

no cover-up on *cancer claims* or *hormone* disruption

Science Supporting PVC in the Environment



“ Phthalates have been carefully researched for their impact on the environment and health. They have been shown to be safe. ”

The easiest way to grab headlines is by creating scare stories which claim there are links between everyday products and our health. And some of the worst examples of recent scaremongering concern suggestions that some of the ingredients in PVC can reduce male sperm counts and even cause cancer.

This information sheet aims to put your mind at rest. It avoids the kind of emotional misinformation which has caused so much concern and presents, in simple language, the conclusions of many

eminent scientific bodies which support the view that PVC is entirely safe.

What are Phthalates and why are they used?

Phthalates are a family of chemicals principally used in rubbers, printing inks, paints, plastics and perfumes. Phthalates are used in some – but not all – flexible PVC formulations. Phthalates are used to soften PVC for applications like blood bags, gloves, hoses, cables and flexible film. Phthalate plasticisers are not present in rigid PVC, for example bottles, food trays, sandwich boxes, window frames, pipework, gutters etc. Phthalates

are not used in PVC food packaging, food 'wrappings' or clingfilm manufactured in the UK.

Phthalates are photodegradable, biodegradable, and non-bio-accumulative, so levels of phthalates in the environment are very low and reducing.

Because certain phthalates have been used as a PVC plasticiser for at least fifty years, a large body of authoritative data has been generated about their safety. They have been approved for use in many safety-critical medical devices, including life-saving medical products such as blood bags and medical tubing.

Phthalates and Cancer Claims

The misconception that phthalates can cause cancer stems from research on rodents which has been shown to be irrelevant to the physiology of humans.

Many chemicals – natural or synthetic – are known to contribute to the development of tumours in the livers of rats and mice when, during experiments, they are fed many thousands of times more than might naturally occur in their lifetime. However, when these chemicals are given to non-rodent species including primates such as marmosets and monkeys which are metabolically closer to humans, no such liver damage occurs.

On the evidence of this essential difference in response between different species, it was concluded

that phthalates do not pose a significant health hazard and the European Commission's decision (July 1990) stated that DEHP (the most common phthalate) shall not be classified as carcinogenic nor even as an irritant substance.

The validity of this decision was also reaffirmed by two comprehensive scientific reviews published in 'Human and Experimental Toxicology' (1994) and 'Critical Reviews in Toxicology' (1996). Also in 1996, the American Conference of Governmental Industrial Hygienists (ACGIH) evaluated all the evidence and stated that DEHP is not classifiable as a human carcinogen. A later opinion from the EU Scientific Committee on Toxicology and Ecotoxicology (CSTEE) in April 1998 endorsed these findings.

As recently as June 1999, a seventeen strong panel of the American Council on Science and Health chaired by the eminent former United States Surgeon General, Dr C Everett Koop, concluded that the 'plastic softener found in vinyl toys and medical devices is not harmful to children or adults'.

Hormone Disruption

In the face of claims from certain environmental lobbyists, a large number of research projects have been set up to investigate whether chemicals in the environment can act as hormone disrupters inside the body.



Most claims have focused on the alleged involvements of man-made chemicals and given little prominence to other potential factors such as life-styles and smoking. In fact, MAFF (Ministry of Agriculture, Fisheries and Food) has actually identified a number of naturally occurring chemicals, (phyto-oestrogens) found in a variety of foodstuffs, such as soya, peas and beans, as the principal source of human exposure to environmental oestrogens.

Three years research by the Environment Agency, MAFF Fisheries Laboratory and Brunel University established that the only oestrogenic substances detected in domestic sewage effluent were human female hormones either naturally produced (oestrone and 17b-oestradiol) or the synthetic hormone ethinyl oestradiol used in the contraceptive pill.



Scientific assessment of the phthalates and hormone disruption issue was also undertaken in a comprehensive evaluation by Prof T R Zacharewski, et al, 'Examination of the in-vitro and in-vivo oestrogenic activities of eight commercial phthalate esters' (1998), which concluded that none of the phthalates examined would exhibit oestrogenic effects in animals or humans.

Phthalates have also been carefully researched for their general impact on the environment and human health. On the basis of these studies, many official bodies, including the World Health Organisation, have also concluded that there is no evidence to suggest phthalates pose a threat to human health.



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