What's wrong with PVC's ?

Background

Vinyl or polyvinyl chloride (PVC) plastic is the second most commonly produced plastic in the world today. It is used for packaging from cling film to bottles; for consumer products such as credit card; for construction in windows frames, pipes, flooring, wallpaper and window blinds. It is used by manufacturers of car interiors and in hospitals for medical disposals. The amount of PVC waste is projected to almost double in the next 20 years.

Environmental Issues

From production to consumption, vinyl is the main plastics of concern to environmentalists. Many of the base chemicals, such as Ethylene Dichloride and Vinyl Chloride are thought to be carcinogenic and can trigger other health problems such as liver, kidney and neurological damage. The problem is not the production of these chemicals but release into the environment from petrochemical factories.

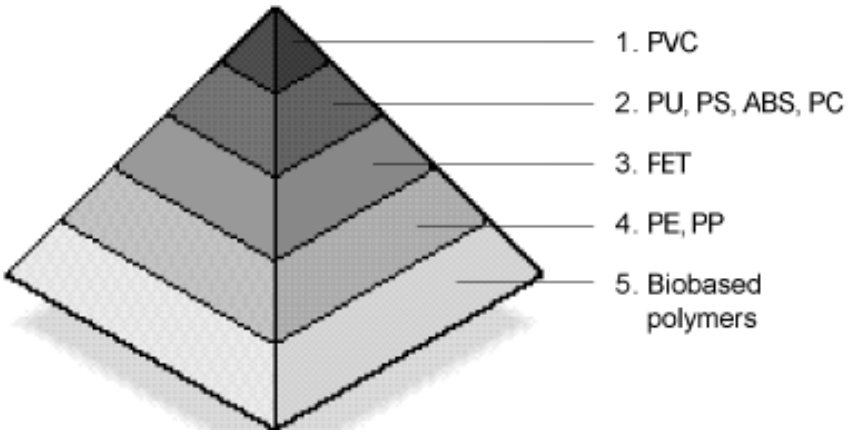
At the end of life, incineration of PVC releases dioxins into the air and soil. Dioxins are chemical compounds found to be carcinogenic in animals. Diverting PVC from incineration to landfill is not the answer. Landfilling of PVC results in release of the phthalates which were added during manufacture to make the PVC soft and flexible. Laboratory studies in animals show that some of these chemicals are linked to cancer and kidney damage and may interfere with the reproductive system and development. Releases of phthalates takes place slowly and will occur for a very long period of time - longer than the 80 year technical barrier of landfil sites. Recycling is problematic and will not contribute significantly to the disposal of PVC waste.

European Union Actions

The European Commission published three studies on PVC in April 2000 and these confirm the serious environmental and economic problems with PVC waste disposal. The Green Paper which followed presented a range of policy options for reducing the impact of PVC's on human health and the environment. On 3rd April 2001 the European Parliament voted in favour of the substitution of polyvinyl chloride (PVC) plastic, starting with the replacing of soft PVC, used to make children's toys, medical devices and other products (including self adhesive vinyl). Although not European law, the vote is a further indication of the growing concern about the use of PVC plastics.

Alternatives

PVC can be replaced by a variety of less environmentally damaging plastics. The Greenpeace pyramid of plastics provides a qualitative ranking of alternatives focusing on the toxic characteristics. It does not include raw material and energy inputs.



Key

1. *Polyvinyl chloride (PVC) and other halogenated plastics*
2. *Polyurethane (PU), Polystyrene (PS), Acrylonitrile-butadiene-styrene (ABS), Polycarbonate (PC)*
3. *Polyethylene-terephthalate (PET)*
4. *Polyolefins such as Polyethylene (PE) and Polypropylene (PP)*
5. *Biobased plastics*

PVC , the most problematic plastic, is at the top of the pyramid and biobased plastics, the least polluting of the plastics, are at the base of the pyramid. PET is generally used in packaging and often contains additives such as UV stabilisers and flame retardants. PET recycling rates are high compared to other plastics. In comparison with PVC, PE and PP use fewer problematic additives, have reduced leaching potential in landfills, reduced potential for dioxin formation during burning and reduced technical problems and costs during recycling.

Action to eliminate PVC

Governments and industry are taking action to eliminate PVC's. Sweden was the first country to propose national restrictions on PVC generally. In Denmark a new strategy includes a sales tax on PVC and forbids the use of PVC additives that are harmful to health and the environment, including heavy metals and phthalate softeners. Numerous restrictions have been enacted in Germany and the trend has spread to Spain, Japan and the USA.

An increasing number of companies are phasing out the use of PVC and chlorinated substances, in response to consumer demand. IKEA and LEGO were among the first companies to initiate a phase out and are now virtually PVC free. Within the UK the list Bingley Building Society, Waitrose, Holland and Barrett and Lloyds Chemist

Further information

Details of the EU Green Paper on Environmental Issues of PVC Com(2000)469 can be found at www.europa.eu.int/comm/environment/PVC/index.htm.