

Green Paper on environmental issues of PVC

QUESTIONS & ANSWERS

1. Why is the Commission taking an initiative on PVC?

The Green Paper follows the commitment of the Commission, made in its Proposal for a Directive on end of life vehicles¹ (July 1997).

The whole life cycle of PVC raises a number of environmental issues, in particular due to the use of certain additives (lead, cadmium and phthalates) and during the management of PVC waste.

Some Member States have recommended or adopted measures related to specific aspects of the PVC life cycle. These measures are not identical and some may have consequences for the functioning of the internal market.

PVC is one of the most widespread plastics used today with a production of about 5.5 million tonnes in Europe in 1998 (21 million tonnes world-wide, about 20% of all plastics production). Overall production of PVC compounds (PVC resin and all additives) was at about 7.2 million tonnes in 1998. The economic weight of the industrial sector is important: the total PVC producing and transforming industry in Western Europe represents about 21,000 companies, 530,000 jobs and a turnover of more than 72 billion €.

2. What is PVC used for?

The main applications of PVC in Europe today are in the building sector (windows, profiles, pipes, flooring), which accounts for 57% of all uses. The other largest uses are in the fields of packaging (9%), household (18%) and automotive appliances (7%).

3. The main distinction between the numerous applications is between « rigid PVC » (accounting for about two thirds of total use) and « flexible PVC » (accounting for about one third). The main uses of rigid PVC are pipes, window frames, other profiles, and parts of household appliances. Flexible PVC is mainly used in cables, flooring, as packaging material (flexible films), car under-floor protection and instrument panels for cars. What are the key figures for additive use and Waste quantities?

¹ COM(97) 358 final

- About 1 million tonnes of phthalates are used annually as plasticisers to manufacture flexible PVC products. About 112,000 tonnes of lead stabilisers (containing about 51,000 tonnes of lead metal) were used in 1998 (overall consumption of lead for use in all kinds of products was 1.6 mill. Tonnes in Europe in 1997), 50 t of cadmium metal were used in 1170 tonnes of stabiliser formulations.
- About 3.6 million tonnes of post-consumer PVC waste are generated annually in Europe. An increase of PVC waste quantities of about 80% is expected in the coming 20 years. About 0.5 million pre-consumer waste (production and installation waste) is generated, 85% of which is recycled.

4. Why is the Commission only adopting a Green Paper and not a strategy with proposals for specific measures?

- The Green Paper is the first step towards the adoption of a Community strategy on PVC to be adopted in early 2001.
- The Commission wants to open a transparent consultation process to stimulate a debate on PVC. The European Parliament, the Member States, the NGOs, the Consumers, the industry have to be involved in this important issue.
- It is essential to launch a Europe-wide public debate on the basis of the fair and balanced analysis made in the Green Paper. Similar debates have already taken place in some Member States, but not in all of them.

5. Is it better to recycle, incinerate or landfill PVC?

- Currently about 3% of PVC waste is recycled (100,000 t), about 17% incinerated (about 600,000 t) and the rest landfilled (about 2.9 million t).
- The Green Paper gives a detailed analysis on the advantages and disadvantages of each of these options. On the basis of this analysis and given the present low recycling rate, the Commission considers that recycling of PVC should be increased. However, it is expected that recycling of PVC waste could contribute only to the management of about one fifth of PVC post-consumer waste. Other waste management routes will therefore remain important.
- The Green Paper presents the problems linked with the incineration of PVC and in particular the generation of residues from flue gas cleaning (classified as hazardous) due to of presence of chlorine in PVC.
- Concerning landfilling, the Green Paper discusses the stability of PVC under landfill conditions and the losses of phthalates from soft PVC, which are widely recognised in a number of published studies, but the quantities and the associated risks need to be assessed further.
- The Green Paper presents a number of potential measures to improve, in accordance with the general Community Waste Management Strategy, the management of PVC waste present in various waste streams and analyses the economic consequences of deviating PVC from incineration to recycling or landfill.
- It is too early to define a clear preference between incineration and landfilling for all types of PVC under all conditions. It is one of the purposes of the Green Paper to collect further information and the various opinions about this question.

6. What does the Commission think about the voluntary commitment of the PVC industry?

- The European PVC industry has signed a voluntary commitment on the sustainable development of PVC, which, *inter alia*, addresses the reduction of the use of certain heavy metal stabilisers, the mechanical recycling of certain post-consumer wastes, and the development of further recycling technologies.
- The Green Paper describes the content of this voluntary commitment and presents this initiative of the industry as one of the potential future options for the Community strategy on PVC.
- The signing and entry into force of this commitment (the implementation will start in 2001), which involves the complete industrial chain from producers to transformers, represents an important step which needs to be assessed in function of the effectiveness criteria mentioned in the Communication of the Commission concerning agreements in the area of the environment (COM(96)561 final).
- The success of this approach will require a constant progression in the efforts realised in the specific areas covered by the agreement and, in particular, reduction in the production and use of certain additives, more ambitious target quantities for recycling, industry's contribution to added costs of incineration, and a fully operational funding mechanism.
- While this can be seen as a first step there is still work to be done to ensure an effective participation by industry in achieving Community goals in this area. It should be underlined that the services of the Commission are currently preparing a Proposal for a framework Regulation concerning Community environmental agreements to be adopted by Council and Parliament.

7. Is the Commission going to propose legislative instruments on PVC?

- There is a whole range of instruments available to address the environmental impacts of PVC, among them legislative measures, such as a Proposal for a Directive on PVC, or proposals for adaptation of various existing legal instruments. All possible options are mentioned in the Green Paper, together with questions regarding their effectiveness as well as their environmental and economic implications.
- The Commission expects that the contributions provided by the stakeholders during the public consultation process will give further indications on which strategy is the most appropriate.
- On the basis of the analyses developed in the Green Paper and the outcome of this consultation process, the Commission will present at the beginning of 2001 a Communication setting out a comprehensive Community strategy on the environmental issues of PVC. The strategy will set out all necessary measures, including, if appropriate, the development of proposals for legislative measures.

8. Is the Commission going to adopt measures concerning phthalates, lead and cadmium in PVC? Are there going to be risk assessments on these hazardous substances?

- In line with its general policy, the Commission will, in the light of a scientific and economic evaluation, propose and adopt all appropriate measures to address the use of these substances in PVC.
- Five phthalates have been included on the first three priority lists for risk assessment in accordance with Council Regulation 793/93 on the evaluation and control of existing substances. The risk assessments on these five substances are carried out by Member State rapporteurs (France, Sweden and The Netherlands respectively). The risk assessments on DEHP, DIDP, DINP, DBP have been or are expected to be completed in 2000 and in 2001 for BBP.
- It should also be noted that the specific risks due to the use of phthalates in certain soft PVC toys and childcare articles have been assessed by the Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE). On the basis of these opinions, the Commission has adopted on 10 November 1999 a Proposal for a Directive and on 7 December 1999 a Decision under the emergency procedure of Directive 92/59/EEC in order to ban of the use of phthalates in certain toys and childcare articles intended to be put in the mouth.
- Although at present no comprehensive risk assessments have been completed on the use of cadmium and lead compounds as stabilisers in PVC products, important work is already ongoing: a risk assessment is being finalised on cadmium and cadmium oxide under Regulation 793/93. For lead, the CSTEE has recently adopted an opinion regarding a draft ban on the use of lead in products in Denmark.
- The CSTEE is currently working on the issue of risks from the use of lead in general and an opinion, building *inter alia* on a study to be commissioned by the services of the Commission, should be adopted by mid-2001 on both the environmental and human health risks of lead.

9. What will happen after the Green Paper?

- In addition to the publication, the Green Paper will be transmitted to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions. It will be published in the Official Journal and on the internet.
- A public hearing will be organised in October 2000. The targeted stakeholders are the general public as well as environmental and consumer NGOs, the producers and transformers of PVC, the users of PVC (automobile, electronic, construction, distribution and packaging industries), as well as the public administrations of the Member States. The consultation period is scheduled to continue until the end of November 2000.
- On the basis of the analyses developed in the Green Paper and the outcome of this consultation process, the Commission will present, at the beginning of 2001, a Communication setting out a comprehensive Community strategy on the environmental issues of PVC to be implemented through various initiatives and measures.

10. Why is the Green Paper not focussing more explicitly on prevention and the substitution of PVC?

- Prevention is explicitly addressed on several occasions, in particular concerning the use of certain hazardous additives and recycling.
- The question of substitution is also explicitly addressed in the context of promoting more sustainable products as part of an Integrated Product Policy. Such a substitution policy could be considered for specific applications, which can not be easily separated from the general waste stream and therefore are difficult to recycle such as in packaging, motor vehicles, electric and electronic equipment.
- At present, PVC is competing with alternative materials for a number of applications. Given the large range of applications, often requiring a very specific technical performance, PVC cannot be replaced by one single material in all its applications. For each product type, potential substitute materials are different. These can either be other plastics such as polypropylene (PP) or polyethylene terephthalate (PET) in packaging, polyethylene (PE) and PP for construction applications, or other types of materials such as wood (e.g. for window frames) or concrete, cast iron for pipes
- It is stressed in the Green Paper that a potential substitution policy would need to be underpinned by a comprehensive and objective assessment of the main environmental impacts both of PVC and of potential substitutes during their whole life cycle. As the information on the environmental impacts of potential substitutes is generally scarce, the Green Paper at this stage cannot draw firm conclusions.

11. Why is the Green Paper only addressing environmental issues? Why not also human health concern?

- Firstly, the Commitment accepted by the Commission in 1997 and restated in 1999 concerned exclusively environmental aspects of PVC.
- Nevertheless, all related issues regarding human health that are known today have been addressed in the paper. In addition, as human health is mostly concerned indirectly through environmental impacts, the issue is (implicitly) taken into account.

12. What is the link between the PVC initiative and the integrated product policy approach which the Commission is developing?

- The PVC Initiative 'integrates' the basic principles of this approach, i.e. the examination of all issues from cradle to grave, as for other waste initiatives on packaging, end-of-life vehicles, WEEE and others have also already anticipated.
- The Commission has the intention to adopt a Green Paper on the Integrated Product Policy in 2000.

13. What About the Incineration of PVC and dioxin formation?

- The potential influence of the incineration of PVC waste on the emissions of dioxins has been at the centre of a major scientific debate since PVC is currently the largest contributor of chlorine into incinerators. The contribution of incinerators to the total emissions of dioxins in the Community was about 40% between 1993 and 1995.
- It has been suggested that the reduction of the chlorine content in the waste can contribute to the reduction of dioxin formation, even though the actual mechanism is not fully understood. It is most likely that the main incineration parameters, such as the temperature and the oxygen concentration, have a major influence on the dioxin formation and much more so than the content of chlorine.
- Whilst at the current levels of chlorine in municipal waste there does not seem to be a direct quantitative relationship between chlorine content and dioxin formation, it is possible that an increase of chlorine content in the waste stream above a certain threshold could contribute to an increase of the dioxin formation in incinerators. The threshold of 1% of chlorine has been suggested but uncertainties remain on the level of this threshold.

The Proposal for a Directive on the incineration of waste² foresees an emission limit value of 0,1 ng/m³. This shall decrease the emissions of dioxins from incinerators, esp. from those that at present are not yet operating with the state-of-the art technology.

² COM(1998) 558 final