



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 23.12.2002
COM(2002) 750 final

2002/0301 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

On the limitation of emissions of volatile organic compounds due to the use of organic solvents in decorative paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC

(presented by the Commission)

EXPLANATORY MEMORANDUM

1. INTRODUCTION

The Sixth Action Programme

The Sixth Environment Action Programme (6EAP)¹ recognises that significant effort is still required to reduce emissions so that all citizens of the Community can enjoy clean air. For this reason, air quality is one of the areas for which the 6EAP foresees the adoption of a thematic strategy. This will be developed in the context of the Clean Air for Europe programme (CAFE) announced by the Commission in 2001².

The main objectives are to identify omissions in present policy, and priorities for further action, especially for particulate matter and for tropospheric ozone ("photochemical smog"), taking into account risks to vulnerable groups. The CAFE programme will review and, if necessary, update existing air quality standards and national emission ceilings and develop better systems for gathering information, modelling and forecasting. The objective is to achieve levels of air quality with no unacceptable impact on, and risks to, human health and the environment.

This proposal is consistent with the CAFE programme. For the reasons given it is clear that since volatile organic compounds contribute to the formation of tropospheric ozone, further reductions in their emissions are required to meet current environmental goals and to contribute to further environmental improvement in the longer term. This was also recognised by the Council, which, when adopting the Common Position for a Directive on National Emission Ceilings,³ invited the Commission to come up with legislative proposals to help meet current and future obligations to reduce emissions of volatile organic compounds.

Background

Scientific basis

Volatile organic compounds (VOCs) are emitted into the air from the processes where they are used or produced: in transport there are emissions in the form of evaporation from hydrocarbon-based fuels and vehicle exhausts and there are emissions from the use of solvent-containing products. These emissions undergo chemical reactions in the atmosphere, which cause a number of indirect effects, in particular the formation of photochemical oxidants such as tropospheric ozone. When highly concentrated in air, ozone can impair human health and can damage forests, vegetation and crops, reducing yields. Ozone is also a potent greenhouse gas. VOCs cause episodic ozone formation at local and at regional level, involving precursors and photochemical oxidants transported over long distances.

¹ OJ L 242, 10.9.2002, p. 1.

² COM(2001)245, 4.5.2001.

³ A substantial reduction in VOC emissions will be necessary if the interim environmental objectives set out in Article 5 of the Directive on national emission ceilings for certain pollutants are to be met by 2010. In view of this, the Environmental Council strongly urges the Commission to propose Community rules on products, so as to reduce VOC emissions. These rules would have to be in force by 2004 in order to take this reduction into account in the evaluation of the directive on national emission ceilings (Council Declaration in Annex 4 from the report on the 2278th meeting of the "Environment" Council, Luxembourg, 22 June 2000).

Pollution by tropospheric ozone in the European Community

Pollution by tropospheric ozone is a widespread and chronic problem within the Community. Data submitted by the Member States to the Commission under Directive 92/72/EEC⁴ indicate that during the summer months the threshold level for the protection of human health ($110 \mu\text{g m}^{-3}$, expressed as an average value over eight hours) is exceeded in all the Member States and that in urban environments more than 40 million people are estimated to be exposed to potentially harmful concentrations of this aggressive pollutant. Similarly, monitoring data indicates that the threshold value for the protection of vegetation ($65 \mu\text{g m}^{-3}$ expressed as an average value over 24 hours) is exceeded in all Member States. Directive 2002/3/EC⁵ sets even more ambitious thresholds and target values. Member States must transpose this Directive by September 2003.

As a result of ozone pollution, sensitive members of the population can expect to experience symptoms such as eye irritation, sore throats and respiratory problems. In the environment, it affects photosynthesis producing lesions and discoloration of leaves, thus adversely affecting the yield of certain crops.

Further to the Framework Directive on ambient air quality management and assessment, a new Directive establishing air quality objectives and target values for ozone has recently been adopted.⁶ Member States are required to establish air quality management plans setting out the measures they will take to reach these target values and objectives. While Member States will benefit from existing Community legislation to reduce VOC emissions, it is clear that further measures at Community level are necessary.

Community legislation to reduce VOC emissions

There is already a substantial body of legislation in the Community to reduce emissions of volatile organic compounds into the air. Directive 96/61/EC⁷ on Integrated Pollution Prevention and Control addresses reduction of emissions into all media from a large number of industrial sectors. Directive 1999/13/EC⁸ on the limitation of volatile organic compounds due to the use of organic solvents in certain activities and installations specifically addresses emissions of volatile organic compounds from industrial sectors that are substantial users of solvents by setting both stack and fugitive emission limit values. In addition, that Directive sets out to clean up production processes by proposing solvent emission reduction plans as an alternative method of compliance to the conventional use of pollution abatement equipment.

In the transport sector, the Auto Oil I programme resulted in tighter vehicle emissions standards (Directive 98/69/EC⁹), along with the necessary improvements in fuel quality¹⁰ to ensure the effectiveness of more advanced exhaust emission abatement equipment. Directive

⁴ OJ L 297, 13.10.1992, p. 1.

⁵ OJ L 67, 9.3.2002, p. 14.

⁶ OJ L 67, 9.3.2002, p. 14.

⁷ OJ L 257, 10.10.1996, p. 26.

⁸ OJ L 85, 29.3.1999, p. 1.

⁹ Directive 98/69/EC (OJ L 350, 28.12.1998, p. 1) relating to measures to be taken against air pollution by emissions from motor vehicles.

¹⁰ Directive 98/70/EC (OJ L 350, 28.12.1998, p. 58) on the quality of petrol and diesel fuels. Amended by Commission Directive 2000/71/EC (OJ L 287, 28.11.2000, p. 46) to adapt the measuring methods.

94/63/EC¹¹ also seeks to reduce VOC emissions from transport by requiring vapour recovery at various points in the petrol distribution chain.

Table 1 gives a breakdown of EU emissions for 2010 by source category. Existing Community legislation has helped bring about a 50% reduction in all projected man-made VOC emissions in 2010 compared to a 1990 baseline.

The National Emission Ceilings Directive

Because there is a transboundary dimension to the formation of tropospheric ozone, the Commission proposed a Directive introducing national emission ceilings (NEC), whereby national emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia would be restricted to certain ceilings in each Member State in 2010. The analysis underpinning this proposal took into account the geographical distribution of emission sources throughout the Community, the long-range transport aspect, the cost effectiveness of emission reductions for each pollutant in each Member State, and the need to simultaneously reach environmental targets for both acidification and tropospheric ozone (because nitrogen oxide contributes both to tropospheric ozone formation and acidification).

Although emissions of VOCs in the Community are predicted to fall from 14.1 million tonnes in 1990 to 7.1 million tonnes by 2010, the Commission's analysis¹² showed that it would be necessary to reduce emissions of VOCs to 5.5 million tonnes in 2010 to meet even interim environmental objectives for this pollutant. According to the relevant studies (see footnote 12), to ensure complete protection of public health and vegetation, emissions will have to be reduced still further in the longer term.

After prolonged and difficult negotiations in Council and the European Parliament, Member States were able to commit to national emission ceilings for 2010 which give a combined Community ceiling of 6.5 million tonnes.¹³ In so doing Member States highlighted the difficulty of reducing VOC emissions and asked the Commission to come up with further proposals in this area, in particular concerning the VOC content of products (see Table 2).

2. PRODUCTS CONTAINING VOCs

Emissions from products used in industry which contain volatile organic compounds are in part covered by Community legislation. Directive 1999/13/EC - on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations - applies to a number of solvent using sectors. The Directive also covers emissions from the use of VOC-containing products in vehicle refinishing. However, as Directive 1999/13/EC is based on an authorisation system to reduce emissions from installations, there were practical limitations as regards implementation and enforcement given the size and number of installations amenable to an authorisation approach. Consumption thresholds were thus established below which the Directive would not apply in order to avoid an unrealistically excessive administrative burden, and diminishing

¹¹ OJ L 365, 31.12.1994, p. 24.

¹² Cost-effective control of acidification and ground-level ozone (reports 1 to 8, IIASA)

¹³ Directive 2001/81/EC on national emission ceilings for certain air pollutants, OJ L 309, 27.11.1999, p. 22.

environmental benefits. The Commission was therefore invited to explore product-based approaches, particularly as an alternative for the vehicle-refinishing sector.¹⁴

On the basis of a number of studies^{15,16,17} the Commission has identified the following sectors as large users of VOCs and also sectors that at present are either wholly or partially outside the scope of Community legislation to limit VOC emissions:

- Paint industry: annual solvent usage is estimated at 1.5 million tonnes. About 50% of these products are "decorative paints", which are retailed to private individuals or professional decorators. Emissions from the use of these products are not controlled by Council Directive 1999/13/EC.
- Ink industry: annual solvent usage is estimated at 125 kilotonnes, principally in installations covered by Council Directive 1999/13/EC.
- Cosmetics, toiletries, perfumes: annual solvent usage is estimated at 200 kilotonnes/year. Emissions from the use of these products are not controlled by Council Directive 1999/13/EC.
- Cleaning materials and polishes: the range of products varies widely, but some may contain large amounts of VOCs. Annual solvent usage is estimated at 300 kilotonnes/year.
- Products used in the vehicle-refinishing sector: Annual solvent usage is estimated at 45 kilotonnes/year.

It is clear from the above that paints and related products sold retail represent a significant source of VOC emissions although, even without legislation, there has already been a considerable shift away from solvent-based paint products to water-based products.

Two Commission studies looked in particular at decorative paint products¹⁸ and vehicle refinishing products.¹⁹ Both concluded that on the basis of established trends in these sectors in favour of products with lower solvent content, it would be technically and economically possible to reduce VOC content further within a realistic timeframe and without compromising product quality. These studies indicate that VOC emissions could be reduced by approximately 280 kt by 2010 (see Table 3 - Phase II) by reducing the solvent content of

¹⁴ "The Council invites the Commission to present, as an alternative for controlling sector 6 of Annex IIA to this directive as a first step, its proposal for a regulation through a product based approach within the shortest possible time and consequently the adaptation or removal of this sector from the scope of this Directive." - Addendum to the minutes of the 2165th Council meeting on the environment held in Brussels on 11 March 1999.

¹⁵ Study on the potential for reducing emissions of volatile organic compounds (VOC) due to the use of decorative paints and varnishes for professional and non-professional use (Chemiewinkel, Enterprise Ireland and Wetenschappelijk instituut voor milieu-management, June 2000).

¹⁶ Reducing VOC emissions from the vehicle-refinishing sector (Entec UK Limited and the paint research Association, August 2000).

¹⁷ Study to identify reductions in VOC emissions due to restrictions in the VOC content of products (Bipro, AFC consult and DFIU-IFARE, February 2002).

¹⁸ Study on the potential for reducing emissions of volatile organic compounds (VOC) due to the use of decorative paints and varnishes for professional and non-professional use (Chemiewinkel, Enterprise Ireland and Wetenschappelijk instituut voor milieu-management, June 2000).

¹⁹ Reducing VOC emissions from the vehicle-refinishing sector (Entec UK Limited and the paint research Association, August 2000).

decorative paint and varnish products and by approximately 15kt by reducing the solvent content of vehicle refinishing products. These studies have highlighted some uncertainties in the technical feasibility and economic viability of significant improvement in certain product categories. This has been reflected in the maximum content limit values set out in this proposal.

There is less potential for reducing the solvent content in other product groups at this stage. In some product groups, VOCs are used in propellant systems to replace substances which were depleting the stratospheric ozone layer. The Commission has thus decided that further consideration is required before proposing any measures for these product groups in order to ensure that all the measures designed to achieve these particular environmental policy objectives are consistent.

Vehicle Refinishing Sector

Directive 1999/13/EC sets emission limit values for the vehicle refinishing sector which apply to plants with solvent consumption greater than 0.5 tonnes per year. The proposed product-based approach will reduce emissions from the sector as a whole, whereas the current provisions in Directive 1999/13/EC allow an exemption for plants using less than 0.5 tonnes of solvent per year. However, for the Community to set maximum VOC contents for products used in the sector and also to set limit values for emissions from the facilities themselves would be duplication. It is therefore proposed to repeal the relevant provisions of Directive 1999/13/EC.

3. DESCRIPTION OF THE LEGISLATIVE SITUATION IN THE MEMBER STATES

Austria

Legislation limits the VOC content of decorative coatings, lacquers and varnishes used to coat wooden floors. There is a ban on the sale of certain consumer products, and the use of other products aimed at professional users is prohibited.

Denmark

Legislation is already in place to protect worker health based on the "MAL-code" labelling system, so the sale of certain products is prohibited. Legislation on the VOC content of consumer paints is under preparation.

The Netherlands

Paints with high VOC contents have been prohibited for interior use by professional painters since 1/1/2000 because of occupational health concerns.

Sweden

Restrictions similar to those in the Netherlands have been in force since 1987.

France

The French have introduced the eco-label "*NF Environnement*" for paints and vanishes.

Germany

The preparation of legislation on the VOC content of paints is being considered. There is a national eco-label "*Blaue Engel*" for paints.

Spain

The Spanish have had an eco-label for paints and varnishes "*AENOR medio ambiente*" since 1994.

Greece, Italy, Luxembourg, Portugal, Ireland, Finland and Belgium have no specific legislation to control the VOC content of products for environmental purposes, although **Belgium** has recently notified the Commission that it intends to introduce legislation on this subject.

Justification for Community action

A Commission Decision²⁰ already specifies ecological criteria, including VOC content, for the eco-labelling of paints and varnishes. Community eco-labels are awarded on the basis of a life cycle analysis, which encompasses manufacturing, limiting substances which harm the environment and health, reducing air pollution, reducing potential for hazardous waste production, and health and environmental labelling for consumer information. The eco-label criterion for VOC content is more ambitious than the mandatory values prescribed herein, but compliance is voluntary.

As described above, emissions of volatile organic compounds can contribute to tropospheric ozone formation both in the Member States where they are emitted and elsewhere due to long range transboundary transport. Thus, while Member States are able to take some measures domestically to reduce VOC emissions to counter the formation of tropospheric ozone formation, no Member State can comprehensively control its exposure to this pollutant. Moreover, a Community level product-oriented legislation offers the best guarantees to attain the proposed environmental aim in a cost-effective way while preserving the Internal Market.

The transboundary problem and the need to take co-ordinated action is clearly covered by the recently adopted Gothenburg Protocol under the Geneva Convention on Long-Range Transboundary Air Pollution to which the Member States and the Community are Parties.²¹ The Commission therefore believes that action at Community level is justified both to ensure a co-ordinated response within the Community and to enable the Community to help combat this pollutant within the broader geographical dimension of the United Nations Economic Commission for Europe, many members of which are candidate countries.

Choice of legal instrument

Although there are pressing reasons for Community action in this field, a number of approaches were considered before deciding on the most effective and efficient instrument .

Voluntary commitments by industrial stakeholders, although they already led to a shift towards low-VOC content products, were considered to be insufficient in terms of providing

²⁰ C(1998) 4257; OJ L 5, 9.1.1999, p. 77.

²¹ Protocol to abate acidification, eutrophication and ground-level ozone adopted in Gothenburg on 30 November 1999 by the executive body to the Convention on long-range trans-boundary air pollution.

the necessary assurance that the objectives would be achieved, having regard to the large number of manufacturers in the sector and the certain difficulties of monitoring and enforcing compliance. Equally, a Community regulation, while it would assure a more even implementation across the Member States, was not considered practicable, having regard to existing structures and related rules in Member States.

As the price of solvents in paint products is a small percentage of the total price, the effectiveness of tax incentives would be limited, given the number of factors other than price (e.g. product quality) that are also important to consumers.

A European Parliament and Council Directive should thus provide the necessary balance between ensuring a harmonised and consistent approach across the Community, while at the same time allowing Member States some flexibility as to the details required to ensure proper enforcement and also allowing them to build on any measures already in place.

4. CHOICE AND JUSTIFICATION OF LEGAL BASIS

As the basic proposed Directive aims primarily at reducing VOCs emissions through the approximation of technical specifications, Article 95 is used as the legal basis of the proposed Directive in view of the single market dimension. The provisions of the Proposal are intended to achieve approximation of laws. Although values for the maximum VOC content of certain products content are included in the Directive, Member States can maintain or impose stricter limit values if they can justify the reasons for these measures, as set out in Article 95 (4) and (5) of the Treaty.

5. COSTS AND BENEFITS OF THE PROPOSED DIRECTIVE

Reduction of VOC emissions has already been justified in economic terms in the Commission Proposal for a Directive on national emission ceilings (NEC).²² The economic analysis conducted for that proposal²³ showed that the benefits of reducing VOC emissions to 5.5 million tonnes in 2010 outweighed the cost, even without including avoided damage to ecosystems. As the Member States committed to reduce their emissions only to 6.5 million tonnes by 2010, this shortfall of 1 million tonnes falls within the reduction range that has already been shown to be justifiable on cost-benefit grounds.

In order to assess the technical potential of reducing VOC emissions from decorative paints and vehicle refinishing products, the Commission Services conducted two studies (see footnotes 13 and 14). These studies indicated that the emission reduction costs of measures such as those proposed herein are well within the range of the costs of the VOC emission reduction measures envisaged for all Member States in an NEC context.

These studies were used as a basis for a cost-benefit analysis²⁴ of the proposed Directive. The overall annual reduction in VOC emissions resulting from the proposal is estimated to be 280 kilotonnes in 2010, and to cost between €108 and €157 million per annum in 2010. The

²² COM (1999) 125 final.

²³ In the "Economic evaluation of air quality targets for tropospheric ozone" carried out by IIASA, AEA, DNMI and RIVM, conclusions show that total estimates of benefits appear likely to exceed costs for all of the scenarios considered.

²⁴ For details, see "The costs and benefits of the reduction of volatile organic compounds from paints" Prepared by Directorate-General Environment, Air and Noise Unit, 2 May 2002.

average cost of reducing the VOC content of paints is estimated at between €387 and €63 per tonne of VOC reduced. The difference in cost estimates stems from the uncertainty about additional costs for exterior paints.²⁵ The range of abatement costs per tonne of VOC reduced (from €387 to €63) is smaller than the average of the cost-effective options to reach the objectives of the NEC Directive (€687 per tonne of VOC abated).

It has been estimated that eliminating 280 kilotonnes of VOCs in the EU would bring health-related benefits totalling €82 million each year. It should be noted that some benefits were not monetised.²⁶ Table 4 summarises costs and benefits by Member State.

The benefits of the proposed Directive were estimated to be four to five times higher than the costs, and higher than costs in all Member States. In sum, the proposed Directive would bring significant benefits, even if the costs have been somewhat underestimated or the benefits somewhat overestimated.

Due to lack of data, it was not possible to include candidate countries in the cost-benefit analysis. However, the reduction potential in respect of VOCs in paints is unlikely to be very different from the Member States. If there were any differences, it would probably be that costs in these countries would be lower than in the Member States. In any case, the ozone formation problem is of equal concern. Therefore, the cost-benefit ratio of undertake the action proposed in the Directive is likely to be at least equally favourable in the candidate countries.

6. EXPLANATION OF THE PROVISIONS OF THE PROPOSAL

The proposal aims to reduce VOCs emissions by setting maximum values for the VOC content in certain categories of decorative paints and vehicle refinishing products, limits that have to be respected for the marketing of these products within the EU. However, in accordance with the principle of subsidiarity, some flexibility is provided, for example, by allowing Member States discretion in the development and implementation of market surveillance mechanisms. The principle features of the proposal are as follows:

Article 1

This Article sets out the purpose of the proposal and its scope. The purpose of the proposed Directive is to protect public health and the environment from the direct and indirect effects of emissions of organic solvents. Occupational health is not the main aim of this proposal, but the health-related benefits resulting from reduced levels of tropospheric ozone have been considered.

²⁵ The higher cost refers to a “pessimistic” case. It is assumed that the prices of all categories of paints for exterior walls of mineral substrate, interior/exterior trim and cladding paints for wood and metal would increase because of a technology shift which would among other things increase the price of raw materials. In the “optimistic” case the only additional cost is assumed to be increased research and development costs.

²⁶ These unmonetised effects are the improved health of painters (due to less solvent exposure) and the benefits to ecosystem (due to lower ozone concentrations).

Article 2

This Article contains the necessary definitions. Three possibilities were considered for the definition of "volatile organic compound". The first reflects the fact that VOCs are precursors of tropospheric ozone, and would be in line with the one used in the NEC Directive (2001/81/EC). The second measures volatility using the physical property of vapour pressure and is the one used in Directive 1999/13/EC on the limitation of solvent emissions from certain industrial installations. The third is based on another physical property: boiling point. Given the basic requirement of the Directive, the Commission opted for the definition based on boiling point, which provides a simple and effective method for checking compliance.

Definitions of product categories are given in Annex I.

Article 3

This Article obliges Member States to ensure that product categories falling within the scope of the Directive can be marketed only if they comply with the specifications in Annex II.

Article 4

A labelling requirement has been introduced to ensure that consumers are adequately informed of the environmental credentials of the product at the time of purchase. Given the number of detailed factors that need to be considered as regards both label design and application, it is proposed to delegate this task to the committee established under Article 12 of the Directive.

Articles 5, 6 and 7

These Articles require Member States to develop a market surveillance system in order to assess and control effective implementation of the Directive. Member States will also be required to summarise the results of their surveillance activities every three years, and to submit annual results to the Commission on request only. To facilitate reporting, a common reporting format will be developed by the Commission via a committee procedure.

Article 8

This Article states that the principle of free movement has to be respected for the products covered by this Directive which comply with its requirements.

Article 9

This Article introduces a review clause to decide permitted VOC content for 2010 for the particular sub-category of interior/exterior trim and cladding paints for wood and metal (Annex II.A). At the moment, technical and economic considerations do not make the balance between advantages and disadvantages in setting a more stringent limit in 2010 for this category sufficiently clear. The Commission will carry out this review before the end of 2006, so that it can make a proposal to the European Parliament and the Council in 2006 for a value to be applied from 2010. This review will be based on a study that will take into account all the elements of sustainability: the incremental environmental benefit compared to the 2007 limit value, but also the economic implications, including impact on SMEs, the consequences for employment and the technical feasibility.

Article 10

This is a standard Article requiring Member States to establish appropriate penalties for non-compliance.

Article 11

The regulatory committee established in Article 12 will assist the Commission in deciding on the mandatory use of ISO or CEN methods as soon as they become available for testing the VOC content of the products covered by the Directive.

Article 12

This Article proposes to establish a regulatory committee that will function in accordance with the Council Decision conferring decision-making powers on the Commission.²⁷ It will provide technical assistance to the Commission and help to take decisions concerning the implementation of the Directive, such as common formats for reporting data.

Article 13

This Article repeals the provisions of Directive 1999/13/EC that set emission limit values for the vehicle refinishing sector in favour of the product-based approach contained in this proposal. It should be made clear that this proposal does not repeal provisions dealing with the solvents used in the coating of new vehicles. For this reason, only the first sub-indent of Annex I of Directive 1999/13/EC will be repealed: "the coating of road vehicles as defined in Directive 70/156/EEC, or part of them, carried out as part of vehicle repair, conservation or decoration outside of manufacturing installations, or". In Annex II A.I, the words "vehicle refinishing" are also removed from section 6 of the "Activity" column.

Articles 14, 15 and 16

These Articles contain standard provisions concerning entry into force and transposition into national law.

Annex I

This Annex defines the categories and subcategories of decorative paint and vehicle refinishing covered by the proposal.

Annex II

This Annex sets out the proposed content limit values.

The maximum limit value for subcategory A.d in Annex II: *Interior/exterior trim and cladding paints for wood and metal, solvent-borne* has been left blank for 2010. See comment to Article 7.

²⁷ Council Decision 1999/468/EC of 28 June 1999, OJ L 184, 17.7.1999, p. 23.

7. BUSINESS IMPACT ASSESSMENT (BIA): THE IMPACT OF THE PROPOSAL ON BUSINESS, WITH SPECIAL REFERENCE TO SMALL AND MEDIUM-SIZED ENTERPRISES

7.1. The proposal:

- A limitation on the content of volatile organic compounds (VOCs) in certain categories of products

Community legislation is necessary in this area to help protect public health, in particular by reducing VOC emissions so as to reduce population and vegetation exposure to photochemical oxidants. A two-phase approach is proposed for reduction of the VOC content of the decorative paint products falling within the scope of the proposal. This will give the sectors affected adequate time to adapt without compromising the long-term environmental benefits. One phase will apply from 1 January 2007 while a second will apply from 1 January 2010. In the case of vehicle refinishing products only the 2007 values apply.

7.2. The impact on business

- Who will be affected by the proposal?

Decorative paint manufacturers and production chain

The proposal affects the manufacture of decorative paints and the production chain for these products. This includes the paint industry itself and the resin industry, the solvent industry, and binder and pigment manufacturers.

Despite the ongoing consolidation in this sector, there are almost 1300 large-scale paint manufacturers and over 3200 smaller businesses in the sector, including businesses in six of the candidate countries.²⁸ The sector has around 120 000 employees. The ten largest paint manufacturers account for almost 50% of total production. The largest number of small manufacturing enterprises are in Southern Europe.

Over 200 raw material suppliers serve the European paint industry. Multinational chemical companies dominate the binder, pigment and solvent markets, while the alkyd resin market includes a considerable number of small manufacturers.

Vehicle refinishing sector

The proposal also affects vehicle-refinishing plants. Plants with a solvent threshold consumption greater than 500 kilos per year are already covered by Council Directive 1999/13/EC. However, since the adoption of that Directive it has been recognised that this sector is more amenable to a product-based approach to achieving emission reductions than an emission limit value approach requiring the use of pollution abatement equipment. Consultations with industrial stakeholders indicate that this change in the regulatory regime (this proposal combined with repeal of the relevant provisions of Directive 99/13) will not mean that investment to comply with Directive 1999/13/EC was wasted, as products with lower VOC content have already been identified as the preferred route for compliance in this sector.

²⁸

Czech Republic, Hungary, Poland, Slovenia, Slovakia and Turkey

This proposal could affect about 50 000 plants in the Community, many with less than 5 employees. The proposal will also affect the product supply market, although it appears to be well prepared for the proposal. Seven companies account for 90% of the market, the other 10% being small and medium companies.

- What will businesses have to do to comply with the proposal?

Compliance costs

Products sold on the European Community market will have to respect the maximum volatile organic compound content limit values set down in this proposal. This will mean new equipment costs in some cases (e.g. paint manufacturers and retailers. Retailers will have to modify or change their mixing machines), research and development costs (e.g. in the resin industry), or the need to use alternative products (e.g. for vehicle refinishing). These costs will be spread over a number of years, as the timetable for compliance extends until 2010.

The paint market will remain unchanged in terms of total sales volume, but it is uncertain whether there will take place a redistribution between "do it yourself" and professionals. Retailers could increase or decrease their sales. For professional users the impact will probably be related to different applicability of the new products.

Administrative burdens

Monitoring and reporting are necessary for the successful implementation of this proposal. However, Member States will have some discretion in deciding how this is done at the outset. The Commission will monitor progress in this area and put forward proposals for a more harmonised approach at a later stage, if appropriate.

- What economic effects is the proposal likely to have?

Decorative paint sector

In general, the estimated cost of emission reduction is about €500/ktonne abated. In terms of consumption the paint market is expected to remain unchanged. There should be no major effects for the paint industry although there will be costs for research, reformulation, and investment in stainless steel equipment, and the costs of developing new resins. Paints will probably then be 1-1.5% more expensive for the final consumer. The industry has already coped with a major shift from solvent-borne to water-borne products and this proposal builds on that process.

Reduced solvent consumption will reduce the revenue of the solvent industry by about €65 million per year. However, this effect is relatively modest in relation to the economic strength of the companies involved, but fixed costs will have to be spread over a decreased production volume in the absence of the development of substitute products.

Paint retailers and professional painters may fear that higher prices might lead to a decrease in sales. However, this is unlikely to happen, as the decision to commence a painting job is not really influenced by the price of paint (material costs are only 15-25% of the total cost). Nevertheless, some retailers will need to adapt their equipment, and professional painters may have to adapt their working methods and schedules to new products.

No major impact on employment is expected, as overall market demand should remain unchanged. However, there will be internal redistribution; decreasing demand for solvent-borne products should be offset by increasing demand for water-borne products.

While the proposal should not have much effect on the whole production chain, it could have a real impact on the SME sector and in particular those reliant on the production of only solvent-borne products. The need to invest, re-train and adapt will be all the greater given the smaller scale of their operations. However, the timeframes proposed should allow them to adapt, since the extra costs should ultimately be passed on at the retail stage.

- Does the proposal contain measures to take account of the specific situation of small and medium-sized firms?

The transitional periods in the proposal allow for the differing capacities in the sectors concerned to respond to the new requirements in terms of technology and in terms of financing. Solvent-borne paints will still be permitted for a large number of applications, thus allowing for more gradual change than would be required if greater emphasis were placed on water-based technologies.

The content limit values set out in the proposal do not take into account the latest developments in technology. The reason for not applying the strictest formulations available on the market is to facilitate SMEs in making the changeover. In addition, the proposal provides for a review of one of the VOC content limit values for 2010, for which costs and benefits are not now sufficiently clear. The review shall take into account the specificity of SMEs.

Views of Member States and stakeholders

There was widespread consultation of industrial stakeholders during preparation of the proposal lasting almost two years. In general they support further action to reduce emissions of VOCs, but some doubt whether all of the values proposed for 2010 for the maximum solvent content of paints are currently achievable on a commercial scale (CEPE,²⁹ ERMA³⁰). Industry has also expressed its concerns about the cost-benefit analysis, that some factors have not been adequately taken into account, and some costs underestimated. Others (ESIG³¹) question whether this sector is the most cost-effective sector in which to legislate for VOC emission reductions. They wonder whether the proposal is premature and suggest that it might be preferable to await further progress with the CAFE programme.

The impact of the proposal on SMEs was a concern of some representative associations. UNIEP,³² UEAPME,³³ and Union Chimica–Confapi³⁴ mentioned the difficulties of complying with the proposed legislation because of limited resources,

²⁹ European Confederation of paint, printing, ink and artist's colours manufacturers association

³⁰ European Resin Manufacturers Association

³¹ European Solvent Industry Group

³² Union Internationale des Entrepreneurs de Peinture

³³ European Association of craft, small and medium-sized enterprises

³⁴ Unione nazionale piccola e media industria chimica, conciaria, materie plastiche, gomma, vetro, ceramica e prodotti affini

absence of R&D capacity and the increased impact of these issues due to their smaller scale.

The idea of moving towards a product-based approach in the vehicle-refinishing sector met with a positive response from industrial stakeholders.

Member States are generally supportive of the proposal, although Italy and Spain have expressed some reservations because of concerns regarding SMEs (in Italy) and the increased regulatory burden (in Spain).

Table 1: Estimates of VOC emissions (2010) by sector (SNAP divisions)
Source: Estimates based on independent studies for the Commission

VOC emissions EU-15 (%) Estimates 2010	
Solvent and other product use	26%
Road transport	22%
Production processes	14%
Extraction and distribution of fossil fuels/geothermal energy	12%
Other mobile sources and machinery	12%
Non-industrial combustion plants	8%
Waste treatment and disposal	3%
Combustion in energy and transformation industries	2%
Combustion in manufacturing industry	1%

Table 2: Estimated VOC emissions in 2010 by Member State

	Commission's NEC proposal	NEC Directive
Austria	129	159
Belgium	102	139
Denmark	85	85
Finland	110	130
France	932	1050
Germany	924	995
Greece	173	261
Ireland	55	55
Italy	962	1159
Luxembourg	6	9
Netherlands	156	185
Portugal	102	180
Spain	662	662
Sweden	219	241
UK	964	1200
EU-15	5581	6510

Table 3. Estimated abatement resulting from the proposal for 2010
Source: Commission Services' own estimation

Product Subcategory		Limit values g/l		Estimated abatement Ktons abated in 2010
		Phase I(2007)	Phase II(2010)	
a) Interior matt walls and ceilings (Gloss <25@60°)	WB	55	30	85,5
	SB	350	30	34,6
b) Interior glossy walls and ceilings (Gloss >25@60°)	WB	150	100	18,5
	SB	350	100	34,5
c) Exterior walls of mineral substrate	WB	60	40	27,8
	SB	450	430	4,3
d) Interior/exterior trim and cladding paints for wood and metal	WB	130	130	3
	SB	250	250	35
e) Interior/exterior trim varnishes and woodstains	WB	140	100	2,9
	SB	500	400	17,1
f) Interior and exterior minimal build woodstains	WB	150	130	0,6
	SB	700	700	0,6
g) Primers	WB	50	30	1,7
	SB	450	350	0
h) Binding primers	WB	50	30	1,2
	SB	750	750	0
i) One-pack performance coatings	WB	140	140	0,3
	SB	600	500	1,2
j) Two-pack reactive performance coatings for specific end use such as floors	WB	140	140	1,6
	SB	550	500	0
k) Multi-coloured coatings	WB	150	100	0,6
	SB	400	100	3,8
l) Decorative effect coatings	WB	300	200	1,3
	SB	500	200	3,8
Sub-total	WB			145
	SB			135
Total				280

Table 4: Costs and benefits of the proposed Directive in Member States in 2010
**Source: "The costs and benefits of the reduction of volatile organic compounds from
paints" prepared by Directorate-General Environment, Air and Noise Unit, 2 May 2002**

	Total benefits(€m)	Costs (€m)		Benefits/costs (€m)		Benefits/costs (€m)	
		Optimistic	Pessimistic	Optimistic	Pessimistic	Optimistic	Pessimistic
Austria	7,3	1,6	2,6	5,7	4,7	4,5	2,8
Belgium	21,6	2,2	3,6	19,3	18	9,6	6,1
Denmark	34,3	1,5	2,4	32,8	31,9	23,1	14,5
Finland	1,4	0,9	1,5	0,5	0	1,6	1
France	99,2	36,8	43,8	62,4	55,4	2,7	2,3
Germany	174	19,4	30,8	154,6	143,2	9	5,7
Greece	8,7	2,9	4,7	5,8	4,1	3	1,9
Ireland	5,1	1,2	2	3,9	3,2	4,2	2,6
Italy	79,5	8,9	14,1	70,7	65,5	9	5,7
Luxembourg	0,8	0,1	0,1	0,7	0,7	9,3	5,9
Netherlands	34,9	4,5	7,2	30,4	27,7	7,7	4,8
Portugal	14,2	3	4,7	11,3	9,5	4,8	3
Spain	39,7	14,1	22,4	25,7	17,4	2,8	1,8
Sweden	3,8	1,7	2,8	2,1	1	2,2	1,4
UK	57,1	9,4	14,9	47,7	42,2	6,1	3,8
Total	581,8	108,3	157,2	473,5	424,6	5,4	3,7

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

On the limitation of emissions of volatile organic compounds due to the use of organic solvents in decorative paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof,

Having regard to the proposal from the Commission,³⁵

Having regard to the opinion of the European Economic and Social Committee,³⁶

Acting in accordance with the procedure laid down in Article 251 of the Treaty,³⁷

Whereas:

- (1) The Community and its Member States are parties to the Gothenburg Protocol of 1 December 1999 to the United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Transboundary Air Pollution, which aims at abating acidification, eutrophication and ground-level ozone. The Gothenburg Protocol lays down emission ceilings for volatile organic compounds (hereinafter: "VOCs"), as well as limit values for emissions of VOCs from stationary sources.
- (2) VOCs are transported in the atmosphere over long distances and represent one of the main sources of transboundary air pollution. In particular, as regards ozone in ambient air, VOCs are an "ozone precursor substance" within the meaning of Directive 2002/3/EC of the European Parliament and the Council of 12 February 2002 relating to ozone ambient air³⁸, which calls on the Commission to consider whether further action should be taken at Community level to reduce emissions of ozone precursor substances.
- (3) Since the objectives of the proposed action, namely reducing the emissions of VOCs, cannot be sufficiently achieved by the Member States, since emissions of VOCs in one Member State affect air quality in other Member States, and can therefore by reasons of the scale and effects of the action, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as

³⁵ OJ C , , p. .

³⁶ OJ C , , p. .

³⁷ Opinion of the European Parliament of ... (OJ ...), Council Common Position of ... (OJ ...).

³⁸ OJ L 67, 9.3.2002, p. 14.

set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.

- (4) Directive 2001/81/EC of the European Parliament and the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants³⁹ sets national ceilings for emissions of certain pollutants, including VOCs, to be attained by 2010 as part of the Community's integrated strategy to combat acidification and ground-level ozone, but does not include limit values for emissions of those pollutants from specific sources.
- (5) Because of the characteristics of organic solvents, their use in certain products gives rise to emissions of organic compounds into the air, which contributes to the local and transboundary formation of photochemical oxidants in the boundary layer of the troposphere and, under certain exposure conditions, have harmful effects on human health.
- (6) Emissions of VOCs should therefore be avoided or reduced, especially since potentially less harmful substitutes are available or will soon be.
- (7) The use of organic solvents and the emissions of VOCs should be reduced as much as technically and economically feasible.
- (8) A high level of environmental protection requires the setting and achievement of content limit values for VOCs used in certain categories of products.
- (9) For the product subcategory (d) in Annex II point A "interior/exterior trim and cladding paints for wood and metal" the balance between technical feasibility and economic impact is not sufficiently clear yet. It is therefore, necessary to carry out a further study in order to determine the economic and technical feasibility of an improved maximum value in 2010 compared to the value set for 2007.
- (10) Content limit values need to be monitored in order to determine whether the mass concentrations of VOCs found in each category of products covered by this Directive are within the permitted limits.
- (11) Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations⁴⁰ should therefore be amended accordingly.
- (12) National laws and provisions in this field need to be harmonised in order to ensure that the free movement of the goods covered by this Directive is not restricted.
- (13) The Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. Those penalties must be effective, proportionate and dissuasive.
- (14) This Directive does not prejudice nor affect measures taken at Community or national level to protect the health of workers and their working environment.

³⁹ OJ L 309, 27.11.2001, p. 22.

⁴⁰ OJ L 85, 29.3.1999, p. 1.

- (15) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission⁴¹

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Purpose and scope

1. The purpose of this Directive is to prevent or reduce the direct and indirect effects of emissions into the environment of VOCs due to the use of organic solvents in decorative paints and varnishes and vehicle refinishing products, and the potential risks to human health, by limiting the maximum content of VOCs.
2. To the extent necessary for the achievement of the objective set out in paragraph 1, this Directive shall approximate the technical specifications for decorative paints and vehicle refinishing products.
3. This Directive shall apply to the products set out in Annex I.

Article 2

Definitions

For the purposes of this Directive, the following definitions shall apply:

1. *competent authority* means the authority or authorities or bodies responsible under the legal provisions of the Member States for carrying out the obligations arising from this Directive;
2. *VOC content limit value* means the mass of volatile organic compounds, expressed in terms of certain specific parameters, such as concentration expressed in g/l, which may not be exceeded in the formulation of the product;
3. *substances* mean any chemical element and its compounds, as they occur in the natural state or as produced by industry, whether in solid or liquid or gaseous form;
4. *organic compound* means any compound containing at least the element carbon and one or more of hydrogen, halogens, oxygen, sulphur, phosphorus, silicon or nitrogen, with the exception of carbon oxides and inorganic carbonates and bicarbonates;
5. *volatile organic compound (VOC)* means any organic compound having a boiling point less than or equal to 250°C measured at a standard pressure of 101.3 kPa;
6. *organic solvent* means any VOC which is used alone or in combination with other agents, and without undergoing a chemical change, to dissolve raw materials, products, or waste materials, or is used as a cleaning agent to dissolve contaminants, or as a dispersion

⁴¹ OJ L 184, 17.7.1999, p. 23.

medium, or as a viscosity adjuster, or as a surface tension adjuster, or as a plasticiser, or as a preservative;

7. *coating* means any preparation, including all the organic solvents or preparations containing organic solvents necessary for its proper application, which is used to provide a decorative, protective or other functional effect on a surface;
8. *water- borne coatings (WB)* means coatings, the viscosity of which is adjusted by the use of water;
9. *solvent- borne coatings (SB)* means coatings, the viscosity of which is adjusted by the use of organic solvent;

Article 3

Requirements

Member States shall ensure that only products set out in Annex I with a VOC content not exceeding the values set out in Annex II shall be placed on the market within their territory after the dates laid down in that Annex.

Article 4

Labelling

Member States shall ensure that the products set out in Annex I carry a label when they are placed on the market. The indications required on the label shall be determined in accordance with the procedure referred to in Article 12.

Article 5

Competent authority

1. Member States shall take all necessary measures to ensure that the requirements of Article 3 and 4, and Annex II, are complied with.
2. For the purposes of paragraph 1, Member States shall designate a competent authority responsible for fulfilling the obligations laid down in this Directive, and shall inform the Commission thereof not later than one year after the date referred to in Article 15.

Article 6

Monitoring

Member States shall set up a monitoring programme for the purpose of monitoring the VOC content of the products set out in Annex I.

Member States shall use national methods of determination of the VOC content if relevant CEN or ISO methods are not available.

Article 7

Report

Member States shall report every three years, by the 30th of June of the year following the three year period considered, and for the first time [30 June 200...], the results of the monitoring programme to demonstrate compliance with the Directive. Annual data shall be made available to the Commission upon request. The Commission shall develop a common format for the submission of monitoring data in accordance with the procedure referred to in Article 12.

Article 8

Free circulation

Member States shall not, prohibit, restrict or prevent the placing on the market of products which comply with the requirements of this Directive.

Article 9

Review

By 31 December 2006 at the latest, the Commission shall review the technical and economic feasibility of applying from 2010 a content limit value to the solvent- borne products in subcategory (d) of Annex II pointA, and shall make a proposal to the European Parliament and Council for the value to be applied from 2010.

Article 10

Penalties

Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take the necessary measures to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. Member States shall notify those provisions to the Commission by the date specified in Article 15 at the latest, and shall notify it without delay of any subsequent amendment affecting them.

Article 11

Adaptation to technical progress

Any amendments necessary in order to adapt the Directive to take account of technical progress in the measuring methods used to determine the VOC content of products shall be adopted by the Commission in accordance with the regulatory procedure referred to in Article 12 (2).

Article 12

Committee

1. The Commission shall be assisted by the committee established by Article 13 of Council Directive 1999/13/EC, hereinafter referred to as "the Committee".
2. Where reference is made to this paragraph Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee adopt its rules of procedure.

Article 13

Amendment to Directive 1999/13/EC

Directive 1999/13/EC shall be amended as follows:

1. In section "vehicle refinishing" of Annex I, the first indent is deleted.
2. In the first column of row 6 in Annex IIA, the words "and vehicle refinishing" are deleted.

Article 14

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by [...] at the latest, and immediately inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the provisions of national law which they adopt in the field covered by this Directive, together with a table showing how the provisions of this Directive correspond to the national provisions adopted.

Article 15

Entry into force of the Directive

This Directive shall enter into force on the twentieth day after that of its publication in the *Official Journal of the European Communities*.

Article 16

Addressees

This Directive is addressed to the Member States.

Done at Brussels,

For the European Parliament
The President

For the Council
The President

ANNEX I

SCOPE

I.1.-Decorative paints and varnishes means products listed in the subcategories below. They are coatings applied to buildings, their trim and fittings, and associated structures for decorative, functional and protective purpose. Products used in the coating of substrates at their original point of manufacture are excluded.

I.1.1.- Subcategories:

- ***a) Matt coatings for interior walls and ceilings*** means coatings designed for application to indoor walls and ceilings with a degree of gloss $<25@60^\circ$.
- ***b) Glossy coatings for interior walls and ceilings*** means coatings designed for application to indoor walls and ceilings with a degree of gloss $>25@60^\circ$.
- ***c) Exterior walls of mineral substrate*** means coatings designed for application to outdoor walls of masonry, brick or stucco.
- ***d) Interior/exterior trim and cladding paints for wood and metal*** means coatings designed for application to trim and cladding which produce an opaque film. These coatings are designed either for a wood or metal substrate. This subcategory includes *opaque woodstains*. Opaque woodstains means coatings producing an opaque film for the decoration and protection of wood, against weathering, as defined in EN 927-1 within the semi-stable category.
- ***e) Interior/exterior trim varnishes and woodstains*** means coatings designed for application to trim which produce a transparent or semi-transparent film for decoration and protection of wood, metal and plastics.
- ***f) Minimal build woodstains*** means woodstains which, in accordance with EN 927 - 1:1996, have a mean thickness less than $5\mu\text{m}$ when tested according to ISO 2808: 1997, method 5A.
- ***g) Primers*** means coatings with sealing and/or blocking properties designed for use on wood or walls and ceilings.
- ***h) Binding primers*** means coatings designed to stabilise loose substrate particles or impart hydrophobic properties and/or to protect wood against blue stain.
- ***i) One-pack performance coatings*** means performance coatings based on film-forming material. They are designed for applications requiring a special performance, such as primer and top coats for plastics, primer coat for ferrous substrates, primer coat for reactive metals such as zinc and aluminium, anticorrosion finishes, floor coatings, including for wood

and cement floors, graffiti resistance, flame retardant, and hygiene standards in the food or drink industry or health services.

- **j) Two-pack performance coatings** means coatings with the same use as one-performance coatings, but with a second component (e.g. tertiary amines) added prior to application.
- **k) Multicoloured coatings** means coatings designed to give a two-tone or multiple-colour effect, directly from the primary application.
- **l) Decorative effect coatings** means coatings designed to give special aesthetic effects over specially prepared pre-painted substrates or base coats and subsequently treated with various tools during the drying period.

I.2.- Vehicle refinishing products means products used to coat a road vehicle or part of it, whether as part of a repair job, or to coat the vehicle with refinish-type materials, where this is done away from the original manufacturing line.

I.2.1.- Subcategories:

- **a) Preparation and cleaning** means products designed for application, either mechanically or chemically, to remove old coatings and rust or to provide a key for new coatings.
 - **Gunwash** means a cleaning product designed for use with spray-guns and other equipment. It includes paint strippers, degreasers (including anti-static types for plastic) and silicon removers.
 - **Precleaner** means a cleaning product designed for the removal of surface contamination during preparation for and prior to the application of coating materials.
- **b) Filler and bodyfiller/stoppers** means heavy-bodied compounds designed to be sprayed or applied by knife in order to fill deep surface imperfections prior to application of the paint system.
- **c) Primer** means any coating that is designed for application to bare metal or existing finishes to provide corrosion protection prior to application of a primer surfacer.
 - **Surfacer** means any coating designed for application prior to the application of top coat for the purpose of corrosion resistance, to ensure adhesion of the topcoat, and to promote the formation of a uniform surface finish by filling in minor surface imperfections.
 - **General metal primers** means coatings designed for application as primers, such as adhesion promoters, sealers, surfacers, undercoats, plastic primers, wet-on-wet, non-sand fillers and spray fillers.
 - **Wash primer** means any coating containing at least 0.5% by weight of phosphoric acid designed to be applied directly to bare metal surfaces to provide corrosion resistance and adhesion. It includes

coatings used as weldable primers, or mordant solutions (galvanised and zinc).

- **d) Topcoat** means any pigmented coating that is designed to be applied either as a single-layer or as a multiple-layer base to provide gloss and durability. It includes all products involved such as base coatings and clear coatings.
 - **Base coatings** means pigmented coatings designed to provide colour and any desired optical effects, but not the gloss or surface resistance of the coating system.
 - **Clear coating** means a transparent coating designed to provide the final gloss and resistance properties of the coating system.
- **e) Special finishes** means coatings designed for application as topcoats requiring special properties, such as metallic or pearl effect, in a single layer, high-performance solid-colour and clear coats, (e.g. anti-scratch and fluorinated clear-coat), reflective base coat, texture finishes (e.g. hammer), anti-slip, under-body sealers, anti-chip coatings and interior finishes.

ANNEX II

A. MAXIMUM VOC CONTENT LIMIT VALUES FOR DECORATIVE PAINTS AND VARNISHES

	Product Subcategory	Type	Phase I (g/l*) (from 1.1.2007)	Phase II (g/l*) (from 1.1.2010)
<i>a</i>	<i>Interior matt walls and ceilings (Gloss <25@60°)</i>	WB	75	30
		SB	400	30
<i>b</i>	<i>Interior glossy walls and ceilings (Gloss >25@60°)</i>	WB	150	100
		SB	400	100
<i>c</i>	<i>Exterior walls of mineral substrate</i>	WB	75	40
		SB	450	430
<i>d</i>	<i>Interior/exterior trim and cladding paints for wood and metal</i>	WB	150	130
		SB	300	-
<i>e</i>	<i>Interior/exterior trim varnishes and woodstains, including opaque woodstains</i>	WB	150	100
		SB	500	400
<i>f</i>	<i>Interior and exterior minimal build woodstains</i>	WB	150	130
		SB	700	700
<i>g</i>	<i>Primers</i>	WB	50	30
		SB	450	350
<i>h</i>	<i>Binding primers</i>	WB	50	30
		SB	750	750
<i>i</i>	<i>One-pack performance coatings</i>	WB	140	140
		SB	600	500
<i>j</i>	<i>Two-pack reactive performance coatings for specific end use such as floors</i>	WB	140	140
		SB	550	500
<i>k</i>	<i>Multi-coloured coatings</i>	WB	150	100
		SB	400	100
<i>l</i>	<i>Decorative effect coatings</i>	WB	300	200
		SB	500	200

*g/l ready to use

B. MAXIMUM VOC CONTENT LIMIT VALUES FOR VEHICLE REFINISHING PRODUCTS

	Product Subcategory	Coatings	VOC g/l* (1.1.2007)
<i>a</i>	<i>Preparation and cleaning</i>	Gun wash	850
		Pre-cleaner	200
<i>b</i>	<i>Bodyfillers/stoppers</i>	All types	250
<i>c</i>	<i>Primers / Sealers / Surfacer / Fillers</i>	General (metal) primers	540
		Wash primers	780
<i>d</i>	<i>Topcoat</i>	All types	420
<i>e</i>	<i>Special finishes</i>	All types	840

*g/l of ready for use paint, discounting any water content of the coating