

**STATUTORY INSTRUMENTS**

**S.I. No 543 of 2002**

**EMISSIONS OF VOLATILE ORGANIC COMPOUNDS FROM ORGANIC  
SOLVENTS REGULATIONS 2002**

Dublin

Published by the Government Supplies Agency

Pn. 12382

Price €3.05

**S.I. No. 543 of 2002****EMISSIONS OF VOLATILE ORGANIC COMPOUNDS FROM ORGANIC SOLVENTS REGULATIONS 2002**

The Minister of the Environment and Local Government in exercise of the powers conferred on him by sections 10, 22, 23 and 51 of the Air Pollution Act 1987 (No. 6 of 1987) and by sections 6 and 53 of the Environmental Protection Agency Act 1992 (No. 7 of 1992) and for the purpose of giving effect to Council 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<sup>1</sup> hereby makes the following Regulations: –

**Citation**

- 1 These Regulations may be cited as Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002.

**Entry into Force**

- 2 These Regulations shall come into operation on the 30th day of November 2002.

**Definitions**

- 3 (1) In these Regulations: –

“the 1992 Act” means the Environmental Protection Agency Act 1992 (No. 7 of 1992);

“activity” means an activity falling within the scope of Schedule 1 where the activity is operated above the specified solvent consumption thresholds set out in column 3 of Schedule 2;

“the Agency” means the Environmental Protection Agency established under section 19 of the Environmental Protection Agency Act 1992 (No. 7 of 1992);

“the Board” means the National Accreditation Board established for the purposes of the Industrial Development Act 1993 (No. 19 of 1993);

“the Commission” means the Commission of the European Communities;

“competent authority” means: –

- (a) with regard to activities other than activities licensable under Part IV of the 1992 Act, a county council or city council in whose functional area an installation is located; or
- (b) with regard to activities licensable under Part IV of the 1992 Act, and, subject to article 4(2) of these Regulations, the Agency;

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<sup>1</sup> O.J. No. L85/1 of 29.3.99

- (c) “the Directive” means Council 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;

“existing installation” means an installation in operation on or before 30 June 2003;

“new installation” means an installation which is put into operation on or after 1 July 2003;

- (2) In these Regulations: –
- (a) any reference to an article or sub-article which is not otherwise identified is a reference to an article or sub-article of these Regulations;
- (b) any reference to a Schedule which is not otherwise identified is a reference to a Schedule of these Regulations; and
- (c) a letter, word, phrase or symbol which has been assigned a meaning by the Directive, or is used in the Directive, has that meaning where the context requires except where otherwise indicated.

#### **Scope**

- 4 (1) These Regulations provide measures and procedures to be implemented for certain activities set out in Schedule 1, insofar as they are operated above the specified solvent consumption thresholds set out in column 3 of Schedule 2, in order to prevent or reduce the direct and indirect effects of emissions of VOCs into the environment, mainly into air, and the potential risks to human health.
- (2) Where an installation is licensable under Part IV of the 1992 Act, the requirements of articles 1 to 4, 7 to 21, 23, 27, 28 and 30 and Schedules 1, 2, 3 and 6 shall apply and articles 5, 6, 22, 24 to 26 and 29 and Schedules 4 and 5 shall not apply.

#### **New Installations**

- 5 (1) A new installation shall be registered by the operator with the competent authority in the form specified in Schedule 4 before commencement of operation and shall, subject to sub-article (2), not commence to operate, or continue in operation, without a certificate of compliance issued by the competent authority in accordance with article 26.
- (2) Where a new installation intends operating in accordance with article 7 (1)(a) the provisions of sub-article (1) shall take account of the requirements and time periods in Schedule 3, paragraph 2, as appropriate.

#### **Existing Installations**

- 6 (1) An existing installation shall be registered by the operator with the competent authority in the form specified in Schedule 4: –
- (a) where operating in accordance with article 7(1)(a) no later than 31 October, 2005; or
- (b) where operating in accordance with article 7(1)(b) no later than 31 October, 2007;

and shall, subject to the provisions of article 7(2), operate in accordance with a certificate of compliance issued by the competent authority in accordance with article 26.

- (2) Where an existing installation undergoes a substantial change or comes within the scope of these Regulations for the first time following a substantial change, that part of the installation which undergoes the substantial change shall be treated either as a new installation or an existing installation, provided that the total emissions of the whole installation do not exceed those that would have resulted had the substantially changed part been treated as a new installation.

### **Compliance Requirements**

- 7 (1) An installation shall comply with either: –
- (a) the requirements of the reduction scheme specified in Schedule 3; or
  - (b) the emission limit values in waste gases and the fugitive emission values, or the total emission limit values, and other requirements specified in Schedule 2.
- (2) An existing installation shall comply with the requirements of : –
- (a) sub-article 1(a) no later than 31 October 2007, subject to the requirements and time periods in Schedule 3, paragraph 2, as appropriate; or
  - (b) sub-article 1(b) no later than 31 October 2007.
- (3) Any abatement equipment installed on or after 1 July 2003 in a new installation, or on or after 1 November 2007 in an existing installation, in either case operating under sub-article 1(b), shall meet the relevant requirements of Schedule 2.
- (4) An existing installation which operates existing abatement equipment and complies with: –
- (a) the emission limit value of 50 mg C/Nm<sup>3</sup> in the case of incineration; or
  - (b) the emission limit value of 150 mg C/Nm<sup>3</sup> in the case of any other abatement equipment;

shall be exempt from the waste gases emission limit values set out in Schedule 2 until 1 April 2013, provided the total emissions of the whole installation do not exceed those that would have resulted had all the requirements of Schedule 2 been met.

### **Risk Phrases**

- 8 Any substance or preparation, which because of its content of VOCs classified as carcinogens, mutagens or toxic to reproduction under Directive 67/548/EEC<sup>2</sup>, is assigned or needs to carry the risk phrases R45, R46, R49, R60, R61 shall be replaced as far as possible, and, taking into account article 20(1)(b), by less harmful substances or preparations.

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<sup>2</sup> O.J. 196, 16.8.67 p.1 Directive as last amended by Commission Directive 98/98/EC (O.J. L 355, 30.12.1998, p.1)

- 9 For discharges of the VOCs referred to in article 8 where the mass flow of the sum of the compounds causing the labelling referred to in article 8 is greater than, or equal to, 10 g/h, an emission limit value, referring to the mass sum of the individual compounds, of 2 mg/Nm<sup>3</sup> shall be complied with.
- 10 For discharges of halogenated VOCs assigned the risk phrase R40, where the mass flow of the sum of the compounds causing the labelling R40 is greater than, or equal to, 100 g/h, an emission limit value, referring to the mass sum of the individual compounds, of 20 mg/Nm<sup>3</sup> shall be complied with.
- 11 (1) The discharge of VOCs referred to in articles 8 and 10 shall be controlled as emissions from an installation under contained conditions, as far as technically and economically feasible, to safeguard public health and the environment.
- (2) Neither compliance with article 7(1)(a) or article 7(3) exempts an installation discharging substances specified in articles 8 or 10 from compliance with the requirements of articles 8, 9 and 10, as appropriate.
- 12 Discharges of those VOCs assigned or needing to carry one of the risk phrases specified in articles 8 and 10 after the coming into operation of these Regulations shall comply with the emission limit values specified in articles 9 and 10, as appropriate.

#### **Exemptions**

- 13 (1) Subject to sub-article (2) for fugitive emissions, fugitive emission values shall be applied to installations as an emission limit value.
- (2) Where the operator demonstrates to the satisfaction of the competent authority that for an individual installation this emission limit value is not technically and economically feasible, and provided the operator demonstrates to the satisfaction of the competent authority that the installation provides no significant risk to human health or the environment and that the best available technique is being used at the installation, the competent authority may exempt the installation from the requirement of sub-article (1).
- (3) For Activity 8 of Schedule 2 (“other coating activities”) a competent authority may exempt an installation to be operated under contained conditions from the requirements of Schedule 2, provided the operator demonstrates to the satisfaction of the competent authority that the requirements of the reduction scheme provided for in Schedule 3 are complied with or, where this is demonstrated by the operator not to be technically and economically feasible, that the best available technique is being used at the installation.
- (4) Competent authorities other than the Agency shall inform the Agency of any exemptions provided for under sub-articles (2) and (3).

#### **Installations comprising two or more activities**

- 14 An installation where two or more activities are carried out, each of which exceeds the solvent consumption thresholds specified in Schedule 2, shall: –
- (a) as regards the substances and preparations specified in articles 8 and 10, comply with the relevant requirements of articles 8 to 12 for each activity individually; and

- (b) as regards all other substances and preparations, meet the requirements of article 7 for each individual activity or have total emissions not exceeding those that would have resulted had each activity been regulated individually.

#### **Start-up and Shut-down**

- 15 All appropriate precautions shall be taken to minimise emissions during start-up and shut-down.

#### **Monitoring and Compliance**

- 16 (1) Subject to sub-article (4) the operator of an installation shall supply the competent authority annually, or upon request, with data enabling the competent authority to verify the installation's compliance with the Regulations.
- (2) Channels to which abatement equipment is connected, and which at the final point of discharge emit more than an average of 10 kg/h of total organic carbon, shall be monitored continuously for compliance with the Regulations.
- (3) For installations emitting an average of 10 kg/h of total organic carbon or less, continuous measurements, or periodic measurements comprising at least three readings during each measurement exercise, shall be carried out.
- (4) Measurements are not required where end-of-pipe abatement equipment is not required to comply with the Regulations.
- 17 In the case of continuous measurements, the emission limit values shall be considered to be complied with if: –
- (a) none of the averages over 24 hours of normal operation exceeds the emission limit values; and
  - (b) none of the hourly averages exceeds the emission limit values by more than a factor of 1.5.
- 18 In the case of periodic measurements, the emission limit values shall be considered to be complied with if in one monitoring exercise: –
- (a) the average of all the readings does not exceed the emission limit values; and
  - (b) none of the hourly averages exceeds the emission limit values by more than a factor of 1.5.
- 19 Compliance with the provisions of articles 9 and 10 shall be verified on the basis of the sum of the mass concentrations of the individual VOCs concerned or, in any other case, on the basis of the total mass of organic carbon emitted unless otherwise specified in Schedule 2.

#### **Demonstration of Compliance**

- 20 (1) An operator shall demonstrate to the competent authority an installation's compliance with, as appropriate: –
- (a) the relevant emission limit values in waste gases, fugitive emission values and total emission limit values;

- (b) the requirements of the reduction scheme specified in Schedule 3 taking into account any guidance on the use of substances and techniques published by the Commission under article 7 of the Directive;
- (c) the requirements of articles 8 and 11;

using, where appropriate, the provisions of article 24.

- (2) Guidance in Schedule 6 on solvent management plans may be used to demonstrate compliance with sub-article (1).
  - (3) Gas volumes may be added to the waste gas for cooling or dilution purposes where technically justified but shall not be considered when determining the mass concentration of the pollutant in the waste gas.
- 21 Following a substantial change, compliance with article 20 shall be reverified to the satisfaction of the competent authority by the operator of an installation.

#### **Accredited Inspection Contractors**

- 22 (1) The Board shall for the purposes of these Regulations: –
- (a) establish, on foot of applications in this regard, a panel or panels of accredited inspection contractors in such form as the Board determines; and
  - (b) publish a list or lists of such contractors at the offices of the Board and on the website of the Board and at the offices of all competent authorities.
- (2) The list or lists referred to in sub-article (1) shall be made available, upon request, by the Board or by the competent authority.
- 23 (1) An accredited inspection contractor and the Agency, as appropriate, shall take account of any guidance published by the Commission under article 7 of the Directive, and of any solvent management scheme or schemes approved by the Minister, in the discharge of their functions, including, in the case of an accredited inspection contractor, when preparing a report for the purposes of article 24.
- (2) An accredited inspection contractor shall report on the applicability of the Regulations to an installation where so contracted by a competent authority.

#### **Reports by Accredited Inspection Contractors**

- 24 (1) Every application for registration under articles 5 or 6 shall be accompanied by a report by an accredited inspection contractor on the compliance or otherwise of the installation with the Regulations, and, subject to article 26, a report by an accredited inspection contractor on the continuing compliance or otherwise of the installation with the Regulations shall be submitted by the operator to the competent authority annually thereafter.
- (2) The report referred to in sub-article (1) shall contain such recommendations or conditions, if any, as the accredited inspection contractor considers necessary to ensure an installation's compliance with the Regulations.

**Fees**

25 A fee of €50 payable to the competent authority shall accompany a report submitted to a competent authority under article 24.

**Certification of Compliance**

26 (1) Within 14 days of receipt of a report submitted under article 24 from an accredited inspection contractor, where a competent authority is satisfied that the report demonstrates an installation's compliance with the Regulations, it shall issue a certificate of compliance, hereinafter referred to as "the certificate", to the operator in the form specified in Schedule 5 and shall include such recommendations or conditions, if any, as an accredited inspection contractor considers necessary under article 24(2).

(2) A certificate issued under sub-article (1) shall be valid for no longer than one year.

(3) Where a competent authority is satisfied that a report submitted under article 24 from an accredited inspection contractor demonstrates an installation's non-compliance with the Regulations, it shall notify the operator of its refusal to issue a certificate, and the reasons therefor.

**Non-Compliance**

27 Where an operator or an accredited inspection contractor is aware that a requirement of the Regulations has been, or is being, breached the competent authority shall be informed, and the operator shall take all necessary measures to ensure compliance is restored within the shortest possible time.

28 In the case of non-compliance with the requirements of the Regulations causing immediate danger to human health the operator shall suspend operation of an activity or activities at the installation for so long as the non-compliance continues and until the competent authority is satisfied the installation complies with the Regulations.

**Public Information**

29 Competent authorities shall record in the register: –

(a) reports submitted by accredited inspection contractors pursuant to article 24; and

(b) certificates of compliance or notifications of non-compliance issued pursuant to article 26.

**Reporting**

30 The Agency shall report to the Commission on the implementation of the Directive, including any exemption under article 13(3), in accordance with article 11 of the Directive.

## **SCHEDULE 1**

### **SCOPE**

This Schedule contains the categories of activity referred to in article 4. When operated above the thresholds listed in Schedule 2, the activities mentioned in this Schedule fall within the scope of the Directive. In each case the activity includes the cleaning of the equipment but not the cleaning of products unless specified otherwise.

#### **Adhesive Coating**

Any activity in which an adhesive is applied to a surface, with the exception of adhesive coating and laminating associated with printing activities.

#### **Coating Activity**

- Any activity in which a single or multiple application of a continuous film of a coating is applied to:
  - vehicles as listed below:
    - new cars, defined as vehicles of category M1 in Directive 70/156/EEC<sup>3</sup>, and of category N1 in so far as they are coated at the same installations as M1 vehicles,
    - truck cabins, defined as the housing for the driver, and all integrated housing for the technical equipment, of vehicles of categories N2 and N3 in Directive 70/156/EEC,
    - vans and trucks, defined as vehicles of categories N1, N2 and N3 in Directive 70/156/EEC, but not including truck cabins.
    - buses defined as vehicles of categories M2 and M3 in Directive 70/156/EEC,
  - trailers, defined in categories O1, O2, O3 and O4 in Directive 70/156/EEC
  - metallic and plastic surfaces including surfaces of airplanes, ships, trains, etc.,
  - wooden surfaces,
  - textile, fabric, film and paper surfaces,
  - leather.

It does not include the coating of substrate with metals by electrophoretic and chemical spraying techniques. If the coating activity includes a step in which the same article is printed by whatever technique used, that printing step is considered part of the coating activity. However, printing activities operated as a separate activity are not included, but may be covered by the Directive if the printing activity falls within the scope thereof.

#### **Coil Coating**

Any activity where coiled steel, stainless steel, coating steel, copper alloys or aluminium strip is coated with either a film forming or laminate coating in a continuous process.

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<sup>3</sup> O.J. L 42, 23.2.1970, P.1 Directive as last amended by Directive 2000/40/EC (O.J. L 203, 10.8.2000, P.9)

**Dry Cleaning**

Any industrial or commercial activity using VOCs in an installation to clean garments, furnishing and similar consumer goods with the exception of the manual removal of stains and spots in the textile and clothing industry.

**Footwear Manufacture**

Any activity of producing complete footwear or parts thereof.

**Manufacturing of Coating Preparations, Varnishes, Inks and Adhesives**

The manufacture of the above final products, and of intermediates where carried out at the same site, by mixing of pigments, resins and adhesive materials with organic solvent or other carrier, including dispersion and pre-dispersion activities, viscosity and tint adjustments and operations for filling the final product into its container.

**Manufacturing of Pharmaceutical Products**

The chemical synthesis, fermentation, extraction, formulation and finishing of pharmaceutical products and where carried out at the same site, at the same site, the manufacture of intermediate products.

**Printing**

Any reproduction activity of text and/or images in which, with the use of an image carrier, ink is transferred onto whatever type of surface. It includes associated varnishing, coating and laminating techniques. However, only the following sub-process are subject to the Directive:

- *flexography* – a printing activity using an image carrier of rubber or elastic photopolymers on which the printing areas are above the non-printing areas, using liquid inks which dry through evaporation,
- *heatset web offset* – a web-fed printing activity using an image carrier in which the printing and non-printing area are in the same plane, where web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets. The non-printing is treated to attract water and thus reject ink. The printing area is treated to receive and transmit ink to the surface to be printed. Evaporation takes place in an oven where hot air is used to heat the printed material,
- *laminating associated to a printing activity* – the adhering together of two or more flexible materials to product laminates,
- *publication rotogravure* – a rotogravure printing activity used for printing paper for magazines, brochures, catalogues or similar products, using toluene-based inks,
- *rotogravure* – a printing activity using a cylindrical image carrier in which the printing area is below the non-printing area, using liquid inks which dry through evaporation. The recesses are filled with ink and the surplus is cleaned off the non-printing area before the surface to be printed contacts the cylinder and lifts the ink from the recesses,
- *rotary screen printing* – a web-fed printing activity in which the ink is passed onto the surface to be printed by forcing it through a porous image carrier, in which the printing area is open and the non-printing area is sealed off, using liquid inks which dry only through evaporation. Web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets.

- *varnishing* – an activity by which a varnish or an adhesive coating for the purpose of later sealing the packaging material is applied to a flexible material.

**Rubber Conversion**

An activity of mixing, milling, blending, calendaring, extrusion and vulcanisation of natural or synthetic rubber and any ancillary operations for converting natural or synthetic rubber into a finished product.

**Surface Cleaning**

Any activity except dry cleaning using organic solvents to remove contamination from the surface of material including degreasing. A cleaning activity consisting of more than one step before or after any other activity shall be considered as one surface cleaning activity. This activity does not refer to the cleaning of the equipment but to the cleaning of the surface products.

**Vegetable Oil and Animal Fat Extraction and Vegetable Oil Refining Activities.**

Any activity to extract vegetable oil from seeds and other vegetable matter, the processing of dry residues to produce animal feed, the purification of fats and vegetable oils derived from seeds, vegetable matter and/or animal matter.

**Vehicle Refinishing**

Any industrial or commercial coating activity and associated degreasing activities performing:

- 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
- the original coating of road vehicles as defined in Directive 70/156/EEC or part of them with refinishing-type materials, where this is carried out away from the original manufacturing line, or
- the coating of trailers (including semi-trailers) (category O).

**Winding Wire Coating**

Any coating activity of metallic conductors used for winding the coils in transformers and motors, etc.

**Wood Impregnation**

Any activity giving a loading of preservative in timber.

**Wood and Plastic Lamination**

Any activity to adhere together wood and/or plastic to produce laminated products.

**SCHEDULE 2**  
**1. THRESHOLDS AND EMISSION CONTROLS**

	Activity (solvent consumption in tonnes/year)	Threshold (solvent consumption threshold in tonnes/year)	Emission limit values in waste gases (mg/C/Nm <sup>3</sup> )	Fugitive emission values (percentage of solvent input)	Total emission limit values	Special provisions
1	Heatset web offset printing (> 15)	15-25 >25	100 20	30 <sup>(1)</sup> 30 <sup>(1)</sup>		<sup>(1)</sup> Solvent residue in finished product is not to be considered as part of fugitive emissions.
2	Publication rotogravure (>25)		75	(New) 10 (Existing) 15		
3	Other rotogravure, flexography, rotary screen printing, laminating or varnishing units (>15) rotary screen printing on textile/cardboard (> 30)	15-25 > 25 > 30 <sup>(1)</sup>	100 100 100	25 20 20		<sup>(1)</sup> Threshold for rotary screen printing on textile and on cardboard.
4	Surface cleaning <sup>(1)</sup> (>1)	1-5 >5	20 <sup>(2)</sup> 20 <sup>(2)</sup>	15 10		<sup>(1)</sup> Using compounds specified in Articles 8 and 10. <sup>(2)</sup> Limit refers to mass of compounds in mg/Nm <sup>3</sup> and not to total carbon.
5	Other surface cleaning (>2)	2-10 >10	75 <sup>(1)</sup> 75 <sup>(1)</sup>	20 <sup>(1)</sup> 15 <sup>(1)</sup>		<sup>(1)</sup> Installations which demonstrate to the competent authority that the average organic solvent content of all cleaning material used does not exceed 30% by weight are exempt from application of these values.
6	Vehicle coating (<15) and vehicle refinishing	>0.5	50 <sup>(1)</sup>	25		<sup>(1)</sup> Compliance in accordance with Article 17 should be demonstrated on 15 minute average measurements.

	Activity (solvent consumption in tonnes/year)	Threshold (solvent consumption threshold in tonnes/year)	Emission limit values in waste gases (mg/C/Nm <sup>3</sup> )	Fugitive emission values (percentage of solvent input)	Total emission limit values	Special provisions
7	Coil Coating (> 25)		50 <sup>(1)</sup>	(New) 5  (Existing) 10		<sup>(1)</sup> For installations which use techniques which allow reuse of recovered solvents, the emission limit value shall be 150
8	Other coating, including metal, plastic, textile <sup>(5)</sup> , fabric, film and paper coating (>5)	5-15 > 15	100 <sup>(1)</sup> <sup>(4)</sup> 50/75 <sup>(3)</sup> <sup>(3)</sup> <sup>(4)</sup>	25 <sup>(4)</sup> 20 <sup>(4)</sup>		<sup>(1)</sup> Emission limit value applies to coating application and drying processes, operated under contained conditions  <sup>(2)</sup> The first emission limit value applies to drying processes, the second to coating application processes.  <sup>(3)</sup> For textile coating installations which use techniques which allow reuse of recovered solvents, the emission limit applied to coating application and drying processes taken together shall be 150.  <sup>(4)</sup> Coating activities which cannot be applied under contained conditions (such as shipbuilding, aircraft painting) may be exempted from these values, in accordance with Article 13(3).  <sup>(5)</sup> Rotary screen printing on textile is covered by activity No. 3
9	Winding wire coating (>5)				10 g/kg <sup>(1)</sup> 5 g/kg <sup>(2)</sup>	<sup>(1)</sup> Applies for installations where average diameter of wire ≤ 0.1 mm.  <sup>(2)</sup> Applies for all other installations.

	Activity (solvent consumption in tonnes/year)	Threshold (solvent consumption threshold in tonnes/year)	Emission limit values in waste gases (mg/C/Nm <sup>3</sup> )	Fugitive emission values (percentage of solvent input)	Total emission limit values	Special provisions
10	Coating of wooden surfaces (>15)	15-25 >25	100 <sup>(1)</sup> 50/75 <sup>(2)</sup>	25 20		( <sup>1</sup> ) Emission limit applies to coating application and drying processes operated under contained conditions ( <sup>2</sup> ) The first value applies to drying processes, the second to coating application processes.
11	Dry cleaning				20 g/kg ( <sup>1</sup> )( <sup>2</sup> )	( <sup>1</sup> ) Expressed in mass of solvent emitted per kilogram of product cleaned and dried. ( <sup>2</sup> ) The emission limit in Article 10 does not apply for this sector.
12	Wood impregnation (> 25)		100 <sup>(1)</sup>	45	11 kg/m <sup>3</sup>	( <sup>1</sup> ) Does not apply for impregnation with creosote.
13	Coating of leather (> 10)	10-25 >25  (>10) ( <sup>1</sup> )			85 g/m <sup>2</sup> 75 g/m <sup>2</sup>  150 g/m <sup>2</sup>	Emission limits are expressed in grams of solvent emitted per m <sup>2</sup> of product produced.  ( <sup>1</sup> ) For leather coating activities in furnishing and particular leather goods used as small consumer goods like bags, belts, wallets, etc.
14	Footwear manufacture (>5)				25 g per pair	Total emission limit values are expressed in grams of solvent emitted per pair of complete footwear produced.
15	Wood and plastic lamination (> 5)				30 g/m <sup>2</sup>	
16	Adhesive coating (> 5)	5-15 > 15	50 <sup>(1)</sup> 50 <sup>(1)</sup>	25 20		( <sup>1</sup> ) If techniques are used which allow reuse of recovered solvent, the emission limit value in waste gases shall be 150.

	Activity (solvent consumption in tonnes/year)	Threshold (solvent consumption threshold in tonnes/year)	Emission limit values in waste gases (mg/C/Nm <sup>3</sup> )	Fugitive emission values (percentage of solvent input)	Total emission limit values	Special provisions
17	Manufacture of coating preparations, varnishes, inks and adhesives (> 100)	100-1000 >1 000	150 150	5 3	5% of solvent input 3% of solvent input	The fugitive emission value does not include solvent sold as part of a coatings preparation in a sealed container.
18	Rubber conversion (> 15)		20 <sup>(1)</sup>	25 <sup>(2)</sup>	25% of solvent input	<sup>(1)</sup> If techniques are used which allow reuse of recovered solvent, the emission limit value in waste gases shall be 150. <sup>(2)</sup> The fugitive emission value does not include solvent sold as part of products or preparations in a sealed container.
19	Vegetable oil and animal fat extraction and vegetable oil refining activities (> 10)				Animal Fat: 1.5 kg/tonne Castor: 3 kg/tonne Rape Seed: 1 kg/tonne Sunflower seed: 1 kg/tonne Soya beans (normal crush): 0.8 kg/tonne Soya beans (white flakes): 1.2 kg/tonne Other seeds and other vegetable matter: 3 kg/tonne <sup>(1)</sup> 1.5 kg/tonne <sup>(2)</sup> 4 kg/tonne <sup>(3)</sup>	<sup>(1)</sup> Total emission limit values for installations processing individual batches of seeds and other vegetable matter should be set by the competent authority on a case-by-case basis, applying the best available techniques. <sup>(2)</sup> Applies to all fractionation processes excluding de-gumming (the removal of gums from the oil). <sup>(3)</sup> Applies to de-gumming.
20	Manufacturing of pharmaceutical products (>50)		20 <sup>(1)</sup>	(New) 5 <sup>(2)</sup>  (Existing) 15 <sup>(2)</sup>	(New) 5% of solvent input  (Existing) 15% of solvent input	<sup>(1)</sup> If techniques are used which allow reuse of recovered solvent, the emission limit value shall be 150. <sup>(2)</sup> The fugitive emission limit value does not include solvent sold as part of products or preparation in a sealed container.

## 2. THE VEHICLE COATING INDUSTRY

The total emission limit values are expressed in terms of grams of solvent emitted in relation to the surface area of product in square metres and in kilograms of solvent emitted in relation to the car body.

The surface area of any product dealt with in the table below is defined as follows:

- the surface area calculated from the total electrophoretic coating area, and the surface area of any parts that might be added in successive phases of the coating process which are coated with the same coatings as those used for the product in question, or the total surface area of the product coated in the installation.

The surface of the electrophoretic coating area is calculated using the formula:

$$\frac{2 \times \text{total weight of product shell}}{\text{average thickness of metal sheet} \times \text{density of metal sheet}}$$

This method shall also be applied for other coated parts made out of sheets.

Computer aided design or other equivalent methods shall be used to calculate the surface area of the other parts added, or the total surface area coated in the installation.

The total emission limit value in the table below refers to all process stages carried out at the same installation from electrophoretic coating, or any other kind of coating process, through to the final wax and polish of top-coating inclusive, as well as solvent used in cleaning of process equipment, including spray booths and other fixed equipment, both during and outside of production time. The total emission limit value is expressed as the mass sum of organic compounds per m<sup>2</sup> of the total surface area of coated product and as the mass sum of organic compounds per car body.

Activity (solvent consumption threshold in tonnes/year)	Production threshold (refers to annual production of coated item)	Total emission limit value (g/m <sup>2</sup> unless otherwise indicated)	
		New	Existing
Coating of new cars (> 15)	> 5,000	45 or 1.5 kg/body + 33 g/m <sup>2</sup>	60 or 1.9 kg/body + 41 g/m <sup>2</sup>
	≤5,000 monocoque >3,500 chassis-built	90 or 1.5 kg/body + 70 g/m <sup>2</sup>	90 or 1.5 kg/body + 70 g/m <sup>2</sup>
Coating of new truck cabins (> 15)	≤ 5,000 > 5,000	65 55	85 75
Coating of new vans and trucks	≤ 2,500 > 2,500	90 70	120 90
Coating of new buses (> 15)	≤ 2,000 > 2,000	210 150	290 225

Vehicle coating installations below the solvent consumption thresholds in the table above shall meet the requirements for the vehicle refinishing sector in this Schedule.

**SCHEDULE 3**  
**REDUCTION SCHEME**

1. **Principles**

The purpose of the reduction scheme is to allow the operator the possibility to achieve by other means emission reductions, equivalent to those achieved if the emission limit values were to be applied. To that end the operator may use any reduction scheme, specially designed for his installation, provided that in the end an equivalent emission reduction is achieved.

2. **Practice**

In the case of applying coatings, varnishes, adhesives or inks, the following scheme can be used. Where the following method is inappropriate the competent authority may allow an operator to apply any alternative exemption scheme which it is satisfied fulfils the principles outlined here. The design of the scheme takes into account the following facts: –

- (i) where substitutes containing little or no solvent are still under development; a time extension must be given to the operator to implement his emission reduction plans;
- (ii) the reference point for emission reductions should correspond as closely as possible to the emissions which would have resulted had no reduction action been taken.

The following scheme shall operate for installations for which a constant solid content of product can be assumed and used to define the reference point for emission reductions: –

- (i) the operator shall forward an emission reduction plan which includes in particular decreases in the average solvent content of the total input and/or increased efficiency in the use of solids to achieve a reduction of the total emissions from the installation to a given percentage of the annual reference emissions, termed the target emission. This must be done on the following time frame: –

Time period		Maximum allowed total annual emissions
New installations	Existing installations	
By 31 October 2003	By 31 October 2005	Target emission x 1.5
By 31 October 2004	By 31 October 2007	Target emission

- (ii) The annual reference emission is calculated as follows: –
  - (a) The total mass of solids in the quantity of coating and/or ink, varnish or adhesive consumed in a year is determined. Solids are all materials in coatings, inks, varnishes and adhesives that become solid once the water or the volatile compounds are evaporated.
  - (b) The annual reference emissions are calculated by multiplying the mass determined in (a) by the appropriate factor listed in the table below. Competent authorities may adjust these factors for individual installations to reflect documented increased efficiency in the use of solids.

Activity	Multiplication factor for use in item (ii)(b) of this Schedule
Rotogravure printing; flexography printing; laminated as part of a printing activity; varnishing as part of a printing activity; wood coating; coating of textiles, fabric film or paper; adhesive coating	4
Coil coating, vehicle refinishing	3
Food contact coating, aerospace coatings	2.33
Other coatings and rotary screen printing	1.5

- (c) The target emission is equal to the annual reference emission multiplied by a percentage equal to: –
- (the fugitive emission value + 15), for installations falling within item 6 and the lower threshold band of items 8 and 10 of Schedule 2; or
  - (the fugitive emission value + 5) for all other installations.
- (d) Compliance is achieved if the actual solvent emission determined from the solvent management plan is less than or equal to the target emission.

**SCHEDULE 4**

**Emissions of Volatile Organic Compounds from Organic Solvents Regulations**  
**2002 (S.I. No. 543 of 2002)**

**REGISTRATION OF AN INSTALLATION**

1. Name and address of the operator:
  
2. Address of the installation if different from 1 above:
  
3. Is the installation “new” or “existing” or undergoing a “substantial change” as defined in the Regulations?
  
4. State the activity or activities carried out or proposed to be carried out at the installation by reference to Schedules 1 and 2 of the Regulations:
  
5. Detail the type or types of organic solvent used or to proposed to be used in the activity or activities:
  
6. State the estimated quantity of each type of organic solvent consumed or proposed to be consumed annually in each activity:
  
7. Will abatement equipment be used or is it used currently? If so, briefly describe:
  
  
8. Are you employing, or do you propose to employ, a solvent reduction scheme under article 7(1)(a)? If so, detail briefly any reduction targets to be achieved:

**I am applying to register the above named installation under article 5/article 6 (delete as appropriate) of S.I. No. 543 of 2002.**

**Signature.....**

**Date.....**

**SCHEDULE 5**  
**Emissions of Volatile Organic Compounds from Organic Solvents Regulations**  
**2002 (S.I. No. 543 of 2002)**

**CERTIFICATE OF COMPLIANCE**

In accordance with article 26 of the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. No. 543 Of 2002) **(insert name of competent authority)** hereby certifies that, subject to the conditions and recommendations (if any) stated below .....**(insert name and address of installation)** complies with the requirements of the Regulations.

The next application for annual certification of compliance under the Regulations is required no later than one year after the date of this certificate.

**Conditions and Recommendations for Compliance:**

**Stamp of competent authority to be affixed here:**

**Signature of authorised person:**

**Date:**

## **SCHEDULE 6**

### **SOLVENT MANAGEMENT PLAN**

#### **1. Introduction**

This Schedule provides guidance on carrying out a solvent management plan. It identifies the principles to be applied (item 2) and provides a framework for the mass balance (item 3) and an indication of the requirements for verification of compliance (item 4).

#### **2. Principles**

The solvent management plan serves the following purposes: –

- (i) verification of compliance as specified in article 20(2) of the Regulations;
- (ii) identification of future reduction options; and
- (iii) enabling of the provision of information on solvent consumption, solvent emissions and compliance with the Directive to the public.

#### **3. Definitions**

The following definitions provide a framework for the mass balance exercise.

Inputs of organic solvents (I): –

- I1 The quantity of organic solvents or their quantity in preparations purchased which are used as input into the process in the time frame over which the mass balance is being calculated.
- I2 The quantity of organic solvents or their quantity in preparations recovered and reused as solvent input into the process. (The recycled solvent is counted every time it is used to carry out the activity.)

Outputs of organic solvents (O): –

- O1 Emissions in waste gases.
- O2 Organic solvents lost in water, if appropriate taking into account waste water treatment when calculating O5.
- O3 The quantity of organic solvents which remains as contamination or residue in products output from the process.
- O4 Uncaptured emissions of organic solvents to air. This includes the general ventilation of rooms, where air released to the outside environment via windows, doors, vents and similar openings.
- O5 Organic solvents and/or organic compounds lost due to chemical or physical reactions (including for example those which are destroyed, e.g. by incineration or other waste gas or waste water treatments, or captured, e.g. by adsorption, as long as they are not counted under O6, O7 or O8).

- O6 Organic solvents contained in collected waste.
- O7 Organic solvents, or organic solvents contained in preparation, which are sold or are intended to be sold as a commercially valuable product.
- O8 Organic solvents contained in preparations recovered for reuse but not as input into the process, as long as not counted under O7.
- O9 Organic solvents released in other ways.

**4. Guidance on use of the solvent management plan for verification of compliance**

The use made of the solvent management plan will be determined by the particular requirement which is to be verified as follows: –

- (ii) Verification of compliance with the reduction option in Schedule 3, with a total emission limit value expressed in solvent emissions per unit product, or otherwise stated in Schedule 2.

- (a) For all activities used Schedule 3 the solvent management plan should be done annually to determine consumption (C). Consumption can be calculated according to the following equation:

$$C = I1 - O8$$

A parallel exercise should also be undertaken to determine solids used in coating in order to derive the annual reference emission and the target emission each year.

- (b) For assessing compliance with a total emission limit value expressed in solvent emissions per unit product or otherwise stated in Schedule 2 the solvent management plan should be done annually to determine emissions (E). Emissions can be calculated according to the following equation:

$$E = F + O1$$

where F is the fugitive emission as defined in section (ii)(a). The emission figure should then be divided by the relevant product parameter.

- (c) For assessing compliance with the requirements of Article 14(b), the solvent management plan should be done annually to determine total emissions from all activities concerned, and that figure should then be compared with the total emissions that would have resulted had the requirements of Schedules 2 and 3 been met for each activity separately.

- (iii) Determination of fugitive emissions for comparison with fugitive emission values in Schedule 2: –

- (a) Methodology

The fugitive emission can be calculated according to the following equation:

$$F = I1 - O1 - O5 - O6 - O7 - O8$$

or

$$F = O2 + O3 + O4 + O9$$

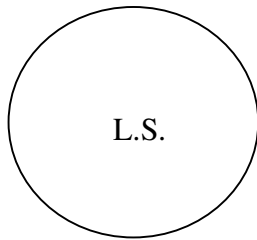
This quantity can be determined by direct measurement of the quantities. Alternatively, an equivalent calculation can be made by other means, for instance by using the capture efficiency of the process.

The fugitive emission value is expressed as a proportion of the input, which can be calculated according to the following equation: –

$$I = I1 + I2$$

(b) Frequency

Determination of fugitive emissions can be done by a short but comprehensive set of measurements. It need not be done again until the equipment is modified.



Given under the Official Seal of the Minister for the Environment and Local Government this 28<sup>th</sup> day of November 2002

Martin Cullen

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Minister for the Environment and Local Government

## **EXPLANATORY NOTE**

### **(This note is not part of the instrument and does not purport to be a legal interpretation)**

These Regulations transpose Directive 1999/13/EC on the limitation of emissions of volatile organic compounds (VOCs) due to the use of organic solvents in certain activities and installations.

The Regulations apply to 20 sectoral activities in Schedule 1 where they are operated in installations above the solvent consumption thresholds specified in Schedule 2. The competent bodies for enforcement of the Regulations are the Environmental Protection Agency, where activities are licensable under the Integrated Pollution Control (IPC) system, and the local authorities.

For installations licensable under the IPC system, controls are exercised as part of the licensing arrangements for such installations. Those installations within the local authority ambit must register with the relevant local authority. All installations must comply with the provisions of the Regulations either by way of “end of pipe” abatement equipment in the form of emission limit values (ELVs) or by utilising reduction schemes. Certain substances or preparations containing VOCs classified as carcinogenic, mutagenic or toxic (Risk Phrases R45, R46, R49, R60, R61) must be replaced as far as possible by less harmful substances or preparations.

Compliance with the provisions of the Regulations, in the case of installations not subject to IPC licensing, must be demonstrated to local authorities by operators of installations on the basis of reports from accredited inspection contractors. These are to be accredited by the National Accreditation Board. Compliance is certified by the local authority and certification must be obtained annually.

New installations, defined as those installations put into operation on or after 1 July 2003, which are not subject to IPC licensing must be registered with the relevant local authority and have obtained a certificate of compliance before commencing operation. However, the operative compliance dates for new installations using certain reduction scheme options are 31 October 2003 and 31 October 2004 as appropriate.

Existing installations, defined as those installations in operation on or before 30 June 2003, which are not subject to IPC licensing must be registered with the relevant local authority no later than 31 October 2005 where using a reduction scheme, or no later than 31 October 2007 where using ELVs, to comply. Compliance in all cases is required by no later than 31 October 2007 subject to an interim date of 31 October 2005 in the case of certain reduction scheme options.

In addition, abatement equipment operated in existing installations which complies with certain specified ELVs is exempt from more stringent ELV requirements until 1 April 2013.

Local authorities may exempt installations from compliance with certain ELVs in certain specified circumstances where, inter alia, the operator demonstrates that there is no significant risk to human health or the environment and the best available technique is being used at the installation.