

Sweden's comments on the Commission's Green Paper - Environmental issues of PVC**1. Sweden's approach to the issue of PVC**

The use of PVC has been comprehensively studied and discussed over the last few years in Sweden in the framework of environmental policy. A number of measures were taken during the 1990s that have a direct or indirect effect on PVC over its entire life cycle, both in the form of mandatory requirements and voluntary commitments by the industry.

Production process

The objective with regard to the manufacture of chlorine as an input in PVC is to phase out chloralkali production by the amalgam method by the year 2010. This is in accordance with the commitment under the OSPAR Convention. The Swedish PVC industry plans to improve the manufacturing process for raw PVC by 2005 with a view to eliminating emissions of persistent organochlorine substances.

Dangerous substances used as additives

The use of cadmium as a stabiliser or colorant in plastics has been prohibited since 1982. Sweden has an exemption for this in the EU which expires at the end of 2002. The Swedish Government aims to phase out the use of lead in the country completely in the long term. The Swedish industry will have ceased using lead as a stabiliser and pigment in PVC by 2002 on a voluntary basis, replacing it with other substances. Industry is also working on developing alternatives to organotin stabilisers in certain PVC materials.

The Government's intention is for phthalates and other hazardous plasticisers to be phased out by voluntary agreement. The use of DEHP and other plasticisers that have or are suspected of having harmful effects on health or the environment in PVC for outdoor use in coated woven fabrics, coated plate and for corrosion protection in vehicles must be phased out on a voluntary basis by 2001 at the latest. Other uses of DEHP as a plasticiser in PVC, with the exception of medical products and pharmaceuticals, must be phased out on a voluntary basis by 2005 at the latest. The Swedish PVC industry has informed the Government that, among other things, it has switched to plasticisers which are considered less likely to leach from PVC material than DEHP and it is developing PVC material that is less dependent on plasticising agents. The competent Government authorities will report before the end of 2000 on the progress made and on the extent to which the use of harmful, or suspected harmful, plasticisers in medical products and pharmaceuticals can be phased out. The Government will propose mandatory measures if the phase-out objectives are not achieved by voluntary means. It has been forbidden since 1999 to use phthalates as plasticisers in toys for children aged less than three.

Disposal of PVC waste

A ban on the landfilling of organic waste, including plastics, will enter into force on 1 January 2005 in order to bring about a higher proportion of recycling. Exemptions may be possible in that some waste contains substances such as heavy metals where landfilling may be more appropriate than incineration. An example is rigid PVC, which may be stabilised with cadmium for certain applications and therefore should not be incinerated. The heavy metal cadmium has long been prohibited as a stabiliser in PVC. However, cadmium may still be present in long-lived products in the construction sector. Against this background, such plastics must be separated and removed from the cycle. A decision on exemptions from the ban has not yet been taken.

General remarks on instruments to regulate PVC additives

Swedish industry has, on a voluntary basis and without incurring significantly higher costs, replaced hazardous PVC additives in certain product groups and replaced PVC with other materials in other product groups. The Government takes a positive view of the trend whereby manufacturers and importers are continually seeking to reduce contamination of the environment with PVC, to develop better PVC and to replace it with other material where PVC material is suspected of harming the environment and human health. However, the Government is ready to take any necessary measures, such as a ban, if the PVC loading of the environment is not reduced voluntarily in accordance with stated objectives and notified measures.

Sweden's reply to the questions in the Green Paper

General comments

Sweden welcomes the Green Paper and the opportunity it presents of discussing the environmental problems of PVC. It also shares the Commission's view that a lifecycle approach is necessary in order to tackle the problem. However, Sweden wishes to draw attention to certain shortcomings of the Green Paper if its intentions are to be fully realised.

The environmental pollution that occurs in raw material processing and in production and use of PVC material and products is worth examining, as are the problems that PVC may cause in the event of accidents. It is necessary to make a comparison between PVC and other materials for different types of products, and to weigh up the impact on health and the environment against the technical and economic advantages of the material/product.

The Green Paper considers the problems in relation to certain PVC additives. However, attention should also be given to other dangerous additives, such as organotin compounds.

1. *Which set of measures should be implemented to address the issue of the use of lead and cadmium in new PVC? According to which timeframe?*

New products placed on the market should not contain cadmium and lead. An EU-wide ban on the lines of the Swedish ban on cadmium stabilisers should be introduced as quickly as possible. Such a ban could usefully be introduced on 1 January 2003, when the Swedish exemption for cadmium expires.

The Swedish PVC industry has made considerable progress in replacing lead stabilisers in PVC, most of which will have been phased out on a voluntary basis

by the end of 2001. According to the Green Paper, the European manufacturers of stabilisers do not intend to take corresponding action at EU level. Sweden's example shows that it is technically, economically and environmentally possible to replace lead stabilisers in the short term. Consequently, an EU-wide ban on lead stabilisers in PVC should be considered, since the European industry has failed to take the initiative to phase them out voluntarily. The Swedish Government has set 2002 as the target date for a phase-out in Sweden. A slightly later date should be set for the EU as a whole, given that not every Member State has reached the same stage of development. A phase-out should also apply to products imported from third countries.

2. *Should specific measures be taken for the use of phthalates as plasticisers in PVC? If so, when and through which instruments?*

In general, all use of phthalates and other plasticisers suspected of having a harmful effect on health and the environment should be discontinued. Exemptions may be necessary for certain applications, e.g. medical technology and pharmaceuticals.

Several phthalates are currently undergoing risk assessment in the framework of the EU's existing substances programme. This may indicate serious effects resulting from the use of phthalates as plasticisers in PVC. It has been established, among other things, that the disruptive effect of DEHP on reproduction is so severe that it has been proposed to classify it as toxic (Category 2) to both reproduction and embryonic development.

One drawback of the existing substances programme is that it fails to assess the possible risks of overall phthalate exposure. In Sweden's view, this should be taken into account in risk management.

The risk assessment under the existing substances programme is designed to provide a basis for measures in the EU. With regard to groups exposed to particular risk, there may be reason not to await the final result of the risk assessment and the risk management strategy, but to take action more quickly in order to speed up the transition to less hazardous alternatives. Feeding tubes for premature babies is an area that calls for urgent action.

3-7 *General remarks on management of PVC waste*

In Sweden's opinion, recycling, incineration and landfilling of PVC waste all involve environmental risks. The only way to tackle this dilemma is to develop alternative materials or PVC that is free from additives which are harmful to health and the environment, and to ensure that waste is managed in accordance with acceptable health and environmental standards. Achieving this calls for further measures and continuing research and development work, for which the PVC industry itself has a major responsibility.

Pending such development, Sweden considers that PVC waste arisings should preferably be reused or recycled. As a last resort, PVC waste can be incinerated or landfilled. It is important to choose the treatment method in the light of the properties of the PVC waste in question, e.g. consistency and additives.

3. *Which set of measures would be the most effective to reach the objective of an increase in PVC recycling?*

PVC recycling should be increased by a combination of mandatory measures and voluntary commitments from industry. One target should be to recycle separated fractions of plastics containing PVC.

The introduction of mandatory instruments for specific sectors would be appropriate, e.g. mandatory collection and recycling targets for plastics waste streams containing PVC from the construction and demolition industry. That issue could be dealt with in the framework of a directive on building waste.

Voluntary commitments by industry to increase recycling of PVC waste should be encouraged. Standards and methods for quality assurance, e.g. standardisation, should be developed to promote recycling.

4. *Should specific measures be attached to the mechanical recycling of PVC waste containing lead and cadmium? If so, which ones?*

Lead and cadmium are substances that should be removed from the cycle as soon as possible. In recent years, cadmium stabilisers have not been used to any large extent in PVC manufacture. Sweden therefore considers that reuse or recycling of PVC products stabilised with cadmium should not be permitted.

Lead stabilisers are still used to some extent in PVC production in Europe. The same principle should be applied to PVC products stabilised with lead as for cadmium, i.e. PVC products stabilised with lead should not be reused or recycled. It should be possible to depart from this principle in individual cases if, from a holistic perspective, recycling proves to have environmental advantages. A condition should also be that the material is recycled for the same purposes and that the new product can be identified as containing lead.

5. *Which set of measures would be most appropriate for chemical recycling of PVC waste?*

Sweden welcomes the development of chemical recycling, but would emphasise that the environmental benefit of chemical recycling compared with environmental burdens such as high energy consumption needs to be assessed. The method is at present so underdeveloped and untested that it is too early to make recommendations or set binding targets for chemical recycling. Voluntary initiatives from the industry are welcomed.

6. *Which set of measures would be most effective to assess the issues linked to the incineration of PVC waste?*

PVC waste should only be incinerated when reuse and recycling are impossible and when, by comparison with landfilling, incineration is considered to be the most suitable treatment method, e.g. for unsorted PVC waste in household waste streams. The incineration of PVC waste must meet the following conditions:

- effective energy utilisation
- incineration must comply with the requirements of the Directive on waste incineration
- sufficient mixing with other waste when charging the incinerator with PVC waste to avoid excessive chlorine peaks

- the water phase must be cleaned of contaminants to an environmentally acceptable level
- incineration residues must be appropriately treated prior to disposal, e.g. they should be stabilised to minimise leaching of heavy metals.

Sweden welcomes a development where PVC waste is incinerated in facilities with flue gas cleaning methods that minimise waste arisings or permit the extraction, rather than neutralisation, of hydrochloric acid. In keeping with the polluter pays principle, it goes without saying that the costs of incineration should be included in the price of incinerating the waste.

There is a strong case for further research into the link between incineration of waste with a high chlorine content and dioxin formation. In particular, there is a need to develop methods for the environmentally acceptable treatment of incineration residues.

7. *Are specific measures concerning the landfilling of PVC waste necessary? If so, which ones?*

PVC waste should only be landfilled when reuse and recycling are impossible and when, by comparison with incineration, landfilling is considered to be the most suitable treatment method, e.g. for rigid PVC which may be stabilised with heavy metals for some applications and therefore should not be incinerated. Landfilling of PVC waste must meet the requirements of the Directive (1999/31/EC) on landfilling of waste. See Question 6 with regard to the landfilling of incineration residues. In Sweden's view, further research on conditions in landfills and their relevance to PVC waste would be useful.

8. *Which are the appropriate instruments for developing a horizontal strategy on PVC? Should a PVC substitution policy for some specific applications be envisaged? If so, how?*

Further reflections on PVC should be based on the chemicals strategy and on the integrated product policy strategy (IPP) currently being drawn up in the EU. The waste issues should be dealt with in the framework of the EU's waste legislation. The starting point for a chemicals strategy should be the phase-out of dangerous substances, the precautionary principle, the principle of product choice and the corporate liability principle. An integrated product policy should, among other things, contain instruments to coordinate and streamline the various measures taken to prevent and reduce the negative impact of products on human health or the environment throughout their entire life cycle.

In the light of the foregoing, Sweden recommends using a mix of mandatory measures and voluntary commitments to achieve long-term, sustainable development in relation to PVC. Irrespective of the actual instruments chosen, it is important to base their choice on an analysis of the consequences. A measure must always be linked to verifiable targets. If the set targets are not met, the instruments need to be re-examined. In the case of voluntary commitments, it is necessary *inter alia* to take account of the interests of the different players, e.g. small and medium-sized businesses, the functioning of the internal market and trade with third countries. Where a voluntary agreement is substituted for a mandatory measure, it should be democratically legitimised and transparent.