

**EXPLANATORY MEMORANDUM TO THE  
VOLATILE ORGANIC COMPOUNDS IN PAINTS, VARNISHES AND VEHICLE  
REFINISHING PRODUCTS REGULATIONS 2005**

**2005 No. 2773**

**1.** This explanatory memorandum has been prepared by the Department for Environment, Food and Rural Affairs and is laid before Parliament by Command of Her Majesty. This memorandum contains information for the Select Committee on the Merits of Statutory Instruments.

**2. Description**

2.1. This Statutory Instrument sets maximum levels, from 1 January 2007, for the solvents which can be contained in the paints, varnishes and vehicle refinishing products falling within its scope. For paints and varnishes, a second phase sets more stringent limits from 1 January 2010. It transposes Directive 2004/42/CE.

2.2. The Statutory Instrument also implements the repeal of part of the Pollution Prevention and Control (England and Wales) Regulations 2000 that transposed the Solvent Emissions Directive (1999/13/EC) for vehicle refinishing operators.

**3. Matters of special interest to the Joint Committee on Statutory Instruments**

3.1. None.

**4. Legislative Background**

4.1. This Statutory Instrument implements the requirements of Directive 2004/42/CE of the European Parliament and Council on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC (the "Paints" Directive). The Directive was adopted on 21 April 2004. The Directive must be transposed into UK law by 30 October 2005.

4.2. The Scrutiny History for the Directive is attached at Annex A.

4.3. The Statutory Instrument sets technical specifications for the maximum content limit values of solvents for decorative paints and varnishes, and for vehicle refinishing (vehicle repairs, respraying) products in line with the obligations under the Directive. From 1 January 2007 manufacturers will only be permitted to sell products that meet the solvent limits for the products in their ready to use state.

4.4. Vehicle refinishing plants with a solvent threshold consumption greater than 0.5 tonnes per year would be controlled from 2007 by solvent reduction plans under the Solvent Emissions Directive 1999/13/EC. The Solvent Emissions Directive was implemented through amendment to the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No. 1973) by the Solvent Emissions (England

and Wales) Regulations 2000 (SI2004 No. 107). Plants with a solvent consumption greater than 1 tonne are already covered by the Pollution Prevention and Control (England and Wales) Regulations 2000<sup>1</sup> (PPC).

4.5. The Paints Directive (Article 13(1)), repeals the provisions of the Solvent Emissions Directive relating to this part of the vehicle refinishing sector<sup>2</sup>. Article 13(2) provides for a Member State to maintain (or introduce) national measures for the control of emissions from vehicle-refinishing activities to replace those deleted from the scope of the Solvent Emissions Directive. The Government intends to deregulate the vehicle refinishing sector from the provisions of the Solvent Emissions Directive. The Statutory Instrument implements the repeal of the Solvent Emissions Directive for vehicle refinishers.

4.6. Under Article 3(3) of the Paints Directive, Member States may continue to allow the sale of non-compliant coatings explicitly for the maintenance and restoration of historic buildings and vehicles. The UK has deferred giving effect to this derogation and has not implemented a licensing scheme(s) in these Regulations.

4.7. A transposition note is attached at Annex B.

## **5. Extent**

5.1. This instrument applies to all of the United Kingdom, except for the amendment to the Pollution Prevention and Control (England and Wales) Regulations 2000 contained in regulation 9, which applies to England and Wales only. The Scottish Executive have already amended the corresponding legislation in Scotland (the Pollution Prevention and Control (Scotland) Regulations 2000, SSI 2000 No. 323), through the Pollution Prevention and Control (Scotland) Amendment (No. 2) Regulations 2005 (SSI 2005 No. 340). In Northern Ireland, the Department for Environment, Northern Ireland will amend their corresponding legislation (the Pollution Prevention and Control Regulations (Northern Ireland) 2003 SR 2003 46).

## **6. European Convention on Human Rights**

6.1. As the instrument is subject to negative resolution procedure and does not amend primary legislation, no statement is required.

## **7. Policy background**

7.1. The Paints Directive will reduce emissions of volatile organic compounds (VOCs) across the UK and Europe. VOCs are precursors to the formation of ground level ozone (summer smog) and reductions resulting from implementation of this Directive will lead to improvements in air quality and public health.

7.2. In sunny, still conditions and in the presence of nitrogen oxides, volatile organic compound emissions react to form ground level ozone. Ozone is one of the components of summer smog and can have adverse effects upon human health, vegetation and building materials. The Air Quality Strategy for England, Scotland,

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<sup>1</sup> And the equivalent legislation in the Devolved Administrations for Scotland & Northern Ireland.

<sup>2</sup> The part of the Solvent Emissions Directive to be repealed is: Solvent Emissions Directive Annex 1; Vehicle refinishing; “*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*”.

Wales and Northern Ireland

(<http://www.defra.gov.uk/environment/airquality/strategy/index.htm>) sets a health-based air quality objective for ozone of 100 microgrammes per cubic metre (50 parts per billion) as the maximum of a running 8-hour mean, not to be exceeded by more than 10 times a year by the end of 2005.

7.3. In 2001 the United Kingdom is estimated to have emitted 1,514 kilotonnes of volatile organic compounds into the atmosphere from a wide range of sources. Emissions of volatile organic compounds from decorative paints and varnishes and, vehicle refinishing products make up around 4.2 per cent of the total.

7.4. A number of initiatives to control emissions of volatile organic compounds from these sources are already in the process of being implemented including the Solvent Emissions Directive (1999/13/EC). The United Kingdom is committed to reduce total annual emissions of volatile organic compounds to 1200 kilotonnes by 2010 under both the Gothenburg Protocol and the National Emission Ceilings Directive (2001/81/EC).

7.5. Applying the Paints Directive to the vehicle refinishing products used in part of the vehicle refinishing sector, as well as applying limit values for emissions from these facilities under the Solvent Emissions Directive, could be seen as duplicate regulation. The Government looked at the implications of removal of the vehicle refinishing sector from the Solvent Emissions Directive. The conclusion was that the Paints Directive will provide an equivalent level of volatile organic compound emission control to that currently achieved by the Solvent Emissions Directive; so there would be no environmental or health benefits in retaining the Solvent Emissions Directive for these processes .

7.6. It is estimated that the Paints Directive would lead to reductions in UK VOC emissions of 30.1 kilotonnes (30,100 tonnes) and across the European Union (all EU-15), reductions in VOC emissions of 278.7 kilotonnes (278,700 tonnes).

### ***Implementation***

7.7. The Government's approach to transposition of the Paints Directive is to fully implement its legal obligations under the Directive, but with only the minimum required to meet those obligations. Technical specifications for the maximum content limit values of solvents will be set for decorative paints and varnishes, and for vehicle refinishing products in line with the obligations under the Directive.

### ***Consultation***

7.8. The Government consulted on implementation of the Directive from 1 April to 27 June 2005. There was a relatively low level of public interest to the consultation. The proposals were of more interest to the industry sectors affected: paint manufacturers; and vehicle refinishing bodyshops, along with local authorities. This was reflected in the responses received.

7.9. The Government consulted over 300 stakeholders: industry bodies; product manufacturers; product retailers; environmental organisations; organisations with an interest in the preservation of historic buildings, or vehicles, and; local authorities. A full list of the consultees is available from the following weblink:

<http://www.defra.gov.uk/corporate/consult/vocs-transpose/consultlist.htm>

7.10. The consultation attracted 22 responses. The costs of the Paints Directive were felt to be reflected accurately in the consultation, although the British Coatings Federation felt that there was also around an additional £10 million of costs resulting from relabelling products, amending technical data sheets and product information.

7.11. There is general support for the Government's preferred approach to implementation of the Directive.

#### *Vehicle refinishing sector*

7.12. For the vehicle refinishing sector, there was strong support from industry and local authorities for deregulation of vehicle refinishing from the requirements of the Solvent Emissions Directive. Also for a simplified template approach to permitting with reduced regulatory fees, under the Pollution Prevention and Control Regulations. Industry expressed no clear preference for an implementation date for the proposed changes: 01 April 2006, or 01 January 2007. In view of this the Government have decided to implement the changes from 1 January 2007. This will give industry further time to adapt to the necessary technical changes.

7.13. A number of local authorities expressed concern that the proposed reduced regulatory fees would not reimburse them for the work involved in regulating this sector. In view of this, the Government will implement the reduced fees, but review the fee level after either 12 or 18 months, to ensure that local authority regulators are reimbursed to cover all the costs involved in regulation.

#### *Derogation for historic buildings and vehicles*

7.14. In response to the question - "*should the UK utilise the derogation allowing continued use of limited amounts of "old style" paints for the authentic restoration and maintenance of historic buildings and vehicle* - there was almost unanimous support (except one response) for applying of the derogation in the UK.

7.15. In light of these responses, the Government has decided to try to take advantage of the derogation provision within the Paints Directive. However, the Regulations implementing the Paints Directive do not give effect to this provision. Rather, once the details of how the licensing scheme(s) will work have been formulated and if suitable arrangements can be made to administer the schemes, the Government will consult on proposals and separate Regulations which implement the derogation.

7.16. A more detailed summary of the consultation responses can be found via the following weblink:

<http://www.defra.gov.uk/corporate/consult/vocs-transpose/responses-summary.pdf>

7.17. The Government's final implementation plan for transposition of the Directive after consideration of the consultation responses, can be found via the following weblink:

<http://www.defra.gov.uk/environment/airquality/paints-directive/pdf/pd-final-implementation.pdf>

7.18. The policy is not considered to be politically or legally important. UK industry already meet many of the requirements for 2007 through voluntary action in reducing the solvent contents of their products. A legislative approach will ensure equality across the whole European sector.

## **8. Impact**

8.1. A Regulatory Impact Assessment is attached at Annex C to this memorandum.

8.2. There is no impact on the public sector.

## **9. Contact**

9.1. Dr M B M Harryman at the Department for Environment, Food and Rural Affairs. Tel: 020 7082 8419 or <mailto:michael.harryman@defra.gsi.gov.uk> can answer any queries regarding the instrument.

## Annex A – Scrutiny History for Directive 2004/42/CE

### 1. House of Lords Scrutiny

1.1. In his letter of 21 October 2003, Lord Grenfell advised Lord Whitty, then Minister for Food, Farming and Sustainable Energy, that the House of Lords, Sub-Committee B had lifted the scrutiny reserve for the proposed Directive 2004/42/CE – the “Paints Directive”.

### 2. House of Commons Scrutiny

2.1. The European Scrutiny Committee in their Thirty-Fourth Report of 22 October 2003 concerning Second Supplementary Explanatory Memorandum 5268/03 of 14 October and Minister’s letter of 20 October 2003, recommended that the issues relating to the proposed Directive be explored further in European Standing Committee A, on 13 November 2003.

2.2. The Government subsequently won the motion put forward in the European Standing Committee A debate and, scrutiny was lifted.

PARLIAMENTARY SCRUTINY HISTORY RELEVANT TO A 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

### COUNCIL DIRECTIVES 2001/81/EC

Legislation	Council Directives 2001/80/EC & 2001/81/EC
Adopted	23 October 2001
Official Journal	L 309 of 27 November 2001(Page 22)
Explanatory Memoranda	10232/99 of 30 September 1999 SEM 10232/99 of 6 April 2000; Parts 1 & 2 2 <sup>nd</sup> SEM 10232/99 of 25 January 2001

### EXPLANATORY MEMORANDUM 10232/99

### SCRUTINY COMMITTEES’ RECOMMENDATIONS

Commons		Lords	
Politically important – not cleared; further information needed	Date: 9 February 2000 Report ref: ( 20359) HC 23-viii (Session 1999 – 2000) Paragraph 5	Referred to Sub-Committee (List B)	Date: 12 October 1999  Sub-Committee C
		Cleared without	Date: 19 January

report (List C)	2000
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SUPPLEMENTARY EXPLANATORY MEMORANDUM 10232/99 – PARTS 1 & 2

SCRUTINY COMMITTEES' RECOMMENDATIONS

Commons		Lords	
Politically important – cleared	Date: 12 April 2000 Report ref: (20359) HC 23-xiv (Session 1999 – 2000) Paragraph 5	<u>PART 1:</u>  Cleared (List A)	Date: 18 April 2000
<u>COMMENTS:</u>  The Committee asked to be kept informed if any further refinement of the costs should lead to a different conclusion about the relative merits of the two measures.		<u>PART 2:</u>  Referred to Sub-Committee (List B)	Date: 18 April 2000  Sub-Committee D
		Cleared without report (List C)	Date: 14 June 2000

2<sup>nd</sup> SUPPLEMENTARY EXPLANATORY MEMORANDUM 10232/99

SCRUTINY COMMITTEES' RECOMMENDATIONS

Commons		Lords	
Politically important – cleared	Date: 14 February 2001 Report ref: ( 20359) HC 28-vi (Session 2000 – 01 Paragraph 10	Cleared (List A)	Date: 29 January 2001

**COUNCIL DIRECTIVE 1999/13/EC**

Legislation	Council Directive 1999/13/EC
Adopted	11 March 1999
Official Journal	L 85 of 29 June 1999 (Page 1)
Explanatory Memoranda	6158/97 of 3 June 1997 SEM 6158/97 of 27 February 1998

### EXPLANATORY MEMORANDUM 6158/97

#### SCRUTINY COMMITTEES' RECOMMENDATIONS

Commons		Lords	
Politically important - Not cleared; further information requested	Date: 30 July 1997 Report No: 3rd Report ref: (17941) (Session 1997 – 1998)	Cleared (List A)	Date: 11 June 1997

### SUPPLEMENTARY EXPLANATORY MEMORANDUM 6158/97

#### SCRUTINY COMMITTEES' RECOMMENDATIONS

Commons		Lords	
Politically important - Cleared	Date: 11 March 1998 Report No: 21st Report ref: (17941) (Session 1997 – 1998)	Cleared (List A)	Date: 9 March 1997

### EXPLANATORY MEMORANDUM 5268/03 OF 31 JANUARY 2003

#### SCRUTINY COMMITTEES' RECOMMENDATIONS

Commons		Lords	
Consideration deferred until RIA has been submitted		Referred to Sub- Committee B	Date: 4 February 2003
		Sub Committee B withheld Reserve pending submission of RIA and sought additional information on Directive	Date: 10 February 2003



## Annex B – Transposition note for Directive 2004/42/CE

1. The Volatile Organic Compounds in Paints, Varnishes and Vehicle Refinishing Products Regulations 2005 transposes in UK law, European Directive 2004/42/CE on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC (the Solvent Emissions Directive).
2. The “Paints” Directive aims to reduce emissions of solvent (volatile organic compounds - VOCs) across the UK and Europe. VOCs are precursors to the formation of ground level ozone (summer smog) and reductions resulting from implementation of this Directive will lead to improvements in air quality and public health.
3. This implementing regulations (Statutory Instrument) applies to all of the United Kingdom, except for the amendment to the Pollution Prevention and Control (England and Wales) Regulations 2000 contained in regulation 9, which applies to England and Wales only. This regulation implements the repeal of the Solvent Emissions Directive (1999/13/EC for the vehicle refinishing<sup>3</sup> sector, which is contained under Article 13 of the Directive. In Scotland, the Scottish Executive has amended the corresponding legislation the Pollution Prevention and Control (Scotland) Regulations 2000 (SSI 2000 No. 323) by the Pollution Prevention and Control (Scotland) Amendment (No. 2) Regulations 2005 (SSI 2005 No. 340). The Department for Environment, Northern Ireland will amend the corresponding legislation in Northern Ireland (the Pollution Prevention and Control Regulations (Northern Ireland) 2003 SR 2003 46).
4. These Regulations do what is necessary to implement the Directive, including making consequential changes to domestic legislation to ensure its coherence in the area to which they apply.
5. The transposition table (table 1 below – column heading “Objectives”) gives an explanation for each article of the Directive. The column “Implementation – UK Regulations”, explains which part of the Regulations implements the particular Article contained in the Directive.

**Table 1 –Transposition table for Directive 2004/42/CE**

Articles	Objectives	Implementation (UK Regulations)	Responsibility
<b>Article 1 – Purpose and scope</b>			
1(1)	Explains that the Directive is intended to reduce levels of pollution (ground-level ozone or summer smog) by limiting the amount of solvents contained in the products listed in Annex I of the Directive.	Not required	Secretary of State

<sup>3</sup> The part of the Solvent Emissions Directive to be repealed is: Solvent Emissions Directive Annex 1; Vehicle refinishing; “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”.

	Solvents (volatile organic compounds) can react with sunlight to form ozone.		
1(2)	To achieve 1(1), the Directive sets the standards for the products covered within the Directive (Annex I).	regulation 3(1) & Schedule 1	Secretary of State
1(3)	The products covered by the Directive are listed in Annex I.	regulation 3(1) & Schedule 1	Secretary of State
1(4)	The requirements of this Directive do not affect any other requirements relating to labelling of products that are required by other laws, for example, health and safety, any other environmental requirements.	regulation 5(2)	Secretary of State
<b>Article 2 - Definitions</b>	Gives the exact meaning within the Directive, for certain terms used within the Directive.	regulations 2(1) & 2(2) Schedule 1 of the Regulations contains definitions used in Annexes I & II of the Directive.  Other definitions contained under Article 2 of the Directive are not reproduced within the Regulations, but have the same meaning as in the Directive.	Secretary of State
<b>Article 3 - Requirements</b>			
3(1)	A European Union member state has to ensure that the amount of solvents contained in the products listed in Annex I, when sold within their country, do not exceed the solvent limits specified for the product stated in Annex II. These solvent limits come into force from the dates specified in Annex II – 1 January 2007 & 1 January 2010.  The methods for calculating how much solvent is in a product are listed in Annex III.  Where a product is made up from two separate parts that have to be mixed shortly before they are used, the solvent limits specified in Annex II are the maximum amount of solvents that can be contained in the finished product – when it is ready to be used.	regulations 4(1) & Schedule 2  regulation 4(2) & Schedule 3  regulation 4(3)	Secretary of State
3(2)	The Directive will not apply to a business which only buys and uses any products in a site which is controlled by the UK legislation which implemented the Solvent Emissions Directive.	regulations 3(3)(a) & 3(3)(b)	Secretary of State

3(3)	<p>Allows a member state to licence businesses to continue using products which do not meet the standards of this Directive.</p> <p>The products can only be used to maintain or restore historic buildings and vehicles (vintage vehicles).</p>	<p>The UK expects to take advantage of the derogation provision within the Directive which allows the limited use, under license, of “old style” paints for the authentic restoration and maintenance of historic vehicles and buildings. These Regulations implementing the Directive will not give effect to this provision. Rather, once the details of how the licensing scheme(s) will work have been formulated and if suitable arrangements can be made to administer the schemes, Defra will consult on proposals and separate Regulations which implement the derogation.</p>	N/a
3(4)	<p>Allows products which are manufactured before the dates specified within the Directive and, which do not meet the standards of the Directive, to be sold for 12 months after the dates the new standards take effect.</p>	regulation 10	Secretary of State
<b>Article 4 - Labelling</b>	<p>Requires a label to be put on the product containers affected by the Directive.</p> <p>The label must say what category of product it is (Annex I), how much solvent is in the product and, how much solvent is allowed to be in the product (Annex II) - according to the Directive.</p>	regulations 5(1)(a) & 5(1)(b)	Secretary of State
<b>Article 5 – Competent authority</b>	<p>A member state has to tell the European Commission, who is responsible for making sure the requirements of the Directive are put into effect.</p>	regulation 6(1)	Secretary of State in consultation with the responsible Ministers within the devolved administrations for Scotland, Wales and Northern Ireland
<b>Article 6 - Monitoring</b>	<p>A member state must undertake some way of ensuring that paints sold comply with the requirements of the Directive.</p>	regulation 7(1)	Secretary of State
<b>Article 7 - Reporting</b>	<p>Each member state must tell the European Commission what the outcomes of the monitoring are, for example, how many manufacturers have sold products which do not meet the requirements of the Directive. A member state must also tell the European Commission what products and, how much of each product, are</p>	Not required	Secretary of State

	<p>sold for the maintenance or restoration of historic buildings and vehicles.</p> <p>The first two reports are due 30 June 2008 and 30 June 2011. After this the reports are due every 5 years.</p> <p>Information may be asked for by the European Commission every year and if requested, must be given.</p>		
<b>Article 8 – Free circulation</b>	<p>Any member state cannot stop the products covered by this Directive, being sold in their country if they meet the requirements of this Directive.</p>	Not required	Secretary of State
<b>Article 9 - Review</b>	<p>This Article invites the Commission to report to the European Parliament and Council, information about whether it is technologically possible to reduce the solvents in vehicle refinishing products further. Additionally, whether it is possible to include paint and varnish products which are used in aerosol sprays and, other products which are not yet covered under this Directive.</p> <p>The report needs to be completed by no later than 2008.</p> <p>By no later than 30 June 2012, a further report should say whether it is technologically possible to further reduce the solvents in the products covered by this Directive.</p>	Not required	N/a
<b>Article 10 - Penalties</b>	<p>A member state must state the penalties for not doing what the Directive requires. A member state must enforce the requirements of the Directive.</p> <p>Any penalties should encourage meeting the requirements of the Directive and should not be too small, or large.</p> <p>A member state must tell the European Commission by 30 October 2005, what these penalties are and if they change them in the future.</p>	regulation 7(2) – (6) & regulation 8	<p>The Secretary of State is responsible for enforcement. However, the Regulations [regulation 7(5)] allows the Secretary of State to give enforcement powers to the other authorities, for example: the Scottish Environmental Protection Agency (in Scotland); the Environment Agency (in England and Wales).</p> <p>In exercising delegation of these powers, the Secretary of State will consult with Ministers in the devolved</p>

			administrations for Scotland (Scottish Executive), Wales (Welsh Assembly Government) and Northern Ireland (the Department of Environment, Northern Ireland), to enable them to decide who should enforce the regulations within their respective countries. For Northern Ireland, also refer to regulation 7(6) and Schedule 4.
<b>Article 11 – Adaptation to technical progress</b>	Allows the solvent limits contained within the Directive to be changed if technology improves. They can only be changed by following the procedures laid down under Article 12(2).	Not required	Secretary of State
<b>Article 12 - Committee</b>	<p>The European Commission will be helped by the same committee which was formed for the purpose of advising for the Solvent Emissions Directive. The Committee is made up of representatives from all the European Union member states.</p> <p>The Committee can advise on whether the solvent limits within the Directive can be changed due to improvements in technology (see Article 11 above).</p>	Not required	Secretary of State
<b>Article 13 – Amendment of Directive 1999/13/EC</b>	Removes the affected category of vehicle refinishing (repair, respraying bodyshops) from the Solvent Emissions Directive (1999/13/EC), but a Member State can maintain or introduce measures which are equivalent to those under the Solvent Emissions Directive, if they wish.	<p>regulation 9</p> <p>The Government does not intend to maintain, or introduce, national measures equivalent to the Solvent Emissions Directive.</p> <p>To implement in Scotland, the corresponding legislation in Scotland (the Pollution Prevention and Control (Scotland) Regulations 2000, SSI 2000 No. 323) has been amended by the Pollution Prevention and Control (Scotland) Amendment (No. 2) Regulations 2005 (SSI 2005 No. 340).</p> <p>In Northern Ireland, the Department for Environment, Northern Ireland will amend their corresponding legislation</p>	Secretary of State

		(the Pollution Prevention and Control Regulations (Northern Ireland) 2003 SR 2003 46). Also see paragraph 3, at the beginning of this transposition note.	
<b>Article 14 - Transposition</b>			
14(1)	Explains that a European Union Member State must make law(s) to give the Directive effect by 30 October 2005.  Within the published law there should be a reference to this Directive.	regulation 1(1)  regulation 2(1)	Secretary of State
14(2)	A Member State must then inform the European Commission of these law(s) and send a copy of the law(s) and, a transposition note (this note/table).	Not required	Secretary of State
<b>Annex I - Scope</b>			
Annex I, 1	Gives the meaning of “paints” and “varnishes” for the purpose of this Directive.	Schedule 1, 1(1)	Secretary of State
Annex I, 1.1	Lists the types of products covered by the meaning of “paints” and “varnishes” - for the purpose of this Directive. It also lists the sub-category which the products fall under. This depends on the meaning given within the sub-category	Schedule 1, 1(2)	Secretary of State
Annex I, 2	Gives the meaning of “vehicle refinishing products” for the purpose of this Directive.	Schedule 1, 2(1)	Secretary of State
Annex I, 2.1	Lists the types of products covered by the meaning of “vehicle refinishing products” - for the purpose of this Directive. It also lists the sub-category which the products fall under. This depends on the meaning given within the sub-category.	Schedule 1, 2(2)	Secretary of State
<b>Annex II</b>			
Annex II – Table A – Maximum VOC content limit values for paints and varnishes	Lists the type of product sub-category (as in Annex I) and the amount of solvent which is allowed to be contained in the product. There are two categories for each type of sub-category and the amount of solvent allowed within the product will depend on whether the product is water-based (WB), or solvent-based (SB).  Also gives the dates from which the	Schedule 2, Table A	Secretary of State

	solvent limits specified, have to be complied with. There are two phases for these products, Phase I from 01 January 2007 and Phase II, with stricter limits, from 01 January 2010.		
Annex II – Table B - Maximum VOC content limit values for vehicle refinishing products	<p>Lists the type of product sub-category (as in Annex I) and the amount of solvent which is allowed to be contained in the product.</p> <p>Also gives the dates from which the solvent limits specified have to be complied with. There is only one phase for these products, Phase I from 01 January 2007 and Phase II, with stricter limits, from 01 January 2010.</p>	Schedule 2, Table B	Secretary of State
Annex III – Methods referred to in Article 3.1	Lists the standard methods for calculating how much solvent is contained in a product. These are the methods to be used with each member state of the European Union.	Schedule 3	Secretary of State

[www.defra.gov.uk](http://www.defra.gov.uk)

**Final Regulatory Impact Assessment for implementation of:**

**Directive 2004/42/CE**

**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 certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC**

Air and Environment Quality Division  
Department for Environment, Food and Rural Affairs

October 2005



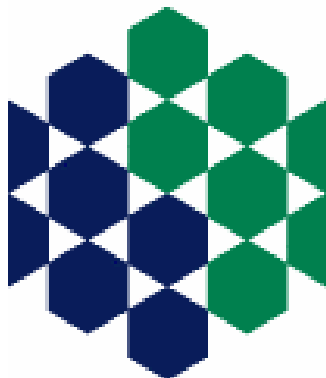


**SCOTTISH EXECUTIVE**

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Llywodraeth Cynulliad Cymru  
Welsh Assembly Government



Department of the  
**Environment**

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# 1. Purpose and intended effect of measure

## 1.1. *Objective*

1.1.1. To reduce emissions of volatile organic compounds (VOCs) into the atmosphere from paint and varnishes and, vehicle refinishing products, in order to reduce the adverse impact on, and risks to, human health and the environment.

## 1.2. *The basic obligations of this paint directive include:*

1.2.1. **For decorative paints and varnishes:** Emissions of volatile organic compounds from these products are not controlled under existing legislation. The paints Directive will apply to the products defined under Annex IA of the Directive and require:

- a. Maximum content limits for solvents (VOCs) from 01 January 2007 (Phase I);
- b. More stringent limits for the maximum content limits of solvents from 01 January 2010 (Phase II)

1.2.2. **For vehicle refinishing:** Vehicle refinishing (VR) plants using more than one ton of solvent per year have been regulated for some years under the Pollution Prevention and Control (England and Wales) Regulations (PPC) 2000<sup>4</sup> and its predecessor regime, while those between 0.5 and 1 tonne have more recently come under PPC regulation as part of implementing the Solvent Emissions Directive (SED)(1999/13/EC) which also applies to those over 1 tonne. The paints Directive takes a product-based approach, applying:

- a. Maximum content limits of solvents to vehicle refinishing products defined in Annex IB of the Directive, from 01 January 2007.

1.2.3. Applying legislation to the vehicle refinishing products used in part of the vehicle refinishing sector, as well as applying limit values for emissions from these facilities under the Solvent Emissions Directive (1999/13/EC), may be seen as duplication. It is therefore also intended to repeal the provisions of the Solvent Emissions Directive (1999/13/EC) relating to this part of the vehicle refinishing sector<sup>5</sup>.

## 1.3. *Devolution*

1.3.1. The Directive - will be transposed using powers under the European Communities Act 1972, with one set of regulations covering England, Scotland, Wales and Northern Ireland.

1.3.2. Vehicle refinishing – the repealed element of the Solvent Emissions Directive implemented through the Pollution Prevention and Control Regulations 2000, will require separate amendments for England and Wales and the devolved administrations of Scotland and Northern Ireland, to take account of the now separate regulations covering those jurisdictions.

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<sup>4</sup> And the equivalent regulations made by the devolved administrations: in Scotland the Pollution Prevention and Control (Scotland) Regulations 2000.

<sup>5</sup> The part of the Solvent Emissions Directive to be repealed is: Solvent Emissions Directive Annex 1; Vehicle refinishing; “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”.

## 2. Background

2.1. In sunny, still conditions and in the presence of nitrogen oxides, volatile organic compound emissions react to form ground level ozone. Ozone is one of the components of summer smog and can have adverse effects upon human health, vegetation and building materials. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland sets a health-based air quality objective for ozone of 100 microgrammes per cubic metre (50 parts per billion) as the maximum of a running 8-hour mean, not to be exceeded by more than 10 times a year by the end of 2005. It is a stringent objective that is unlikely to be met under existing measures alone. In addition the Third Air Quality Daughter Directive (2002/03/EC) sets target values and long term objectives for ozone, with regard to both the protection of human health and the protection of ecosystems. The target value for human health is less stringent than current United Kingdom air quality objectives at 120 microgrammes per cubic metre as the maximum of a running 8 - hour mean, not to be exceeded more than 25 days a year to be achieved by 2010.

2.2. In 2001 the United Kingdom is estimated to have emitted 1,514 kilotonnes of volatile organic compounds into the atmosphere from a wide range of sources. The single largest of these sources, accounting for 19<sup>6</sup> per cent (300 kilotonnes) of the total is road transport. Emissions of volatile organic compounds from decorative paints and varnishes and, vehicle refinishing products (subsets of Solvent use, which includes emissions from a number of different sources combined into this single category) make up around 4.2 per cent of the total. The emissions of volatile organic compound for all industry sectors are summarised in Table 2.

**Table 2 UK VOC emissions<sup>7</sup> (kilotonnes) by UNECE category – 1970 -2001**

UN/ECE Category	1970	1980	1990	1995	2000	2001	2001%
Combustion in Energy Prod	10	11	10	10	10	11	1%
Combustion_in_Comm/Res.	296	131	67	40	36	42	3%
Combustion_in_Industry	19	14	9	9	9	8	1%
Production_Processes	291	308	340	321	206	184	12%
Extr./Distrib._of_Fossil_Fuels	64	208	298	306	284	284	18%
Solvent_Use	595	582	674	543	443	425	29%
Road_Transport	593	718	879	641	346	300	19%
Other_Trans/Machinery <sup>3</sup>	78	72	66	63	61	60	4%
Waste	12	58	45	39	22	22	1%
Land_Use_Change	37	58	35	0	0	0	0%
Nature	178	178	178	178	178	178	12%
<b>TOTAL</b>	<b>2172</b>	<b>2338</b>	<b>2603</b>	<b>2149</b>	<b>1596</b>	<b>1514</b>	<b>100%</b>

2.3. A number of initiatives to control emissions of volatile organic compounds from these sources are already in the process of being implemented including the Solvent Emissions Directive (1999/13/EC). The United Kingdom has also agreed to reduce total annual emissions of volatile organic compounds to 1200 kilotonnes by 2010 under both the Gothenburg Protocol and the proposed National Emission Ceilings Directive; this type of agreement allows the United Kingdom the flexibility to make emission reductions where most cost effective.

2.4. The 1999 Solvent Emissions Directive (1999/13/EC) aims to limit emissions of volatile organic compounds from solvent use in certain activities and installations by

<sup>6</sup> National Atmospheric Emissions Inventory (NAEI)–UK Emissions of Air Pollutants 1970-2001, Oct.2003

<sup>7</sup> National Atmospheric Emissions Inventory (NAEI)–UK Emissions of Air Pollutants 1970-2001, Oct.2003

setting emission limit values for installations in a number of solvent using sectors. However, given the size and number of installations there are practical limitations to the scope of the Solvent Emissions Directive. In order to avoid an unrealistically excessive administrative burden and diminishing environmental benefits, different consumption thresholds depending on the activity, were established, below which the Solvent Emissions Directive would not apply. This meant that some industrial sectors with significant contributions to emissions of volatile organic compounds are either wholly or partially outside the scope of existing legislation. The new Directive focuses on two such sectors, decorative paints and varnishes and, vehicle refinishing<sup>8</sup>.

2.5. The Commission have estimated<sup>9</sup> that the overall annual reduction in emissions of volatile organic compounds, for all Member States, resulting from the proposal will be 280 kilotonnes in 2010, costing between €108 million (£75 million) and €157 million (£109 million) per annum in 2010. They have also estimated that the health related benefits of the proposal would amount to €582 million (£403 million) per year. The average cost of reducing the volatile organic compounds content of paints is estimated at between €387 (£268) and €563 (£390) per tonne of volatile organic compounds reduced.

### 3. Risk Assessment

3.1. Emissions of volatile organic compounds have adverse effects on human health and the environment mainly through their role in the formation of ground level ozone.

#### 3.2. *Health effects of ozone.*

3.2.1. Ozone is the most irritating of the common air pollutants and exposure to concentrations commonly encountered in the United Kingdom has been shown to produce impaired lung functioning and other respiratory problems. Asthmatics are not clearly more responsive to ozone than the general population. However, the same degree of response can matter more in asthmatics whose baseline lung function is already low and whose baseline rate of symptoms is already high. Hospital admissions data suggests that the elderly with respiratory disease are more susceptible. The Department of Health Committee on the Medical Effects of Air Pollutants (COMEAP) has estimated that: in the summer of 1995, the deaths of between 700 and 12,500 vulnerable people may have been brought forward; and between 500 and 9,900 hospital admissions in Great Britain may have been associated with exposure to ozone<sup>10</sup>. There is a range of estimates because there is some uncertainty over whether or not there is a threshold for adverse effects on health from ozone. The calculations of the Department of Health Committee on the Medical Effects of Air Pollutants (COMEAP) were performed assuming either that there was a threshold (giving the smaller numbers for adverse effects) or that there was no threshold, giving the larger numbers.

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<sup>8</sup> The part of the Solvent Emissions Directive repealed is: Solvent Emissions Directive Annex 1; Vehicle refinishing; 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.

<sup>9</sup> A report for the European Commission: The costs and benefits the reduction of volatile organic compounds from paints – prepared by Directorate-General Environment, Air and Noise Unit, 02 May 2002. This study is available from the European Commission on request.

<sup>10</sup> Quantification of the Effects of Air Pollution on Health in the United Kingdom, the Department of Health Committee on the Medical Effects of Air Pollutants (COMEAP), Department of Health, Her Majesty's Stationery Office, 1998.

3.2.2. Although the main purpose of the proposed regulations is to reduce volatile organic compounds as ozone precursors, some volatile organic compounds may have direct effects on health.

### 3.3. ***Environmental effects of ozone***

3.3.1. In addition to its effects on human health, ozone is known to have detrimental effects on plants. These can be visible leaf injury, growth and yield reductions, altered sensitivity to other stresses such as frost tolerance and damage from pests. There may also be changes in ecosystem functioning in natural vegetation communities. The critical level for forests (defined in terms of cumulative exposure over a six month period) is exceeded in 23 per cent of the United Kingdom land area while the critical level for crops (defined in terms of cumulative exposure over a three-month period) is exceeded in 91 per cent of the United Kingdom arable crop area and in 76 per cent of the United Kingdom semi natural vegetation area. Ozone also has a damaging effect on man-made materials including natural and synthetic rubber, surface coatings (such as paints and varnishes) and textiles. In combination with other pollutants it has been shown to worsen damage to metals and stone. Many of these effects cannot be monetised - such as the impact on non-agricultural plants. However, estimates have been made of the damage from ozone to agricultural crops – this was estimated at £530m in 1996<sup>11</sup>. The damage to materials from ozone is estimated at £90 million.

## 4. Implementation options

### 4.1. ***Option 1: Do nothing***

4.1.1. Vehicle refinishing plants with a solvent consumption greater than 1 tonne are currently regulated under the Pollution Prevention and Control (England and Wales) Regulations 2000<sup>12</sup> (PPC). This requires vehicle refinishing plants to control emissions of volatile organic compounds by such measures as; using spray booths; storage and waste techniques and; using paints with maximum solvent contents. From 2007, processes exceeding 0.5 tonnes solvent consumption will also be covered under the Solvent Emissions Directive (1999/13/EC). The controls techniques are essentially the same as those already mentioned as requirements under the Pollution Prevention and Control (England and Wales) Regulations 2000.

4.1.2. This option has been included to provide a measure of the position had the Directive not been adopted and no other action contemplated. It would leave the decorative paint industry and the remainder of the vehicle refinishing industry outside the scope of existing legislation.

4.1.3. This option would:

- Leave uncertainty surrounding the abatement of this source of volatile organic compounds.
- Not meet the UK's obligations under the Directive.
- Leave the UK open to legal action by the European Commission.

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<sup>11</sup> An Economic Analysis of the National Air Quality Strategy, Interim report of the Interdepartmental Group on Costs and Benefits, Her Majesty's Stationery Office, 1999.

<sup>12</sup> And the equivalent regulations made by the devolved administrations: in Scotland, the Pollution Prevention and Control (Scotland) Regulations 2000.

#### **4.2. Option 2: Implement CEPE Phase I and II voluntary agreement - proposed limit values for 2007 and 2010**

4.2.1. This option has been included to illustrate what might have happened if European legislation had not been adopted as even without legislation, there has already been a considerable shift away from solvent-based paint products to water-based products. This has been due to consumer demand for lower solvent products often due to the strong and lingering smell of high solvent based products, as well as the environmental benefits. The European Paint Manufacturers Association (CEPE) has asked it's national members to comply voluntarily with a product-based "Decorative Paints Directive". 90% (by sales) of the UK based decorative paint manufacturing sector has adopted a voluntary scheme to limit VOC content of their products. The 26 members of the British Coatings Federation (BCF) adopted this voluntary agreement in 1998. There are 5 or 6 small companies who are not members of the BCF but who would be required to adopt VOC limit values under the Directive.

4.2.2. CEPE has proposed limit values for the first phase of their voluntary agreement which correspond to the 2007 limit values under the Directive. This first phase has almost been met in the UK. As well as proposing 2007 limit values, CEPE have proposed phase II limit values, not yet adopted, but to be adopted "in line with European implementation". For the second phase of the voluntary agreement, the proposed limit values broadly correspond to those for the 2010 limit values under the Directive, with some exceptions, see Table 3. CEPE phase II proposals are less stringent than the Directive.

4.2.3. However, it is unlikely that a significant number of producers would further limit the volatile organic compounds they produce voluntarily for fear that their implementation would bring UK manufacturers ahead of Europe and put UK manufacturers at a competitive disadvantage and a legislative approach will ensure equality across the whole European sector.

4.2.4. Hence, unless EU wide manufacturers adopt similar limits for 2010, it is unlikely that Phase II of the voluntary agreement will be adopted in the UK. It should be noted that most of Phase I of the Voluntary Agreement has already been complied with and can be treated as business as usual. Nevertheless, in order to directly compare the benefits and costs of the Directive (which includes 2007 and 2010 limit values), we have included the whole voluntary initiative (Phase I and Phase II) as Option 2.

4.2.5. This option would not fully transpose the UK's obligations under the Directive and would be a breach of European law.

4.2.6. This option would:

- Result in less abatement of this source of VOCs than the Directive
- Is not viable since it would not fully transpose the legal requirements of the Directive, and;
- Would leave the UK open to legal action from the European Commission

**Table 3 Comparison of differences; CEPE Phase II voluntary proposal against Directive – Phase II, 2010 solvent content limit values.**

Directive: Annex			
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II, Table A			
Product category	Solvent based (SB) Water Based (WB)	CEPE voluntary agreement	Directive
c	SB	450	430
g	WB	50	30
h	WB	30	20
i	SB	600	500

#### 4.3. **Option 3: Implement the limit values for products as contained in the Directive**

4.3.1. Under this option the UK will fully implement it's legal obligations under the Directive but with only the minimum required to meet those obligations.

4.3.2. Under the Directive, emissions of volatile organic compounds will be reduced through imposing technical specifications. Maximum content limit values of volatile organic compounds will be set for decorative paints and varnishes, and for vehicle refinishing products (see Annex A & B). A two-phase approach is proposed for reducing the content of volatile organic compounds of decorative paint products falling within the scope of the Directive. This will give the sectors affected adequate time to adapt without compromising the long-term environmental benefits. Phase I will apply from 1 January 2007, phase II will apply from 1 January 2010. In the case of vehicle refinishing products there is only one phase with maximum solvent contents set from 01 January 2007.

4.3.3. To avoid unnecessary burdens on industry and allow flexibility where possible, for implementation of the Directive, requirements relating to labelling have been left for industry to decide how best to implement.

#### 4.4. **Option 4: Option 3 plus deregulation of VR bodyshops from the Solvent Emissions Directive (SED) 1999/13/EC & reduced fees under PPC.**

4.4.1. Option 4 will achieve the same VOC emission reductions as option 3.

4.4.2. The current regulatory framework for the vehicle refinishing sector was outlined in paragraph 1.2.2. Option 4 will implement the limit values for products as contained in the Directive (option 3) and;

- (i) Remove the vehicle refinishing sector from the provisions of the Solvent Emissions Directive (replaced by low solvent compliant products under the new paints Directive).
- (ii) Apply a template (standardised) approach to permitting and reduced regulatory fees, to the vehicle refinishing sector currently regulated under the Pollution Prevention and Control (PPC) Regulations<sup>13</sup> 2000.

<sup>13</sup> For the devolved administrations of Scotland and Northern Ireland, any amendments will be to the appropriate PPC Regulations under their jurisdiction.

## 5. Benefits

### 5.1. Assumptions

5.1.1. Emission reductions in the decorative paint sector have been estimated using a market volume of 405,102,000<sup>14</sup> litres sales per annum (2000). Emissions reductions are calculated on the basis that the total emissions reduced by the Directive are the same as those assessed by the EC in the original proposed Directive. The Commission estimated<sup>15</sup> that up to 30.1 kilotonnes of VOC would be reduced in the UK and 278.7 kilotonnes in total across the EU due to action to reduce VOC limit values to the levels proposed. The Directive has changed since this assessment but it is still indicative of the upper limit of effects both on the UK and the EU.

### 5.2. Benefits assessed

5.2.1. The prime human health and environmental benefits from this reduction in emissions of volatile organic compounds are expected to arise due to reductions in ground level concentrations of ozone, for which volatile organic compounds are a key precursor.

5.2.2. Table 4 lists the benefits that were considered in the analysis. Quantified benefits were assessed for the point at which the proposal would be fully implemented in 2010.

**Table 4 Issues included in the benefit analysis<sup>16</sup>**

Issue – List of Benefits	Quantified analysis	Effect otherwise
Acute health effects to population due to ozone exposure [COMEAP – deaths brought forward and respiratory hospital admissions (additional or brought forward)]	✓	
Effects to materials due to ozone exposure	✓	
Effects to crop production due to ozone exposure	✓	
Physical injury to crops from ozone exposure (affecting value)	X	Likely to be low benefits relative to effects on crop yield
Change in exposure to odour “likely to cause annoyance”	X	Benefits likely to be small
Effects to forest and natural ecosystems due to ozone exposure	X	Quantification not currently possible, but potentially important
Chronic health effects to	X	Quantification not currently possible.

<sup>14</sup> British Coatings Federation (BCF), January 2004

<sup>15</sup> The Costs and Benefits from the Reduction of VOCs from Paints, DG Environment Air and Noise Unit May 2002 and; The Decopaint Report (a Study on the Potential for Reducing Emissions of VOC due to the use of Decorative Paints and Varnishes for Professional and Non-professional use), Chemiewinkel, June 2000.

<sup>16</sup> Reference: A report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004

population due to ozone exposure		Evidence is not currently strong, though potentially important.
Direct effects of VOCs	X	

5.2.3. For the acute health effects, the valuation of deaths brought forward have been valued using the recommendations from EAHEAP<sup>17</sup> (after inflation), i.e. £3,100 to £110,000 and £1,400,000). Recent evidence from new studies in the UK indicates that the value is more likely to be between the low and medium value. The analysis has assessed health impacts without a threshold (i.e. a level below which no impacts to health are assumed to occur). The use of no threshold for health impacts is consistent with previous COMEAP analysis and with studies recently undertaken by the EC. The valuation of respiratory hospital admissions<sup>18</sup> uses the value of £2,625 per case. Benefits arising from the reduction in the number of cases of; deaths brought forward and; respiratory hospital admissions, relate to the general population.

5.2.4. The quantification and valuation of materials is consistent with the Interdepartmental Group on Costs and Benefits (IGCB)<sup>19</sup> quantification analysis. The quantification and valuation of crops is based on a recent update of the methodology (i.e. an update to the IGCB analysis) undertaken for Defra.

5.2.5. Odour impacts from vehicle refinishing bodyshops were also investigated with a view to quantifying benefits. However, the uncertainties involved are high and a scoping analysis suggests that the benefits are probably very small. Therefore odour effects are not considered in more detail.

5.2.6. Finally, it is stressed that the benefits do not include a number of potential effects for which quantification and valuation is not possible. Some of the VOCs themselves have direct health effects without having to form anything else. For example, based on studies of workers exposed to high concentrations in industry, benzene can cause leukaemia and other specific volatile organic compounds can damage the nervous system. The risks are probably low, but unquantifiable without detailed information which would be complicated and time consuming to obtain. The analysis also excludes the potential longer-term (chronic) effects of ozone on health on both morbidity (causes of diseases) and mortality (death rate). The evidence for these longer-term effects is not strong currently, though they could be potentially important. Other effects not quantified include the potential effects of ozone on forests and other natural ecosystems and the effects of ozone damaging the physical appearance of crops, which is important for fruit and vegetables. Because of these potential additional categories, the numbers here should therefore be seen as a sub-total of overall benefits.

5.2.7. Where possible, the benefits at both a UK and European level have been considered. This is important given the trans-boundary nature of ozone formation. The following have been identified (see Figure 1):

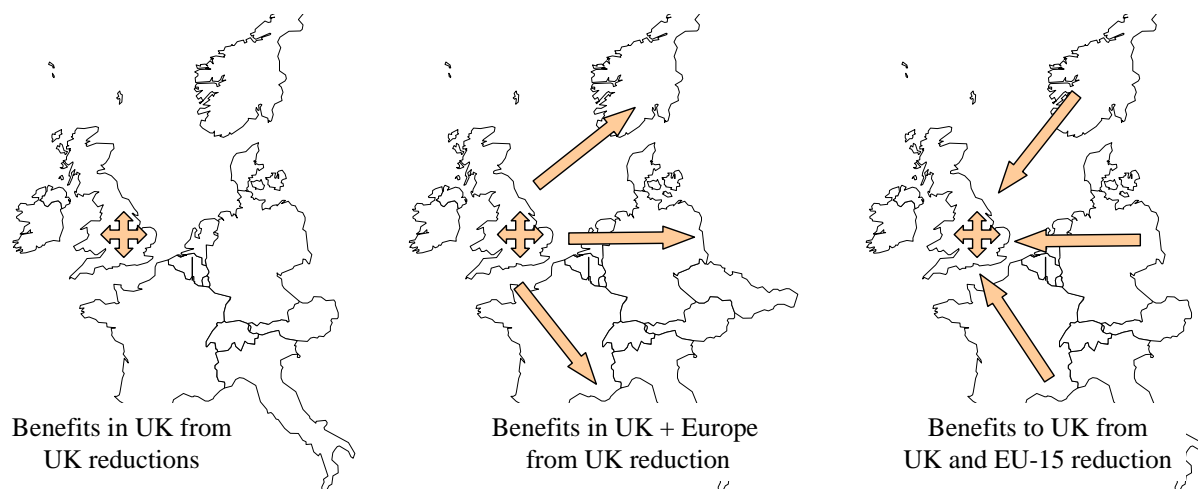
- (i) Domestic (UK) benefits (the reduction in ozone) from UK VOC emission reductions only;

<sup>17</sup> Department of Health (1999). Economic Appraisal of the Health Effects of Air Pollution.

<sup>18</sup> Calculated using the OSRM model.

<sup>19</sup> DETR – Interim Report of the Interdepartmental Group on Costs and Benefits (IGCB), (1998). ‘An Economic Analysis of the National Air Quality Strategy Objectives’.

- (ii) Total benefits (the reduction in ozone) in both the UK and also in other member states from UK VOC emission reductions, i.e. irrespective of where the benefits occur; and
- (iii) Total domestic (UK) benefits (the reduction in ozone) from VOC emission reductions in both the UK + other member states.



**Figure 1 Analysis of UK and European benefits in the Regulatory Impact Assessment.**

### 5.3. **Option 1: do nothing**

5.3.1. This is the baseline option: the only benefits arise from the avoidance of costs incurred in the other options. It also, of course, foregoes the benefits identified for them.

### 5.4. **Option 2: Implement CEPE voluntary agreement - proposed limit values for 2007 and 2010**

5.4.1. This option has been included to illustrate what might have happened if European legislation had not been adopted.

5.4.2. This option quantifies the benefits of implementing Phase I and Phase II of the industry's (CEPE) voluntary agreement. UK VOC reductions are summarised in Table 5. As information regarding the European paint manufacturers is unavailable, it is not possible to quantify:

- Benefits in the UK - from reductions in VOC emissions from all other Member States.
- Benefits in all EU Member States - from reductions in VOC emissions from all other Member States.

5.4.3. Therefore option 2 represents the lower limit of benefits for the UK and includes:

- Benefits in the UK in 2010 - from UK VOC reductions, and;
- Benefits across all the EU in 2010 - from UK VOC reductions.

5.4.4. The physical benefits of option 2 are summarised in Table 6. Where it is possible to monetise the benefits, these are summarised in Table 7.

**Table 5 Option 2: Emission reductions in the UK due to CEPE voluntary agreement - based on EC analysis of the effect of the Directive**

	UK - VOC reduced in 2010 (kilotonnes)
UK	28.1 – 28.9

**Table 6 Option 2: Physical benefits<sup>20</sup> (Physical Impacts)**

	Benefits in UK in 2010 from UK VOC reductions <sup>21</sup>	Benefits across all EU in 2010, from UK VOC reductions
<b>Main Benefits</b>		
Ozone and health: deaths brought forward (cases)	17	28
Ozone and health: Respiratory hospital admissions (additional or brought forward) (cases)	18	20
Ozone and crops (tonnes)	4,802	34,400
Other ozone effects (forests, eco-systems, long-term health)	Not quantified	Not quantified

**Table 7 Option 2: Annual monetised benefits<sup>22</sup> (thousand pounds)**

	Benefits in UK in 2010 (£000s) from UK VOC reductions	Benefits across all EU in 2010 (£000s) from UK VOC reductions
<b>Main Benefits</b>		
Ozone and health: deaths brought forward	53 (L)	85 (L)
	1,874 (M)	3,025 (M)
	23,863 (H)	38,500 (H)
Ozone and health: Respiratory hospital admissions (additional or brought forward)	48	52
Ozone and crops	507	3,171
Ozone and materials	87	Not quantified
<b>TOTAL (L - M - H)</b>	<b>695 – 2,516 – 24,505</b>	<b>3,308 – 6,248 – 41,723</b>
Other ozone effects (forests, eco-systems, long-term health)	Not quantified	Not quantified

**Note:** For benefits a low, medium and high value is presented, reflecting valuation of deaths brought forward.

<sup>20</sup> Reference: A report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004

<sup>21</sup> The method of calculation of the benefits differs between the UK column and the EU column. The baseline rate for respiratory hospital admissions is higher in the UK than in the EU. This is why the number of respiratory hospital admissions is higher than the number of deaths brought forward in the UK, whereas the number of respiratory hospital admissions is lower than the number of deaths brought forward in the EU. Further details can be found in the Clean Air for Europe methodology report available from the following link:  
[http://forum.europa.eu.int/irc/Download/kxepAiJ\\_muG9qoIHJEG6Bd7ISb0Uh85GYv5-ildcO2D5-ONF-9ggmf-Hg9yF32rlpXAHF5P5BFHjUt60mUgRgZ3UiiYw/CAFE\\_CBA\\_Methodology\\_Final\\_Volume\\_1.pdf](http://forum.europa.eu.int/irc/Download/kxepAiJ_muG9qoIHJEG6Bd7ISb0Uh85GYv5-ildcO2D5-ONF-9ggmf-Hg9yF32rlpXAHF5P5BFHjUt60mUgRgZ3UiiYw/CAFE_CBA_Methodology_Final_Volume_1.pdf)  
 or from Appenix A, Section 3 of the report described below (footnote 19).

<sup>22</sup> Reference: Report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004, available by inserting the report reference ED48600 in the search facility at the following link:  
<http://www.airquality.co.uk/archive/reports/search.php>

## 5.5. Option 3: Implement the limit values for products as contained in the Directive

5.5.1. This option fully implements the UK's obligations under Phase I and Phase II of the Directive. Table 8 summarises the VOC reductions as a result of implementing this option (the Directive). Table 9 summarises the physical benefits of option 3, whilst Table 10 monetises these benefits where possible.

**Table 8 Option 3a: Emission reductions - based on EC analysis of the effect of the Directive**

	VOC reduced in 2010 (kilotonnes)
UK	30.1
Rest of EU	248.6
EU-15 (Total)	278.7

**Table 9 Option 3: Physical benefits<sup>23</sup> (Physical Impacts)**

	Benefits in UK in 2010 <sup>24</sup>			Benefits across all EU in 2010	
	From UK VOC reductions	From UK and EU VOC reductions <sup>25</sup>		From UK VOC reductions	From UK and EU VOC reductions <sup>26</sup>
<b>Main Benefits</b>					
Ozone and health: deaths brought forward (cases)	(18)	63		(32)	337
Ozone and health: Respiratory hospital admissions (additional or brought forward) (cases)	(20)	67		(23)	240
Ozone and crops (tonnes)	(5,147)	14,968		(39,700)	337,200
Other ozone effects (forests, ecosystems, long-term health)	Not quantified	Not quantified		Not quantified	Not quantified

<sup>23</sup> Reference: A report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004

<sup>24</sup> The method of calculation of the benefits differs between the UK column and the EU column. The baseline rate for respiratory hospital admissions is higher in the UK than in the EU. This is why the number of respiratory hospital admissions is higher than the number of deaths brought forward in the UK, whereas the number of respiratory hospital admissions is lower than the number of deaths brought forward in the EU.

<sup>25</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

<sup>26</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

**Table 10 Option 3: Annual monetised benefits<sup>27</sup> (thousand pounds)**

	Benefits in UK in 2010 (£000s)		Benefits across all EU in 2010 (£000s)	
	From UK VOC reductions	From UK and EU VOC reductions <sup>28</sup>	From UK VOC reductions	From UK and EU VOC reductions <sup>29</sup>
<b>Main Benefits</b>				
Ozone and health: deaths brought forward	(57) (L) (2,016) (M) 25,665 (H)	194 (L) 6,884 (M) 87,620 (H)	(99.6) (L) (3,534) (M) (44,982) (H)	1,044 (L) 37,075 (M) 471,890 (H)
Ozone and health: Respiratory hospital admissions (additional or brought forward)	(52)	177	(60.7)	637
Ozone and crops	(544)	1,574	(3,655)	32,652
Ozone and materials	(94)	321	Not quantified	Not quantified
Other ozone effects (forests, eco-systems, long-term health)	Not quantified	Not quantified	Not quantified	Not quantified
<b>TOTAL</b>	<b>L</b> <b>M</b> <b>H</b>	<b>2,266</b> <b>8,956</b> <b>89,692</b>	<b>(3,815)</b> <b>(7,250)</b> <b>(48,698)</b>	<b>34,333</b> <b>70,364</b> <b>505,159</b>
Other ozone effects (forests, eco-systems, long-term health)	Not quantified	Not quantified	Not quantified	Not quantified

**Note:** For benefits a low, medium and high value is presented, reflecting valuation of deaths brought forward.

### 5.6. ***Option 4: Option 3 plus deregulation of VR bodyshops from the Solvent Emissions Directive (SED) 1999/13/EC & reduced fees under PPC.***

5.6.1. There are approximately 2,550 vehicle refinishing bodyshops currently regulated under the SED. This option will deregulate these operators from the SED and eliminate the need to pay regulatory fees of £837 annually.

5.6.2. Applying a simplified template approach to PPC processes will reduce the regulatory fees<sup>30</sup> for those VR operators falling within PPC. Changes to regulatory fees are currently being consulted on separately by Defra, with proposed increases of 5%. The proposed new fees are quoted in brackets for clarity, but this assessment assumes present charging rates. The savings to the VR sector from reduced fees under PPC are shown in Table 11.

- Application fee currently £1,342, reduced to £126 (£132)
- Annual subsistence fee currently £837, reduced to £128 (£134)

<sup>27</sup> Reference: A report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004

<sup>28</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

<sup>29</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

<sup>30</sup> Regulatory charges quoted here are different to those which are applicable for Scotland.

- Application for substantial change, currently £856, reduced to £84 (£88)

5.6.3. The benefits for option 4 shown in Table 11, are in addition to those already shown under option 3. Option 4 will achieve the same VOC emission reduction as option 3. This assessment only takes into account the annual subsistence charge and therefore the additional benefits for 4 can be considered as a conservative estimate.

**Table 11 Benefits to the VR sector of deregulation from SED & reduced regulatory fees under a simplified template approach to permitting, under PPC**

	Number of operators	Annual saving per operator	Total annual saving (£000)
<b>SED</b>	2,550	£837	1,880
<b>PPC</b>	700	£709	496
<b>Total</b>			<b>2,376</b>

### 5.7. **Benefits - Difference between the Directive (option 3) and industry voluntary agreement (option 2)**

5.7.1. By implementing the Directive, there will be an additional reduction in the UK, of between 1.2 and 2.0 kilotonnes of VOC emissions, over and above the industry voluntary agreement (Table 12).

5.7.2. Table 14 summarises the additional monetised benefits from the Directive (option 3) over and above the industry voluntary agreement (option 2). Table 13 summarises the additional physical benefits. The benefits represent the upper limit of benefits and it should be borne in mind that for the industry voluntary agreement it was not possible to quantify the following benefits:

- Benefits in the UK - from reductions in VOC emissions from all other Member States.
- Benefits in all EU Member States - from reductions in VOC emissions from all other Member States.

**Table 12 Additional VOC emission reductions from option 3, over and above option 2 - based on EC analysis of the effect of the Directive**

	VOC reduced in 2010 (kilotonnes)
UK	1.2 - 2.0

**Table 13 – Additional benefits of option 3, over and above option 2 - Physical benefits**

	Benefits in UK in 2010		Benefits across all EU in 2010	
	From UK VOC reductions	From UK and EU VOC reductions <sup>31</sup>	From UK VOC reductions	From UK and EU VOC reductions <sup>32</sup>
<b>Main Benefits</b>				
Ozone and health: deaths brought forward (cases)	(1)	46	(5)	310

<sup>31</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

<sup>32</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)



Ozone and health: Respiratory hospital admissions (additional or brought forward) (cases)	(1)	49	(4)	221
Ozone and crops (tonnes)	(345)	10,200	(5,300)	302.800
Other ozone effects (forests, ecosystems, long-term health)	Not quantified	Not quantified	Not quantified	Not quantified

**Table 14 – Additional benefits of option 3, over and above option 2 – Annual monetised benefits (thousand pounds)**

	Benefits in UK in 2010 (£000s)		Benefits across all EU in 2010 (£000s)	
	From UK VOC reductions	From UK and EU VOC reductions <sup>33</sup>	From UK VOC reductions	From UK and EU VOC reductions <sup>34</sup>
<b>Main Benefits</b>				
Ozone and health: deaths brought forward	(4) (L)	141 (L)	(14.3) (L)	960 (L)
	(142) (M)	5,009 (M)	(509) (M)	34,050 (M)
	(1,802) (H)	63,757 (H)	(6,482) (H)	433,370 (H)
Ozone and health: Respiratory hospital admissions (additional or brought forward)	(3.7)	129	(8.8)	585
Ozone and crops	(37)	1,067	(484)	29,481
Ozone and materials	(7)	234	Not quantified	Not quantified
Other ozone effects (forests, eco-systems, long-term health)	Not quantified	Not quantified	Not quantified	Not quantified
<b>TOTAL</b>				
L	<b>(52)</b>	<b>1,571</b>	<b>(507)</b>	<b>31,026</b>
M	<b>(190)</b>	<b>6,439</b>	<b>(1,002)</b>	<b>64,116</b>
H	<b>(1,850)</b>	<b>65,187</b>	<b>(6,975)</b>	<b>463,436</b>
Other ozone effects (forests, eco-systems, long-term health)	Not quantified	Not quantified	Not quantified	Not quantified

**Note:** For benefits a low, medium and high value is presented, reflecting valuation of deaths brought forward.

## 6. Business sectors affected

6.1. The proposal will potentially impact on paints manufacturers and their raw material suppliers, including the resin industry, the solvent industry, and binder and pigment manufacturers. It is also likely to affect do-it-yourself and other shops that sell paint, and other end users including professional and amateur painters.

<sup>33</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

<sup>34</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)

6.2. There are estimated to be 32 paint manufacturing companies in the United Kingdom, 2 United Kingdom -based solvent manufacturers and 15-20 United Kingdom companies manufacturing alkyd resins used in solvent-based decorative paints. Of the paint manufacturers, at least half of the companies employ less than 100 people and are thought to produce solvent borne paints. Further information on the resins and solvents industries is not available to enable identification of the number of companies with less than 100 employees.

6.3. The proposal also affects vehicle-refinishing plants and product suppliers. Plants with a solvent threshold consumption greater than 0.5 tonnes per year are already covered by the Solvents Directive (1999/13/EC). In the United Kingdom there are estimated to be between 2500 and 3000 small bodyshops consuming less than 0.5 tonnes of solvent per year and who currently do not fall within any regulation for solvent use.<sup>35</sup> It is believed that there will be a decline in numbers of small bodyshops by about 33 per cent by 2007. Therefore the costs and reductions have been based on a revised estimate of 1840 bodyshops in 2007. This includes around 170 vintage car restorers. The Directive will also benefit manufacturers of low solvent products; and would be to the detriment of the predominantly smaller companies who only produce coatings with high contents of volatile organic compounds.

## 7. Costs

### 7.1. *Cost basis*

7.1.1. As far as possible, the analysis examined raw material, research and development, production and equipment capital and operating cost data. The analysis disaggregated costs experienced in the paint manufacturing, solvent supply, resin manufacturing and vehicle refinishing industries.

7.1.2. Costs were assessed for the point at which the proposal would be fully implemented in 2010. As the analysis was based on an initial UK cost analysis<sup>36</sup> using data from BCF, it has used a consistent approach to that analysis. This includes an economic cycle of 15 years and a discount rate of 6%<sup>37</sup>. Cost data obtained as Euros were converted by an exchange rate of £ 0.63.

7.1.3. The annualised costs<sup>38</sup> are based on raw data given by industry for the original proposal. The key difference between the original proposal and the adopted Directive, is that a content limit for solvent based category d paint has now been set for 2010 and a lower level for 2007 (Directive Annex I, 1.1, d & Annex IIA, category d) This was a major industry concern and would have meant significant capital costs being bought forward. Since it is not known whether the cost-effectiveness of VOC reduction is equal across the relevant paint categories the estimates use the averages<sup>39</sup> over the complete range of emissions reductions.

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<sup>35</sup> Taken from 2003 Entec report, "Revision of the Cost Curve for Volatile Organic Compounds"

<sup>36</sup> Entec 2003 and personal communications from Defra

<sup>37</sup> Note since the original studies, the green book and the impact assessment guidance has revised the recommended discount rate to be used in regulatory impact assessment to a discount rate of 3.5%.

<sup>38</sup> Based on a re-assessment of costs in the report by Entec 2003 and personal communications from Defra

<sup>39</sup> Derived cost-effectiveness - £3,476 per tonne of VOC abated

7.1.4. Costs relate to those which will be incurred by industry to implement the Directive. The costs to Government to fulfil the monitoring and reporting obligations have yet to be established, although these will be minimal administration costs.

## 7.2. **Option 1: do nothing**

7.2.1. No further costs would be incurred by industry for this option. There would be costs incurred by the UK in the form of fines imposed by the European Court of Justice (ECJ) for not implementing the Directive.

## 7.3. **Option 2: Implement CEPE voluntary agreement - proposed limit values for 2007 and 2010**

7.3.1. The costs for this option represent the costs that industry (CEPE members) have already committed to, to meet the solvent content limit values in their voluntary agreement. The first stage of the CEPE voluntary agreement is identical to phase I of the Directive. The costs for phase I, options 2 and 3a are therefore identical. Table 15 summarises the total costs of option 2.

**Table 15 Option 2: Annualised UK cost estimates<sup>40</sup> (thousand pounds, £000s) – split for the two implementation phases of the CEPE voluntary agreement.**

	CEPE phase I (2007)	CEPE phase II (2010)	Total cost of CEPE voluntary agreement (UK)
<b>Paint manufacturing<sup>41</sup></b>			
<i>R&amp;D</i>	250	4,850	5,100
<i>Raw materials</i>	1,390	27,720	29,110
<i>Production</i>	130	2,520	2,650
<i>Capital</i>		7,640	7,640
<i>Instore tinting equipment<sup>42</sup></i>		1,220	1,220
<b>subtotal</b>	1,760	43,950	45,710
<b>Solvent Industry<sup>43</sup></b>			
<i>Annual loss of profitability (manufacturing)</i>	<1,000	1,000	1,000
<i>Annual loss of profitability (resellers)</i>	<1,000	<1,000	0
<b>subtotal</b>	<1,000	1,000	1,000
<b>Resin Industry<sup>44</sup></b>			
<i>R&amp;D</i>	>1,000	2,000	2,000
<i>Annualised investment costs</i>	2,000	42,000	44,000
<i>Additional revenue</i>	-1,000	-16,000	-17,000
<b>subtotal</b>	1,000	28,000	29,000
<b>Vehicle refinishing</b>	1,100	0	1,100

<sup>40</sup> Reference: A report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004

<sup>41</sup> British Coatings Federation (BCF) data 2002-3.

<sup>42</sup> Solvent Industry Association and BCF data 2002.

<sup>43</sup> Data from the European Resin Manufacturing Association (ERMA) 2002, Chemiewinkel 2000 & BCF 2002-3.

<sup>44</sup> Taken from 2000 Entec report, "Reducing Volatile Organic Compound emissions in the Vehicle Refinishing Sector" and updated to 2002 costs.

<b>Total</b>	<b>3,860</b>	<b>72,950</b>	<b>76,810</b>
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#### 7.4. **Option 3: Implement the limit values for products as contained in the Directive**

7.4.1. The costs for this option are the total costs of the Directive *including* the voluntary action proposed by the industry. Table 16 summarises these costs. The cost differences between option 3 and option 2 are due to the more stringent requirements of phase II of the Directive, for four categories of paints (see Table 3). This option fully implements the UK's obligations under the Directive.

**Table 16 Option 3: Annualised UK cost estimates<sup>45</sup> (thousand pounds, £000s) – split for the two implementation phases of the Directive**

	<b>Phase I (2007)</b>	<b>Phase II (2010)</b>	<b>Upper limit of UK costs</b>
<b>Paint manufacturing<sup>46</sup></b>			
<i>R&amp;D</i>	250	5,210	5,460
<i>Raw materials</i>	1,390	29,380	30,760
<i>Production</i>	130	2,520	2,650
<i>Capital</i>		7,640	7,640
<i>Instore tinting equipment<sup>47</sup></i>		1,220	1,220
<b>subtotal</b>	<b>1,760</b>	<b>45,970</b>	<b>47,730</b>
<b>Solvent Industry<sup>48</sup></b>			
<i>Annual loss of profitability (manufacturing)</i>	<1,000	1,000	1,000
<i>Annual loss of profitability (resellers)</i>	<1,000	<1,000	0
<b>subtotal</b>	<b>&lt;1,000</b>	<b>1,000</b>	<b>1,000</b>
<b>Resin Industry<sup>49</sup></b>			
<i>R&amp;D</i>	>1,000	2,440	2,440
<i>Annualised investment costs</i>	2,000	44,190	46,190
<i>Additional revenue</i>	-1,000	-16,880	-17,880
<b>subtotal</b>	<b>1,000</b>	<b>29,750</b>	<b>30,750</b>
<b>Vehicle refinishing</b>			
	1,100	0	1,100
<b>Total</b>	<b>3,860</b>	<b>76,720</b>	<b>80,580</b>

#### 7.5. **Option 4: Option 3 plus deregulation of VR bodyshops from the Solvent Emissions Directive 1999/13/EC & reduced fees under PPC.**

7.5.1. Option 4 incorporates deregulatory measures for the VR sector and the benefits of these measures are shown in paragraph 5.6. There are no additional

<sup>45</sup> Reference: A report for Defra - Regulatory Impact Assessment regarding VOCs in decorative finishes, Netcen (AEA Technology Plc) April 2004

<sup>46</sup> British Coatings Federation (BCF) data 2002-3

<sup>47</sup> One-off costs replacing 5,500 mixing machines

<sup>48</sup> Solvent Industry Association and BCF data 2002

<sup>49</sup> Data from the European Resin Manufacturing Association (ERMA) 2002, Chemiewinkel 2000 & BCF 2002-3

costs under this option and the costs and reduction in emissions of VOCs are identical to option 3 (see paragraph 7.4).

## 7.6. **Costs - Difference between the Directive (option 3) and industry voluntary agreement (option 2)**

7.6.1. The Directive will have an additional cost per annum of £3.77 million, over and above the industry voluntary agreement, the Directive and industry voluntary agreement having total annual costs of £80.58 million and £76.81 million respectively.

**Table 17 Additional annualised costs due to the Directive (option 3a), over and above the industry voluntary agreement (option 2)**

	Phase I (2007)	Phase II (2010)	Incremental cost of legislation
<b>Paint manufacturing<sup>50</sup></b>			
<i>R&amp;D</i>	0	360	360
<i>Raw materials</i>	0	1,660	1,660
<i>Production</i>	0	0	0
<i>Capital</i>	0	0	0
<i>Instore tinting equipment<sup>51</sup></i>	0	0	0
<b>subtotal</b>	<b>0</b>	<b>2,010</b>	<b>2,010</b>
<b>Solvent Industry<sup>52</sup></b>			
<i>Annual loss of profitability (manufacturing)</i>	0	0	0
<i>Annual loss of profitability (resellers)</i>	0	0	0
<b>subtotal</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Resin Industry<sup>53</sup></b>			
<i>R&amp;D</i>	0	440	440
<i>Annualised investment costs</i>	0	2,190	2,190
<i>Additional revenue</i>	0	-880	-880
<b>subtotal</b>	<b>0</b>	<b>1,750</b>	<b>1,750</b>
<b>Vehicle refinishing</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>0</b>	<b>3,770</b>	<b>3,770</b>

## 7.7. **Costs for a typical business<sup>54</sup>**

7.7.1. If the Directive were to be transposed, each of the 32 United Kingdom paint manufacturers might expect to face an annualised cost of £1.5 million, of which £0.25 million will be capital costs and £1.25 million will be operating costs. Annualised

<sup>50</sup> British Coatings Federation (BCF) data 2002-3

<sup>51</sup> One-off costs replacing 5,500 mixing machines

<sup>52</sup> Solvent Industry Association and BCF data 2002

<sup>53</sup> Data from the European Resin Manufacturing Association (ERMA) 2002, Chemiewinkel 2000 & BCF 2002-3

<sup>54</sup> Decorative coatings: Costs for this sector are an approximation based on cost data derived from a previous report for this Directive – Source: 2003 Entec report, Revision of the Cost Curve for Volatile Organic Compounds, Appendix C, Cost Benefit Analysis of proposed Decorative Paints Directive.

costs for a solvent manufacturer and a resin manufacturer are estimated at £0.57 million and £1.58 million respectively.

7.7.2. For an average small body shop in the vehicle refinishing sector the mean annualised cost is £604. This is made up of £493 of capital costs and £111 operating costs.<sup>55</sup> The costs for individual bodyshops are estimated to be generally less than 0.5 per cent of turnover. Where a body shop is regulated under SED and/or PPC there will be savings as a result of the deregulatory measure under option 4.

## **8. Equity and fairness**

8.1. This proposal is unlikely to have a disproportionate impact on different groups. The race equality impact of the policy has been considered and the policy is not considered to have any impact on the promotion of race equality.

## **9. Small Firms Impact Test**

9.1. While the Directive should not have much effect on the whole production chain, it could have a disproportionate impact on the small and medium enterprise 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 Directive allows an extended period – up until 2007 – during which existing solvent-borne paints can still be sold which should allow all businesses time to adapt.

## **10. Competition Assessment**

10.1. We have applied the competition filter to the paint manufacturing sector, raw material suppliers, the paint retailing sector and vehicle refinishing sector. This suggests the Directive does not give rise to any significant competition issues although producers of predominantly high volatile organic compound coatings will be disproportionately affected.

## **11. Enforcement and sanctions**

11.1. The enforcement mechanism will be the VOCs in Paints, Varnishes and Vehicle Refinishing Products Regulations 2005 and will implement the Directive throughout the UK. The Directive will need to be transposed into UK law by 30 October 2005, and suitable sanctions applied for any breach of the obligations.

## **12. Monitoring and review**

12.1. The Government will be required to carry out a monitoring programme to assess and control effective implementation of the Directive and report the results to the European Parliament every three years, or more often if so requested. The details have yet to be determined.

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<sup>55</sup> Taken from 2000 Entec report, "Reducing Volatile Organic Compound emissions in the Vehicle Refinishing Sector" and updated to 2002 costs.

## **13. Consultation**

13.1. Consultation with industrial stakeholders has been undertaken at a Commission level and Defra has established a liaison group with the devolved administrations, industry and other stakeholders. In general industry support further action to reduce emissions of volatile organic compounds. Most industry concerns have been alleviated by changes, such as the solvent content limits for some categories of paints, which were achieved in negotiations before final adoption of the Directive. The impact of the proposal on small and medium enterprises was a concern of some representative associations. They mentioned the difficulties of complying with the legislation because of limited resources, absence of research and development capacity and the increased impact of these issues due to their smaller scale.

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

13.3. Due to the speed with which the Directive progressed through to final adoption, there has been no opportunity for a formal public consultation prior to publication of the final Directive text. A public consultation exercise is running in parallel to publication of this Regulatory Impact Assessment. Closing date 10am 27 June 2005.

## **14. Summary and recommendation**

14.1. UK VOC emission reductions will have major benefits in the UK. The benefits of the Directive (option 3) in the UK from domestic action are estimated at £0.7 million to £26 million in 2010;

14.2. The benefits from reductions in other EU-15 member states under the Directive will also lead to benefits in the UK. The total benefits expected to arise in the UK from all EU member state action (including UK domestic action) under the original proposed Directive (option 3a) are estimated at £2.3 - £90 million. This is again much higher than the benefits from domestic action alone.

14.3. UK VOC emission reductions will lead to additional benefits across all of Europe. The total benefits of VOC emissions reductions from the original proposed Directive (option 3) are estimated at £34 – £505 million when totalled across the EU-15 (including the UK). This is significantly higher than the benefits in the UK alone.

14.4. Benefits could be significantly higher than stated above, perhaps as much as a factor of two, when additional benefits including the wider effects of ozone on the general population are taken into account. Finally, it is stressed that a number of potential benefits are not included, for example, ozone effects on forest and potential long-term health effects, which, if included, could further increase the benefits. The benefits are presented for 2010, but will continue in all future years. These benefits can be compared to the costs of UK action.

14.5. Deregulatory measures under option 4 provide further benefits of around £2.4 million, in addition to those under option 3.

14.6. The analysis has estimated the costs of the original proposed Directive in the UK at £81 million (option 3). UK Industry is already committed to bearing £76.8 million of the total cost under their preparation for phase II of their voluntary

agreement. The incremental cost to the UK industry is therefore estimated at £3.77 million.

**Table 18 Summary of benefits and costs for the different implementation options.**

	Benefits in UK in 2010 (£000s)		Annualised UK cost estimates (£000s)
	From UK VOC reductions	From UK and EU VOC reductions <sup>56</sup>	
<b>Option 1</b>	Not quantified	Not quantified	3,860 (already incurred under Phase I of the Voluntary Initiative)
<b>Option 2</b>	695 – 24,505	Not possible to quantify	76,810
<b>Option 3</b>	747- 26,355	2,266 – 89,692	80,580
<b>Option 4 (preferred option) (incl's VR deregulatory measures)</b>	3,123 – 28,731	4,642 – 92,068	80,580

## 15. Regulatory Quality Declaration

15.1. I have read the regulatory impact assessment and I am satisfied that the benefits justify the costs.

Signed: *Ben Bradshaw*

**Ben Bradshaw**

**PARLIAMENTARY UNDER-SECRETARY (COMMONS)  
MINISTER FOR LOCAL ENVIRONMENT, MARINE AND ANIMAL WELFARE**

Date: 9<sup>th</sup> October 2005

<sup>56</sup> As information regarding the European paint manufacturers is unavailable, it is not possible to quantify these benefits under option 2 (CEPE voluntary agreement)



## **Contact Point**

For further information on the Directive, please contact:

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## Annex A - Maximum VOC content limit values for paints and varnishes.

Table 19 Directive - Annex II, table A: Maximum VOC content limit values for paints and varnishes.

		Type	Directive	
			Phase I (g/L) (from 1.1.2007)	Phase II (g/L) (from 1.1.2010)
A	<i>Interior matt walls and ceilings (Gloss ≤25@60°)</i>	WB SB	75 400	30 30
B	<i>Interior glossy walls and Ceilings (Gloss &gt;25@60°)</i>	WB SB	150 400	100 100
C	<i>Exterior walls of mineral substrate</i>	WB SB	75 450	40 430
D	<i>Interior/exterior trim and cladding paints for wood and metal</i>	WB SB	150 400	130 300
E	<i>Interior/exterior trim varnishes and woodstains, including opaque woodstains</i>	WB SB	150 500	130 400
F	<i>Interior and exterior minimal build woodstains</i>	WB SB	150 700	130 700
G	<i>Primers</i>	WB SB	50 450	30 350
H	<i>Binding primers</i>	WB SB	50 750	30 750
I	<i>One-pack performance coatings</i>	WB SB	140 600	140 500
J	<i>Two-pack reactive performance coatings for specific end use such as floors</i>	WB SB	140 550	140 500
K	<i>Multi-coloured coatings</i>	WB SB	150 400	100 100
L	<i>Decorative effect coatings</i>	WB SB	300 500	200 200

## Annex B - Maximum VOC content limit values for vehicle refinishing products.

Table 20 Directive - Annex II, table B: Maximum VOC content limit values for vehicle refinishing products.

	Product Subcategory	Coatings	Directive
			Volatile organic compound content (g/L) (from 1.1.2007)
A	<i>Preparation and cleaning</i>	Preparatory Pre-cleaner	850 200
B	<i>Bodyfillers/stoppers</i>	All types	250
C	<i>Primers</i>	Surfacer/filler and general (metal) primer Wash primers	540 780
D	<i>Topcoat</i>	All types	420
E	<i>Special finishes</i>	All types	840



