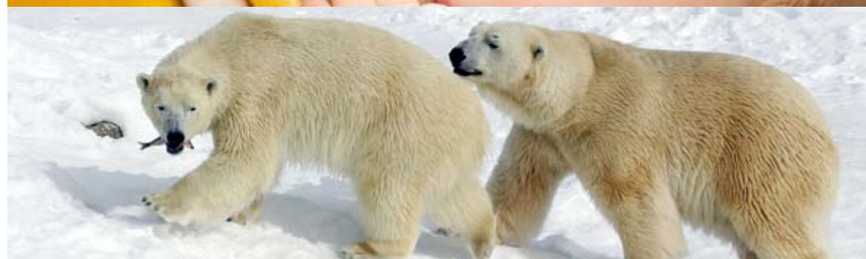
Invisible burden

Good reasons to get rid of PBT chemicals



Modern life chemicals – not all so beneficial

Manufactured chemicals are an integral part of modern life and are found in everything from air fresheners to electrical appliances, plastics to paints, toiletries to toys. They undoubtedly bring many lifestyle benefits, but some of them may have harmful properties or undesirable characteristics. Chemicals can be released directly into the environment from industrial and/or agricultural activities and can also escape from consumer products as such and when they are used. Then they can go on to contaminate food chains and make their way into the air we breathe, the food we eat and the water we drink. Attention must be focussed on the most worrying chemicals that may cause harm or which will give rise to unacceptable levels of exposure in humans or wildlife like the so-called PBT (persistent, bioaccumulative and toxic) chemicals.

PBT chemicals threaten health and environment

PBT chemicals are those which are:

- Persistent: long lasting/do not break down quickly
- Bioaccumulative: able to build up in the bodies of wildlife and humans
- Toxic: harming wildlife and/or people, such as e.g. affecting reproduction or causing cancer.

Of the thousands of chemicals on the market, the so called PBT chemicals pose particularly unacceptable risks to future generations of wildlife and people as they can be passed from mother to baby “in utero” and via breast milk. Although PBTs can be transferred to babies via breastmilk, the benefits of breast feeding are still considered to outweigh the negative effects of the chemicals, but it shows how important it is to urgently stop any further contamination and accumulation.

Nowadays dozens of industrial chemicals, used in every day consumer goods such as electronic devices, textiles, furniture or shoes, are suspected of being persistent, bioaccumulative and toxic and PBTs are widespread pollutants in water, air and soil. This contamination affects not only wildlife such as seals, whales, dolphins, polar bears and birds but also humans - and children, particularly the unborn and newborn child, who seem to be the most vulnerable.

Rising concentrations in organisms can be an indicator that a substance is bioaccumulative but it can also be an indicator of continuous and potentially increasing exposures.

PBTs and vPvBs chemicals cannot be recalled

Just as worrying are chemicals that are very persistent and very bioaccumulative (vPvB chemicals). At present, we may not yet have full information about their toxicity, but if they are found to be toxic in the future, it will not be possible to avoid their effects because we have no mechanisms capable of cleaning them up from the environment, wildlife, and our bodies and those of our babies. This means that we would have to endure their effects for many years to come, and wildlife in remote marine environments as well as our own babies in the womb might be damaged. Therefore, there is EU wide agreement that very persistent and very bioaccumulative (vPvB) chemicals should be regulated in the same way as chemicals known to be PBTs.

Perhaps you don’t know that…

- The insecticide DDT (and breakdown product DDE) and polychlorinated biphenyls (PCBs) have been banned in EU for decades, but were still found in all of the recent WWF biomonitoring samples. Research suggests that most babies born today are contaminated because of the mothers’ body burden. Studies show impacts on reproduction in wildlife and links to cancer (see CHEM Trust report "Males Under Threat", 2008 and CHEM Trust/HEAL Breastcancer report, 2008).

- The brominated flame retardant HBCDD is listed as a PBT on the “REACH candidate list” of the European Chemicals Agency (ECHA). It is still widely used in textiles, furniture and construction materials and has been found in dolphins all over the globe. It is very toxic to water organisms and has been linked to impaired fertility and neurotoxic effects.

- The fragrance musk xylene has been found in many species of fish and human breast milk. It is listed as vPvB chemical on the “REACH candidate list” of the ECHA. It may cause long term effects in the aquatic environment and is a suspected carcinogen.

- The perfluorinated chemicals PFOS and PFOA, used to make non-stick pans and water repellent coatings, have been found in both maternal blood and the cord blood of newborn babies (see Greenpeace/WWF study “A present for life”, 2005). They are proven to be toxic and have been linked to various cancers as well as reproductive disorders. PFOS has been nominated for inclusion under the 2001 Stockholm Convention which bans or restricts persistent organic pollutants of global concern because they can travel via sea and air currents to remote regions. PFOA has not yet been officially nominated.

EU decision makers need to act

After years of discussion, the European Union finally adopted a new chemicals law (REACH) in order to improve protection of human health and the environment whilst maintaining the competitiveness of the European chemicals industry. This law has been in place since 2007, but is only now identifying the first ‘candidate list’ of chemicals of very high concern, that will be subject to tighter controls in the form of requiring prior authorisation before they can be used.

Recognising the potentially very serious effects of PBT/vPvB chemicals on our health and on the environment, the REACH regulation can require the replacement of these substances with safer alternatives through an authorisation procedure. However, by October 2008 only five PBT/vPvB chemicals had been included on the REACH candidate list and it will still take years until the authorisation procedure implements controls, and leads to the ‘sunsetting’ or phasing-out of some or all uses.

Chemicals affecting the polar regions

The polar regions are of great particular concern because many PBT/vPvB chemicals have the ability to travel long distances along water and air currents (long range transport) and tend to concentrate in these regions. Flame retardants and other industrial chemicals, originally used e.g. in electronic equipment far away from these remote regions, have been found in penguins’ eggs and krill in Antarctica. Recent scientific data from the Arctic has shown that chemical exposure may already be affecting the health of birds, seals and polar bears. Impacts such as reduced immune response and reduced reproduction have been observed (see WWF report “Killing them softly”, 2006).

Moreover, the people inhabiting the Arctic are seriously affected. Studies of infant development have linked deficits in immune function, an increase in childhood respiratory infections and changes in birth weight to prenatal exposure to some PBT chemicals. Due to high contamination levels in animals which form their traditional diet, Inuits face the choice of depending on expensive, non-local foods transported over vast distances, or continuing to eat traditional foods knowing the worrying level of contamination and possible long-term health effects. These once pristine areas should be protected, and indeed the EU has recognised this and the need to keep remote areas of the oceans uncontaminated with PB(T) substances.