National Protocol for the Implementation of a Reporting Mechanism in line with the requirements of S.I. 543 of 2002 (implementation of the Solvent Emissions Directive in Ireland)

Content

Introduction to the Protocol

Organic solvents are used in many industrial processes and, owing to their volatility, they are emitted either directly or indirectly into the air. Such solvents can also inadvertently be released to sewers/waters or onto ground.

Many organic compounds are directly harmful to human health or to the environment.

Also, once released to the atmosphere, organic solvents undergo a series of complex reactions resulting in the formation of tropospheric (low-level) ozone, an air pollutant. Elevated concentrations of ozone in air can impair human health (particularly vulnerable people such as children, the elderly and those with chronic disease) and can damage some building materials, forests, vegetation and crops. Ozone is also a greenhouse gas.

Pollution by tropospheric (or low-level) ozone is a widespread and chronic problem within the European Community. Data submitted by the Member States to the European Commission indicate that during the summer months the threshold level for the protection of human health is exceeded in all the Member States, and that in urban environments in excess of 40 million people are estimated to be exposed to potentially harmful concentrations of this aggressive pollutant.

A European Directive[1] on solvent emissions has been issued to address these harmful effects on human health and the environment. The Directive has been brought into effect in Ireland through Regulations published in November 2002[2]. There are many different types of businesses that will be affected by the implementation of the Regulations, from dry cleaners to pharmaceutical manufacturers.

The Integrated Pollution Prevention and Control (IPPC) licensing system operated by the Environmental Protection Agency (EPA) will implement the solvent emissions Directive for the larger companies that are scheduled activities under the current legislation. However the solvent emissions Directive also covers certain non-IPPC sectors (for example pharmaceutical formulation) as well as companies which operate below the thresholds specified for IPPC (for example, use of coating materials below 10 tonnes per annum).

The 2002 Regulations set out the requirements for non-IPPC installations which include registration with their local authority and annually obtaining a certificate of compliance. Obtaining the certificate of compliance involves annual submission to the local authority of a report by an Accredited Inspection Contractor. An Accredited Inspection Contractor (AIC) in turn requires approval from the Irish National Accreditation Board (INAB).

Along with Best Practice Guidelines being developed by the EPA for a number of affected sectors, this Protocol provides guidance to both AICs and operators on the practical operational requirements for compliance with the Regulations and the European Directive on solvents.

This protocol sets out the procedure that is recommended for use by Accredited Inspection Contractors in conducting site inspections and preparing AIC reports, as well as a template for the format and content of the AIC report itself. The actual 2002 Regulations are included in Appendix 1 to the procedure. Appendix 2 to the procedure shows the activities covered by the solvents Directive and the corresponding appropriate regulatory system (IPPC licence or AIC system).

A plain guide to the 2002 Regulations and the operation of the accredited inspection contractor (AIC) system for operators of installations that come under the system is available separate to this Protocol.

All documents are available at www.epa.ie or by contacting the EPA directly (053 60600).

[1] European Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations, Official Journal L 85, 29.3.1999.
[2] Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. No. 543 of 2002).

Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002

(S.I. 543 of 2002)

Procedure for Conducting Site Inspections and Preparing AIC Reports

1.0 Objective

To determine if the installation being inspected is in compliance or otherwise with the requirements of the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002) through a planned, objective site inspection carried out by an independent Accredited Inspection Contractor (AIC).

2.0 Scope:

Any activity falling within the scope of Schedule 1 to the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002) where the activity is operated above the specified solvent consumption thresholds set out in column 3 of Schedule 2 to these Regulations, and where the activity is not IPPC licensable by the Environmental Protection Agency (Protection of the Environment Act 2003). See Appendix 2 which shows the activities covered by the solvents Directive and the corresponding appropriate regulatory system (IPPC licence or AIC system).

3.0 Definitions:

Definitions are outlined in:

- Article 3 to the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002), and
- Article 2 to the European Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

4.0 Responsibilities:

Accredited Inspection Contractor (AIC):

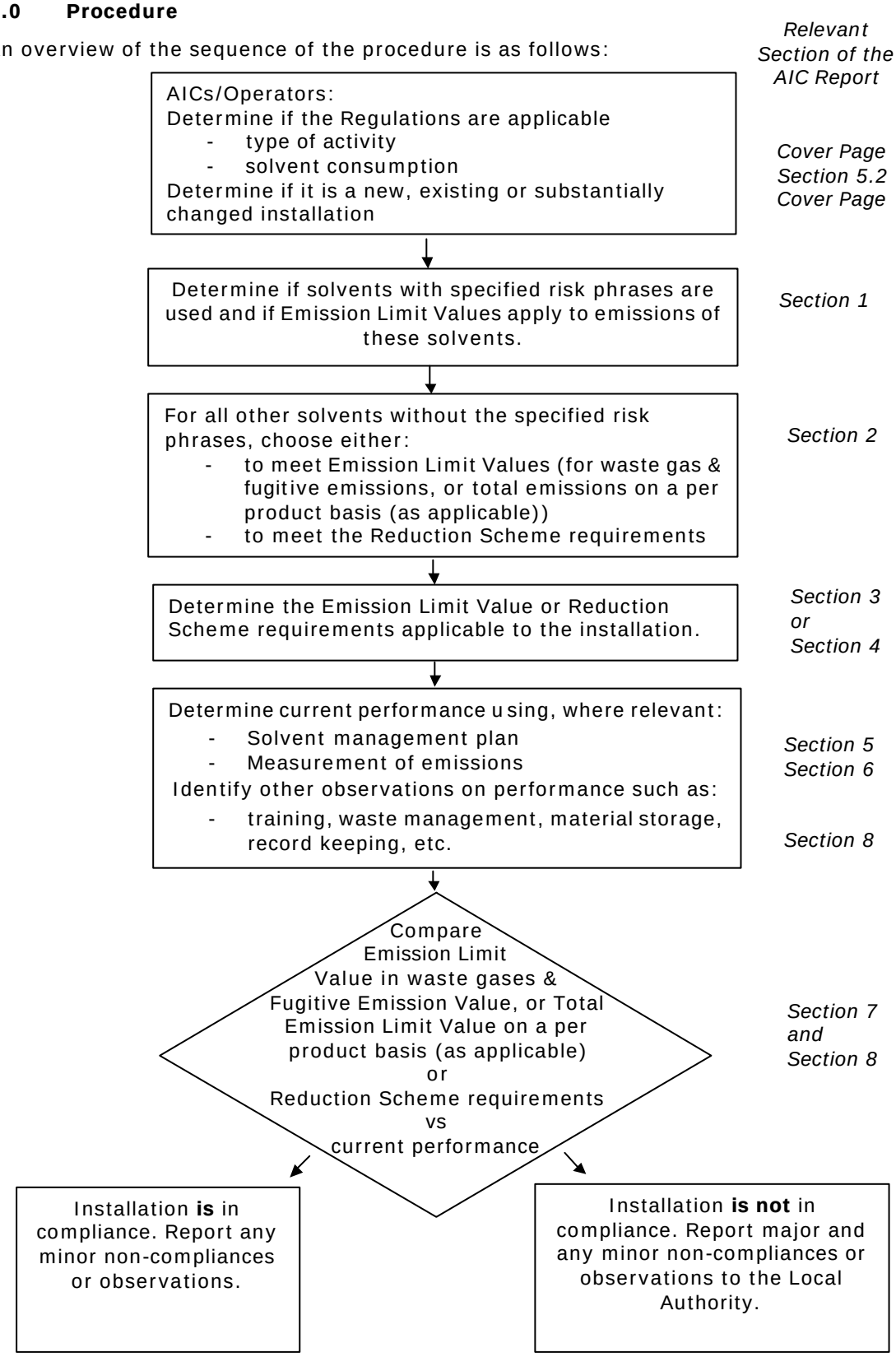
- Maintain accreditation by the Irish National Accreditation Board (INAB) to ISO 17020 (general criteria for the operation of various types of bodies performing inspection) for the conduct of inspections to the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002).
- Ensure confidentiality of information obtained in the course of the inspection. Note that the Competent Authorities are responsible for the provision of public information as per Article 12 of the Directive.
- Carry out all inspections in a planned, objective manner and document findings in accordance with the AIC Report template.
- Inform the operator of the installation as to whether the installation is in compliance or otherwise with the Regulations and provide the operator with a copy of the AIC report.

Operator of the installation:

- Ensure that they understand the relevant guidance, put in place the necessary measures, and maintain sufficient records to demonstrate compliance of their business activities.
- Engage an AIC in a timely manner to inspect their activities.
- Allow the AIC access to all relevant documentation, procedures, records, employees, site locations, etc., required to fulfill his/her function.
- Indicate clearly any information considered to be confidential in nature.
- Submit the AIC report to the competent authority within the timeframe required.

5.0 Procedure

An overview of the sequence of the procedure is as follows:



5.1 The AIC Report Template

The approved AIC report format should be used to record the findings of the site inspection.

Reference should be made to the endnotes when filling in the relevant sections of the AIC report for the examples of the exact type of response being sought.

Additional supporting information may also need to be recorded and should be attached to the AIC report. Reference to any such attached information should be made in the relevant section of the AIC report.

The AIC report should be completed by the AIC as soon as possible after a site inspection has been carried out.

The AIC report is divided in sections that broadly fall into the following areas:

- The covering pages record various details on the installation, summarise its compliance or otherwise, and contain the AIC details and signature.
- Sections 1 to 4 establish the detailed requirements or otherwise of the Regulations specific to the installation.
- Sections 5 and 6 establish the current performance of the installation.
- Section 7 determines compliance or otherwise of the installation by comparing requirements with actual performance.
- Section 8 records any major or minor non-compliances or observations.

The relevant sections of the AIC report which are referred to should be read in conjunction with this procedure.

5.2 Prior to, or at the start of, the Site Inspection

The AIC must establish with the operator of the installation (N.B.: the onus is on the operator to develop in advance and to provide to the inspector records to demonstrate compliance with the Regulations):

- the type of activity or activities relevant to the installation (cover pages AIC report). Best Practice Guidelines and Records Spreadsheets are being developed by the EPA for a number of affected sectors. The Records Spreadsheets can be used by operators to compile the solvent management plan. A copy of the Best Practice Guidelines and Records Spreadsheets relevant to the sector should be obtained (see www.epa.ie for a list of Best Practice Guidelines and Records Spreadsheets that have been developed).

- Whether the installation is new or existing (cover pages AIC report).

- the reason for compiling the AIC report. Is it a new installation that is being built, is it an existing installation that is undergoing a substantial change, or is it for annual reporting purposes (cover pages AIC report). If it is a substantial change, will the part of the installation that will undergo the substantial change be treated as a new installation, or an existing installation (N.B.: if treated as an existing installation the total emissions of the whole installation must not exceed those that would result if the substantially changed part was treated as a new installation).

- Whether the operator of the installation plans to comply with the Emission Limit Values (ELVs) or the Reduction Scheme (Section 2 AIC report). In the event that the operator of the installation is not familiar with these options, the AIC should explain the difference and the information required in each option. The operator may need advice from consultants in advance of the AIC inspection.

- What means will be used to establish current performance – the solvent management plan, or measurement of emissions. Measurement of emissions is usually only carried out where the ELV route has been chosen and the sector involved has an ELV set for waste gases. Measurement is also required for emissions of specified risk phrase substances above the specified mass flows (section 1.3 AIC report). The solvent management plan can be used in most other cases.

- What process changes or solvent changes have been carried out, if any, since the previous inspection (for subsequent inspections). Has the operator assessed

whether any such changes would be classified as a substantial change or not, and has the correct conclusion been reached in this regard.

5.3 Conduct of Site Inspection

The site inspection will generate information by observation for the AIC report which will include, where relevant, the following (the AIC inspector may ask for this information in advance of the visit - the onus is on the operator to develop in advance and to provide to the inspector records to demonstrate compliance with the Regulations):

- Determine solvent types and solvent consumption.
- Determine if specified risk phrase solvents are in use. (A 'risk phrase' conveys a general description of the hazards present with the normal, or reasonably foreseeable, handling or use of a substance.)
- Identify operator proposed (or European Commission recommended) replacement measures for any such risk phrase solvents.
- Determine if specified risk phrase solvents are emitted above specified mass flows.
- Determine the detailed requirements applicable to the facility.
- Evaluate information presented in the Solvent Management Plan or other means of showing activity performance (such as measurement of emissions).
- Obtain information on other performance issues related to solvent use.
- Determine compliance or otherwise with the Regulations.
- Record major non-compliances, minor non-compliances, or observations, if any.

A summary list of the information that must be gathered by the operator is presented as an Appendix to the Best Practice Guidelines for each sector.

The site inspection can include some or all of the following as appropriate:

- Review of solvent management plan documentation (including spreadsheets and original back-up documentation), procedures, records (purchasing/procurement, waste, etc.).
- Site tour.
- Employee interviews.
- Measurement of emissions (if necessary, i.e. meeting ELVs for waste gases).

5.3.1 **Solvent Consumption** (Section 5.2 AIC report)

For all activities apart from dry cleaning, there are solvent consumption thresholds above which an installation comes under the Regulations. The Regulations apply to all dry cleaners regardless of solvent consumption. In the case of certain activities there are also different ELVs depending on solvent consumption. Therefore the first step is to establish the solvent type(s) in use and the solvent consumption for the installation.

Determining solvent consumption uses two of the solvent management plan mass balance terms:

solvent consumption: C = I1 – O8 (I for input, O for output)

To find out how to obtain information for these terms see section 5.3.6 of this procedure on Obtaining Information on the Solvent Management Plan.

In the event that the site inspection determines that the installation falls under the scope of IPPC licensing by the EPA, and the operator does not have, or has not applied for an IPPC licence, the AIC must inform the operator of the installation that an IPPC licence will have to be obtained (see Appendix 2). A report to this effect should be provided to the Local Authority and the EPA.

5.3.2 **Determine if specified risk phrase solvents are in use** (section 1.1 AIC report)

Information on what risk phrases are assigned to the solvents in use at the facility can be obtained by the operator from Material Safety Data Sheets (make sure they are European MSDSs and up to date), or from product containers. Alternatively Annex I to Directive

67/548/EEC contains risk phrase classifications for approx. 2,500 substances. A free, searchable database of Annex I to Directive 67/548/EEC is available at www.the-ncec.com

5.3.3 Evaluate replacement measures for solvents with specified risk phrases (section 1.2 AIC report)

Substances or preparations that have been assigned risk phrases R45, R46, R49, R60, or R61 as a result of their solvent content are required to be replaced as far as possible by less harmful preparations (note R40 halogenated risk phrase substances or preparations do not require replacement). The operator (or their consultants) may identify measures to replace such risk phrase substances and preparations, for example from sectoral representative bodies, or the European Commission may make recommendations for substitution. The AIC inspector should provide comment on the adequacy of measures proposed proposals. Where the operator has provided satisfactory evidence that it is not possible to replace the specified risk phrase substances or preparations the AIC inspector should note this and comment as appropriate. The AIC inspector should provide comment on the adequacy of the documentation of the above.

5.3.4 Determine if specified risk phrase solvents are emitted above specified mass flows (section 1.3 AIC report)

Solvents with risk phrases R45, R46, R49, R60, R61, or R40 and halogenated have been given ELVs where discharges are above the specified mass flows (apart from perchloroethylene used in the dry cleaning industry). An initial desk-top study may be sufficient to determine if measurement is needed based on extraction rates, abatement efficiency, solvent consumption rates, previous monitoring, etc. Measurement to show compliance or otherwise, either by the AIC or by a sub-contractor, may then be necessary.

5.3.5 Determine requirements applicable to the facility (section 2 and section 3 or 4 AIC report)

For all other solvents in use apart from those with the specified risk phrases, the choice as to whether the installation is going to prove compliance using Emission Limit Values (ELVs), or the Reduction Scheme needs to be made by the operator of the installation. As already mentioned, in the event that the operator of the installation is not familiar with these options, the AIC should explain the difference including whether the relevant activity has waste gas & fugitive emission limits, and/or total emission limits on a per product basis, and whether there is an appropriate reduction scheme available. The AIC should also explain the information involved in each option, including the earlier notification required for the Reduction Scheme. Reference to the Best Practice Guidelines for the relevant sector should be made which may help the operator to decide which option to choose. See www.epa.ie for a list of Best Practice Guidelines that have been developed. It is a matter for the operator to present evidence that they are complying whichever option they choose.

Section 2 is the relevant section if the installation is proving compliance using the Emission Limit Values, whether meeting waste gas & fugitive emission limits, or meeting total emission limits on a per product basis. Section 3 is the relevant section if the installation is proving compliance using the Reduction Scheme. The applicable section should be gone through to determine the exact requirements of the Regulations for the installation. Reference to the Best Practice Guidelines for the relevant sector should also be made.

If a substantial change is to take place, it must be decided by the operator if the part of the installation that will undergo the substantial change is to be treated as a new installation or as an existing installation. If treated as an existing installation the total emissions of the whole installation must not exceed those that would result if the substantially changed part was treated as a new installation.

The Regulations allow for certain exemptions which the operator of the installation may wish to demonstrate. If this is the case, the relevant sections of the AIC report should be filled in as appropriate. Section 3.1.2 is the relevant section for an exemption from waste gas ELVs until 2013 for an existing installation with existing abatement equipment. Section 3.1.3 is the relevant section for an exemption from fugitive emission values. Section 3.2 is the relevant section for an exemption from reduction scheme or ELV requirements for coating activities which cannot be operated under controlled conditions. For the article 13 exemptions, it is a matter for the operator to prepare a report for the Local Authority from a competent independent consultant. The AIC must make a judgment as to whether the

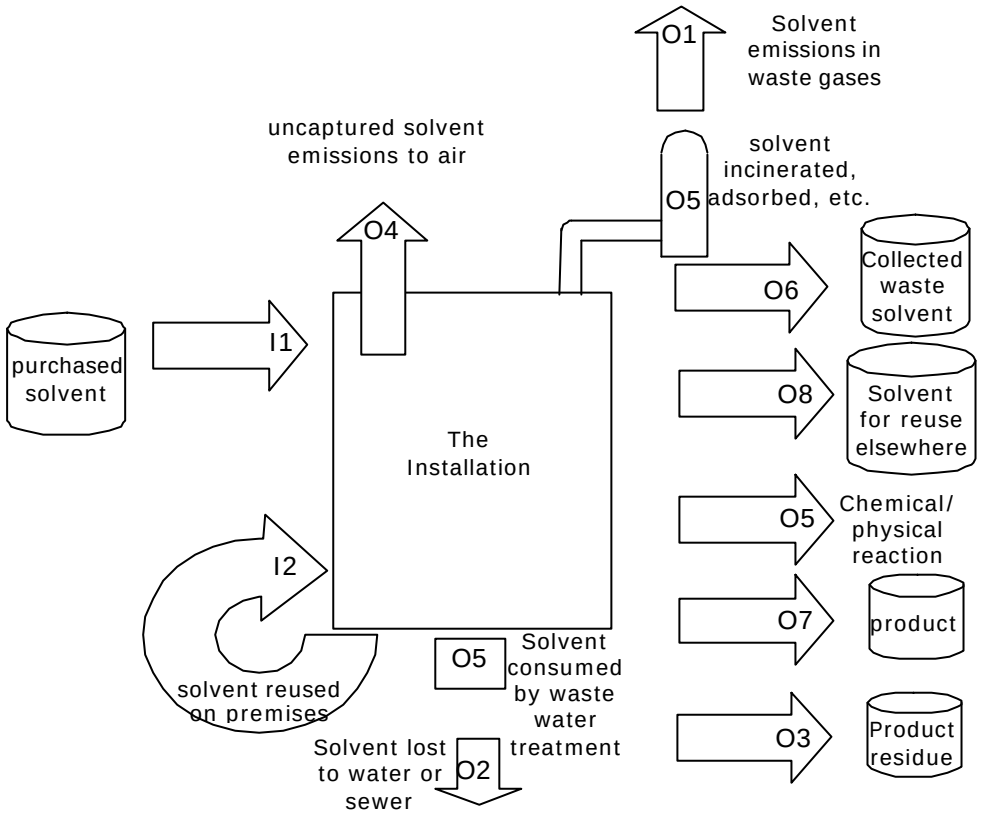
proposal meets the requirements set out in these sections and make a recommendation to the local authority to grant/refuse the exemption. The relevant report should be attached with the AIC report when submitted to the local authority by the operator.

5.3.6 Obtaining Information from the Solvent Management Plan (section 5 AIC report)

The function of the AIC is to review rather than compile the solvent management plan.

Not every solvent management plan mass balance term is applicable to every activity. Consult the Best Practice Guidelines and the Records Spreadsheet for the sector concerned which will illustrate which of the terms are relevant or significant for the sector. Both the Best Practice Guidelines and the Records Spreadsheet may suggest appropriate methods that the operator can use for calculating these terms. See www.epa.ie for a list of the Best Practice Guidelines and Records Spreadsheets that have been developed.

The following diagram illustrates the solvent management plan mass balance terms:



I1 The quantity of organic solvents (tonnes) 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 (tonnes). (The recycled solvent is counted every time it is used to carry out the activity)

O1 Emissions in waste gases (tonnes)

O2 Organic solvents lost in water (tonnes), if appropriate taking into account waste water treatment when calculating O5

O3 The quantity of organic solvents (tonnes) which remain as contamination or residue in products output from the process

O4 Uncaptured emissions of organic solvents to air (tonnes). This includes the general ventilation of rooms, where air is 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 (tonnes) (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 (tonnes)

O7 Organic solvents, or organic solvents contained in preparations, which are sold or are intended to be sold as a commercially valuable product (tonnes)

O8 Organic solvents contained in preparations recovered for reuse but not as input into the process (tonnes), as long as not counted under O7

O9 Organic solvents released in other ways (tonnes)

In general, the following sources of information can be used by the operator for each of the solvent management plan mass balance terms. The information should be collated in advance by the operator for the AIC inspector to evaluate and test by inspection.

I1 The quantity of organic solvents (tonnes) 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

Depending on the activity involved and the data available, the operator can obtain this information in different ways:

- purchase records or delivery records together with beginning and end of 12 month period stock levels.
- flowmeters.
- Production records of solvent usage.
- calculate from typical solvent usage rates per unit product/batch produced and production figures for the 12 month period.

I2 The quantity of organic solvents or their quantity in preparations recovered and reused as solvent input into the process (tonnes). (The recycled solvent is counted every time it is used to carry out the activity)

Depending on the activity involved and the data available, the operator can obtain this information in different ways:

- calculate from the typical amount of solvent used per batch or run and the number of batches or runs in the 12 month period.
- calculate from typical solvent usage rates per unit product produced and production figures for the 12 month period.
- If there is a solvent recovery plant on the site, there may be records for the number of batches recovered and information on the typical batch size.
- An ideal situation would be the use of totalising flowmeters which record solvent throughput every time it is used in the activity.

O1 Emissions in waste gases (tonnes)

This term would usually only be determined for installations meeting ELVs for specific waste gas streams. It can be determined as follows:

- Measurement of emissions together with waste gas flowrates and abatement equipment operation times for the 12 month period.
- Engineering estimate based on abatement equipment efficiency, known solvent usage rates, and operation times for the 12 month period.

O2 Organic solvents lost in water (tonnes), if appropriate taking into account waste water treatment when calculating O5

Depending on what information is available and the significance of the term:

- Measurement of emissions to water or sewer together with waste water flowrates and operation times for the 12 month period.
- Engineering estimate based on waste water treatment plant efficiency (e.g. biological treatment, carbon adsorption, etc.), waste water flowrates or estimates of volume, and operation times for the 12 month period.

O3 The quantity of organic solvents (tonnes) which remain as contamination or residue in products output from the process

Depending on what information is available and the significance of the term:

- Measurement of solvent content in the product (internal measurement data or

Material Safety Data Sheets) together with production figures for the 12 month period.

- Estimate based on operator knowledge of likely solvent content together with production figures for the 12 month period.

O4 Uncaptured emissions of organic solvents to air (tonnes). This includes the general ventilation of rooms, where air is released to the outside environment via windows, doors, vents and similar openings.

The most appropriate method here is very much sector dependent. It can include:

- A series of measurements of appropriate sources, e.g. building vents, process components such as pumps, flanges, etc. This can be done on a once-off basis and scaled-up based on solvent usage.
- Engineering estimate using appropriate software for emissions from, where relevant, bulk storage tanks (USEPA TANKS software) and biological waste water treatment plants (USEPA WATER8 software).
- By difference in the solvent management plan.

O5 Organic solvents and/or organic compounds lost due to chemical or physical reactions (tonnes) (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)

Depending on what information is available and the significance of the term:

- Measurement of waste gas/liquid concentrations pre and post abatement, flowrates, and operating times (incineration, thermal or catalytic oxidation, adsorption, scrubbing, biological waste water treatment).
- chemical or physical reactions: estimate based on process knowledge and/or sampling.
- Engineering estimate based on abatement equipment efficiency, flowrates, and operating times (incineration, thermal or catalytic oxidation, adsorption, scrubbing, biological waste water treatment).
- Engineering estimate using appropriate software for consumption due to biological waste water treatment (USEPA WATER8 software).

O6 Organic solvents contained in collected waste (tonnes)

Depending on what information is available and the significance of the term:

- Measurement of solvent concentration in the waste (in-house analysis or Certificates of destruction) together with tonnage of waste sent off-site (in-house waste records, waste contractor records).
- Estimates of solvent concentration in the waste based on operator knowledge, typical sector values, etc. Estimates of tonnage per unit product.

O7 Organic solvents, or organic solvents contained in preparations, which are sold or are intended to be sold as a commercially valuable product (tonnes)

Depending on what information is available and the significance of the term:

- Measurement of solvent content in the product (internal measurement data or Material Safety Data Sheets) together with production figures for the 12 month period.
- Estimate based on operator knowledge of likely solvent content together with production figures for the 12 month period.

O8 Organic solvents contained in preparations recovered for reuse but not as input into the process (tonnes), as long as not counted under O7

Depending on what information is available and the significance of the term:

- Measurement of solvent concentration in the material sent off-site for reuse (in-house analysis) together with tonnage sent off-site (in-house records, receiver records).
- Estimates of solvent concentration in the material based on operator knowledge, typical sector values, etc. Estimates of tonnage per unit product.

O9 Organic solvents released in other ways (tonnes)

Any other release which has not been accounted for in the other output terms.

Total mass of solids in coatings consumed in the 12 month period

This term is used in the reduction scheme. Get volume of coatings used in the 12 month period as per I1. Get solids content from MSDS or other raw material information or directly from vendors.

5.3.7 Measurement of Emissions (section 6 AIC report)

Measurement of emissions is usually only carried out where the ELV route has been chosen and the sector involved has an ELV set for waste gases. In many cases measurement of emissions in waste gases is not necessary and the solvent management plan can be used to demonstrate compliance or otherwise with the Regulations. Consult the Best Practice Guidelines or the records Spreadsheet relevant to the sector.

If historical measurement has been carried out, it should be repeated only where there may have been changes to the process or equipment which could affect emissions. Measurement can be carried out by the AIC if appropriately accredited, or the AIC can sub-contract this work to an accredited contractor.

The recommended method for measurement is Continuous Flame Ionisation Detector Method. The Standard for the method is IS EN 13526:2002 "Stationary Source Emissions - Determination of the Mass Concentration of Total Gaseous Organic Carbon in Flue gases from Solvent Using Processes - CFID Method".

Measurement of emissions should conform to the requirements of articles 16, 17, 18, 19, and 20(3) to S.I. 543 of 2002 as appropriate.

Any measuring equipment used, and the procedures used for operating such equipment, should comply with the requirements of section 9 of ISO 17020. Any subcontractor used should meet the requirements of section 14 of ISO 17020.

5.3.8 Determining Compliance (section 7 AIC report)

Comparison of the summarised requirements of the Regulations and the current performance (as determined by the solvent management plan or through measurement of emissions) will identify whether the installation is in compliance or otherwise with the Regulations. Dates for compliance should be stated.

5.3.9 Reporting Major and Minor Non-compliances, and Observations (section 8 AIC report)

Based on all of the information in the AIC report and through observations made during the site inspection, the AIC should report major non-compliances (reason(s) for operation being non-compliant), minor non-compliances (less serious issues which in time could become major non-compliances – inspection passed), and observations (areas for improvement by the operator perhaps with a view to avoiding minor non-compliances in the future).

Information for this section should be generated through the review of site documentation and records, observations during the site tour, response from employees, training information, operating procedures, etc.

Reference should be made to the sectoral Best Practice Guidelines which will outline other mandatory requirements for the sector concerned (e.g. mandatory solvent containment measures, hazardous waste disposal requirements, training records, maintenance records, etc.). The Best Practice Guidelines will also highlight possible improvements for the installation in terms of the section on best practice for reducing emissions.

Consideration should be given to the following:

- Improvement in practices – have any opportunities been identified for reduction in solvent consumption, reduction in emissions, increase in on-site re-use, off-site recovery, improved treatment, etc.?
- Operating and maintenance procedures: both process equipment and abatement equipment - do operating procedures take account of minimising emissions and accidental releases, especially during start-up and shut-down? are maintenance

procedures sufficient to minimise or prevent emissions?

- Training: are employees suitably trained in terms of solvent handling, waste handling practices, any health risks, operating procedures to minimise emissions, awareness obligations under the Regulations, etc.? Is such training documented?
- Waste management: is solvent containing waste, including contaminated packaging, absorbents, etc., appropriately stored and handled? Are disposal contractors appropriately licensed or permitted?
- Material and waste storage: is it sufficient to minimise fugitive emissions and prevent accidental emissions?
- Record keeping: are records adequate in terms of availability, detail, content, etc. to compile the solvent management plan? Are there any improvements which could be made in relation to record keeping?
- Solvent management plan terms: is there any suggestions for improving the data sources for any of the solvent management plan terms?

Issues of concern not related to the solvents Regulations should be brought to the operators attention and appropriate authorities alerted in line with best professional auditors practice.

6 Preparation of the AIC report

Where any particular subsection of the generic AIC Report template is not relevant to a particular installation, just the heading of this subsection should be retained, its content deleted, and the words “Not applicable” inserted. This is to aid understanding of the report.

The use of a different colour font for data entered into the template may also assist understanding of the report.

The AIC shall provide a signed paper copy or copies of the AIC report to the operator of the installation when completed.

The AIC shall ensure the operator of the installation is notified as to whether the AIC considers the installation to be in compliance or otherwise with the Regulations and is also notified of any major non-compliances, minor non-compliances, or observations that may have been included in the report.

The AIC shall advise the operator of the installation to submit a copy of the AIC report signed by the AIC to the competent authority in confidence.

7 Records

A copy of the AIC report should be kept on record by the operator of the installation and in confidence by the AIC. An electronic locked copy may be retained by the AIC for their records. No further alterations to the signed approved copy may be made.

The AIC is required to keep on file the original audit process/findings made during the site visit (audit notes, what was looked at, reference numbers, etc.).

8 Review

This procedure may be reviewed periodically as best practice in this area develops and in the event of any changes to the relevant legislation.

9 References

ISO 17020 General Criteria for the Operation of Various types of bodies Performing Inspection

Appendix 1

Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002)

Appendix 2

Activities covered by the solvents Directive and the corresponding appropriate regulatory system (IPPC licence or AIC system).

Appendix 1

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[3] 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;

[3] 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 and5 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^3 in the case of incineration; or

(b) the emission limit value of 150 mg C/Nm^3 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[4], 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.

[4] 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^3 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^3 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 therefore.

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[5], 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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[5] 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, calendering, 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 vegetables 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 ($mg/C/Nm^3$)	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([1]) 30([1])		([1]) 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([1])	100 100 100	25 20 20		([1]) Threshold for rotary screen printing on textile and on cardboard.
4	Surface cleaning([1]) (>1)	1-5 >5	20 ([2]) 20 ([2])	15 10		([1]) Using compounds specified in Articles 8 and 10. ([2]) Limit refers to mass of compounds in mg/Nm^3 and not to total carbon.
5	Other surface cleaning (>2)	2-10 >10	75([1]) 75([1])	20([1]) 15([1])		([1]) 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([1])	25		([1]) 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 ($mg/C/Nm^3$)	Fugitive emission values (percentage of solvent input)	Total emission limit values	Special provisions
7	Coil Coating (> 25)		50 ([1])	(New) 5 (Existing) 10		([1]) 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([5]), fabric, film and paper coating (>5)	5-15 > 15	100([1])([4]) 50/75 ([2])([3])([4])	25([4]) 20([4])		([1]) Emission limit value applies to coating application and drying processes, operated under contained conditions ([2]) The first emission limit value applies to drying processes, the second to coating application processes. ([3]) 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. ([4]) 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). ([5]) Rotary screen printing on textile is covered by activity No. 3 .
9	Winding wire coating (>5)				10 g/kg([1]) 5 g/kg ([2])	([1]) Applies for installations where average diameter of wire $\leq$ 0.1 mm. ([2]) Applies for all other installations.

	Activity (solvent consumption in tonnes/year)	Threshold (solvent consumption threshold in tonnes/year)	Emission limit values in waste gases ($mg/C/Nm^3$)	Fugitive emission values (percentage of solvent input)	Total emission limit values	Special provisions
10	Coating of wooden surfaces (>15)	15-25 >25	100([1]) 50/75([2])	25 20		([1]) Emission limit applies to coating application and drying processes operated under contained conditions ([2]) The first value applies to drying processes, the second to coating application processes.
11	Dry cleaning				20 g/kg ([1])([2])	([1]) Expressed in mass of solvent emitted per kilogram of product cleaned and dried. ([2]) The emission limit in Article 10 does not apply for this sector.
12	Wood impregnation (> 25)		100([1])	45	11 kg/m^3	([1]) Does not apply for impregnation with creosote.
13	Coating of leather (> 10)	10-25 >25 (>10) ([1])			85 g/m^2 75 g/m^2 150 g/m^2	Emission limits are expressed in grams of solvent emitted per m^2 of product produced. ([1]) 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^2	
16	Adhesive coating (> 5)	5-15 > 15	50([1]) 50([1])	25 20		([1]) 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 ($mg/C/Nm^3$)	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([1])	25 ([2])	25% of solvent input	([1]) If techniques are used which allow reuse of recovered solvent, the emission limit value in waste gases shall be 150. ([2]) 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 ([1]) 1.5 kg/tonne([2]) 4 kg/tonne([3])	([1]) 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. ([2]) Applies to all fractionation processes excluding de-gumming (the removal of gums from the oil). ([3]) Applies to de-gumming.
20	Manufacturing of pharmaceutical products (>50)		20 ([1])	(New) 5([2]) (Existing) 15([2])	(New) 5% of solvent input (Existing) 15% of solvent input	([1]) If techniques are used which allow reuse of recovered solvent, the emission limit value shall be 150. ([2]) 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:

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

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 electrophetic 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^2 of the total surface area of coated product and as the mass sum or 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^2 unless otherwise indicated)	
		New	Existing
Coating of new cars (> 15)	> 5,000	45 or 1.5 kg/body + 33 g/m^2	60 or 1.9 kg/body + 41 g/m^2
	≤5,000 monocoque >3,500 chassis-built	90 or 1.5 kg/body + 70 g/m^2	90 or 1.5 kg/body + 70 g/m^2
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 0f 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 28th day of November 2002

L.S.

Martin Cullen

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 Prevention and 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.

Appendix 2: Activities covered by the Solvents Directive and the Corresponding Appropriate Regulatory System (IPPC licence or AIC system)

The Solvents Directive applies to the following activities above the solvent consumption thresholds specified in the second column (a definition of each activity is given in the Regulations). The appropriate regulation system, either IPPC licensing or AIC system, is shown in the third and fourth columns. This list is indicative of the requirements of the regulations and should not be interpreted as a definitive list or a legal interpretation. All operators are advised to seek further advice and contact the EPA for further guidance if required.

	Activity	Solvent consumption[6] threshold (tonnes/year) above which Regulations apply	Appropriate Regulatory System	
			IPPC licence	AIC system
1	Heatset web offset printing	> 15	All such activities with capacity to use 10 tonne/year	AIC system not applicable
2	Publication rotogravure	> 25	All such activities with capacity to use 10 tonne/year	AIC system not applicable
3	Other rotogravure, flexography, rotary screen printing, laminating or varnishing units	> 15	All such activities with capacity to use 10 tonne/year	AIC system not applicable
	rotary screen printing on textile/cardboard	> 30	All such activities with capacity to use 10 tonne/year	AIC system not applicable
4	Surface cleaning using compounds with risk phrases R45, R46, R49, R60, R61, or R40 and halogenated	> 1	All such activities where capacity > 150 Kg/hour or > 200 tonnes/year	All such activities < 150 Kg/hour or < 200 tonnes/year
5	Other surface cleaning	> 2	All such activities where capacity > 150 Kg/hour or > 200 tonnes/year	All such activities < 150 Kg/hour or < 200 tonnes/year
6	Vehicle coating and vehicle refinishing	> 0.5	All such activities with capacity to use 10 tonne/year	All such activities with capacity to use < 10 tonne/year
7	Coil Coating	> 25	All such activities with capacity to use 10 tonne/year	AIC system not applicable
8	Other coating, including metal, plastic, textile([5]), fabric, film and paper coating	> 5	All such activities with capacity to use 10 tonne/year	All such activities with capacity to use < 10 tonne/year

[6] 'Consumption' means the total input of solvents into an installation per calendar year, or any other 12-month period, less any solvents that are recovered for reuse.

'Reuse' means the use of solvents recovered from an installation for any technical or commercial purpose and including use as a fuel but excluding the final disposal of such recovered organic solvent as waste.

	Activity	Solvent consumption threshold (tonnes/year) above which Regulations apply	Appropriate Regulatory System	
			IPPC licence	AIC system
9	Winding wire coating	> 5	All such activities with capacity to use 10 tonne/year	All such activities with capacity to use < 10 tonne/year
10	Coating of wooden surfaces	> 15	All such activities with capacity to use 10 tonne/year	AIC system not applicable
11	Dry cleaning	-	IPPC not applicable	All such activities (no solvent threshold)
12	Wood impregnation	> 25	All such activities with capacity to treat 10 tonnes wood /day	All such activities with capacity to treat < 10 tonnes wood /day
13	Coating of leather	> 10	All such activities with capacity to use 10 tonne/year	AIC system not applicable
14	Footwear manufacture	> 5	All such activities with capacity to use 10 tonne/year	All such activities with capacity to use < 10 tonne/year
15	Wood and plastic lamination	> 5	All such activities with capacity to use 10 tonne/year	All such activities with capacity to use < 10 tonne/year
16	Adhesive coating	> 5	All such activities with capacity to use 10 tonne/year	All such activities with capacity to use < 10 tonne/year
17	Manufacture of coating preparations, varnishes, inks and adhesives	> 100	Coating preparations: All such activities with capacity to use 10 tonne/year. Varnishes, inks: All such activities where production capacity > 1000 litres/week. Adhesives: All such activities (no threshold).	Coating preparations: AIC system not applicable. Varnishes, inks: All such activities where production capacity 1000 litres/week Adhesives: AIC system not applicable.
18	Rubber conversion	> 15	All manufacture of elastomers where production capacity > 1000 litres/week or Production of synthetic rubbers (no threshold)	All such activities with capacity < 1000 litres/week apart from production of synthetic rubbers
19	Vegetable oil and animal fat extraction and vegetable oil refining activities	> 10	All such activities with capacity for processing raw materials > 40 tonnes/day	All such activities with capacity for processing raw materials < 40 tonnes/day
20	Manufacturing of pharmaceutical products	> 50	All such activities except pharmaceutical formulation	All such pharmaceutical formulation plants

Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002

(S.I. 543 of 2002)

Accredited Inspection Contractor (AIC) Report Template

Note: the approved AIC report on individual installations shall be held in confidence by the AIC and the local authority.

*** Where any section or subsection marked with an asterisk (*) is not relevant to the installation, retain the heading of that section or subsection, delete the content, and insert "Not applicable".**

_____w_____

Name and address of the operator of the installation[1]:

Address of the installation (if different to operator address):

_____

SCHEDULED ACTIVITIES IPPC LICENSABLE BY THE EPA

- The operator of the installation needs to hold an IPPC licence in order to operate (if not already IPPC licensed)[2]. The operator must notify the EPA of the position immediately.
- The operator of the installation must meet the relevant requirements of S.I. 543 of 2002, including submission of this AIC report[3].
- None of the activities identified are scheduled[4].

_____

RELEVANT ACTIVITIES

The activity or activities relevant to the installation are listed below, together with relevant solvent consumption thresholds, where applicable. The solvent management plan, or other means, has determined that the solvent consumption of the activity or activities relevant to the installation are as shown below.

Scheduled Activity[5]:	Solvent Consumption Threshold (t/yr)[6]:	Installation's Solvent Consumption (t/yr)[7]:

_____

COMPLIANCE OR OTHERWISE OF THIS INSTALLATION WITH THE REGULATIONS

In accordance with article 24(1) of the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002), the undersigned Accredited Inspection Contractor inspector hereby declares that the above named installation is[8]

- in compliance with the requirements of the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002).
- not in compliance with the requirements of the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002).

MAJOR NON-COMPLIANCES, MINOR NON-COMPLIANCES, AND OBSERVATIONS

The undersigned Accredited Inspection Contractor inspector notes the following in relation to this installation[9]:

Major Non-compliances (reason(s) for operation being non-compliant):

Minor Non-compliances (less serious issues which in time could become major non-compliances – inspection passed):

Observations (areas for improvement by the operator with a view to avoiding minor non-compliances in the future):

_____

INSTALLATION DETAILS

Competent authority[10]:

Type of installation: new installation • (put into operation on or after 1 July 2003) ***NB must be registered & obtain Certificate of Compliance <u>before</u> operating)*** existing installation • (in operation on or before 30 June 2003)

Reason for reporting[11]: annual reporting • substantial change • new installation •

If the reason for reporting is a substantial change, is the part of the installation that will undergo the substantial change to be treated as:

• a new installation, or • an existing installation

If treated as an existing installation, will the installation fulfill the requirement that the total emissions of the whole installation not exceed those that would result if the substantially changed part be treated as a new installation? Y/N___

Register number[12]:

Annual emissions measurement required[13]? Y/N ___ If yes, satisfactory data provided? Y/N ____ (if N = major non-compliance. See section 7.3.1)

Volume of solvent used in the period (I1) (tonnes)[14]:

Demonstrating compliance using:
- ELV (including the 'per product' ELV) or
- Reduction Scheme (Schedule 3 of SI 543 of 2002) or
- Alternative Reduction Scheme

Are any of the allowed exemptions being sought? Y/N ____

- Exemption sought under Article 13(2) of the Regulations (Article 5(3a) of the Directive) from the application of fugitive emission values.

  A report is attached for consideration by the competent authority which in the opinion of the AIC inspector satisfies the items in section 3.2.2? Y/N ____

  Exemption recommended by the AIC? Y/N ____

- Exemption sought under Article 13(3) of the Regulations (Article 5(3b) of the Directive) for coating activities which cannot be operated under controlled conditions from the application of ELV and reduction scheme requirements.

  A report is attached for consideration by the competent authority which in the opinion of the AIC inspector satisfies the items in section 4.4? Y/N ____

  Exemption recommended by the AIC? Y/N ____

_____

Inspector signature: Date:

Inspector name (print)[15]:

Date of AIC inspection:

Accredited Inspection Contractor[16]: INAB reg. no[17]:

1 SOLVENTS WITH SPECIFIED RISK PHRASES*

1.1 Use of Solvents with Specified Risk Phrases*

The following solvents are used by the installation which have been assigned risk phrases as indicated[18]:

Risk Phrase	Relevant Solvent Name(s)	Solvent Consumption (t/yr)[19]
R45 (may cause cancer)		
R46 (may cause heritable genetic damage)		
R49 (may cause cancer by inhalation)		
R60 (may impair fertility)		
R61 (may cause harm to the unborn child)		
R40 (limited evidence of a carcinogenic effect) and halogenated		

1.2 Measures Proposed to Replace Certain Solvents with Specified Risk Phrases[20]*

The measures proposed by the operator/their consultants, or recommended by the European Commission, to replace as far as possible within the shortest possible time substances and preparations that have been assigned risk phrases **R45**, **R46**, **R49**, **R60**, or **R61** by less harmful substances or preparations in accordance with article 8 of S.I. 543 of 2002 are as follows[21]:

AIC comment on adequacy and records of the measures proposed:

1.3 Emission Limit Values (ELVs) for Certain Discharges of Solvents with Specified Risk Phrases[22]*

Substances with risk phrases **R45**, **R46**, **R49**, **R60**, **R61**, or **R40 and halogenated** have been given the following Emission Limit Values (ELVs) (apart from perchloroethylene used in the dry cleaning industry), where discharges are above the specified mass flows:

Risk Phrase	Threshold mass flow of the sum of such compounds	Emission limit value (mass sum of the individual compounds)
R45 (may cause cancer) R46 (may cause heritable genetic damage) R49 (may cause cancer by inhalation) R60 (may impair fertility) R61 (may cause harm to the unborn child)	10 g/h	2 mg/Nm^3
R40 (limited evidence of a carcinogenic effect) and halogenated	100 g/h	20 mg/Nm^3

Where substances are in use that have been assigned the above risk phrases (apart from perchloroethylene used in the dry cleaning industry) a consultant with specialist measuring/estimating skills to determine use/emissions will be required.

Tick as appropriate:

- Discharge(s) do not exceed the relevant mass flow thresholds stated in the table above[23]. Therefore these emission limit values are not relevant to the installation.
- The following discharge(s) exceed the relevant mass flow thresholds. The corresponding emission limit value in the final column below is applicable to the discharge point(s)[24]:

Solvent Name(s)	**Risk Phrase**	**Threshold mass flow of the sum of such compounds (g/h)**	**Discharge Point** (e.g. flue/fan at elevated or ground level)	**Actual mass flow of the sum of such compounds (g/h)**	**Emission limit value (mass sum of the individual compounds) (mg/Nm^3)**

N.B. These emission limit values are applicable for emissions of such substances even where the operator of the installation opts to use the reduction scheme for other VOC emissions, or where the operator of the installation has existing abatement equipment. It is recommended that the discharge point be situated at a sufficient height such that by adequate dispersion and dilution emissions will not cause odour nuisance and will safeguard public health and the environment.

2 EMISSION LIMIT VALUES OR REDUCTION SCHEME

In accordance with article 7(1) of the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002), the installation has decided (indicate option chosen):

- To demonstrate compliance with the Regulations using the waste gas and fugitive Emission Limit Values, or using the per unit product total Emission Limit Value. **Section 3.1** of the report is relevant to the installation.
- To demonstrate compliance with the Regulations using the Reduction Scheme. **Section 4** of the report is relevant to the installation.
- To seek an exemption under article 13(3) of the Regulations from ELV or reduction scheme requirements for other coating activities which cannot be operated under controlled conditions. **Section 3.2** of the report is relevant to the installation.

3 EMISSION LIMIT VALUES*

3.1 Determining the relevant ELVs under the Regulations for this Installation

The Emission Limit Values (ELVs) under the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002) that are relevant to the activity or activities being carried on at the installation are as follows[25]:

Activity[26]	Threshold (solvent consumption threshold in tonnes/year)	Emission limit values in waste gases (mg C/Nm^3)	Fugitive emission value (percentage of solvent input)	Total emission limit value per unit product	Special provisions

Where an activity has an ELV in waste gases, a fugitive ELV and a total ELV per unit product, the installation must meet either the total ELV per unit product, or meet both the waste gas and fugitive ELVs. The operator of the installation has decided to demonstrate compliance with:

- the emission limit value in waste gases and the fugitive emission value outlined in the above table. Section 3.1.1 is relevant.
- the total emission limit value per unit product outlined in the previous table. The rest of section 3 is not relevant.

3.1.1 Possible Exemptions from Waste Gas and Fugitive ELVs*

The following emission limit value in waste gases applies to the following discharge point(s)[27]:

Discharge Point (e.g. flue/fan at elevated or ground level)	Emission limit value in waste gases (mg C/Nm^3)

It is recommended that all solvent waste gas discharges be located at sufficient height to adequately disperse emissions to avoid causing environmental or health problems.

The installation (indicate option(s) chosen):

- is not seeking any exemption from the emission limit value in waste gases or from the fugitive emission value. The rest of section 3 is not relevant.
- has decided to seek an exemption under article 7(4) of the Regulations for an existing installation with existing abatement equipment[28] from the waste gas emission limit value. Section 3.1.2 is relevant.
- has decided to seek an exemption under article 13(2) of the Regulations from the fugitive emission value. Section 3.1.3 is relevant.

_____

3.1.2 Exemption under Article 7(4) from the Waste Gases Emission Limit Value for Existing Installations with Existing Abatement Equipment*

Where the installation is an existing installation with existing abatement equipment, the waste gas ELVs under the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002) that are relevant to the installation are as follows:

Type of abatement	**Emission limit values (ELVs) for existing abatement equipment**
Incineration	50 mg C/Nm^3
Any other abatement equipment	150 mg C/Nm^3

The above emission limit values in waste gases apply to the following discharge points[29]:

Discharge Point (e.g. flue/fan at elevated or ground level)	Emission limit value (ELVs) for existing abatement equipment

These discharge points fulfil the definition of existing abatement equipment? Y/N ____

The installation is required to meet these ELVs no later than 31 October 2007. The ELVs are applicable until 1 April 2013.

These ELVs are applicable only if the total emissions of the whole installation do not exceed those that would have resulted had all the requirements of Schedule 2 to S.I. 543 of 2002 been met. This would be as follows:

Total emissions had all the requirements of Schedule 2 been met (tonnes/year)[30]	

After 1 April 2013, the relevant waste gas ELV in Schedule 2 to S.I. 543 of 2002 will apply.

This exemption does not apply to fugitive emission values. Hence the fugitive emission value outlined in section 3.1 will apply from 31 October 2007.

3.1.3 Exemption under Article 13(2) from the Fugitive Emission Value*

- An exemption is being sought from the fugitive emission value under article 13(2) of the Regulations[31]

Has the operator of the installation prepared for the local authority a report from a competent independent consultant which sets out the reasons why an exemption should be granted?
Y/N ____

Does this report demonstrate to the satisfaction of the AIC inspector that:

- the fugitive emission value is not technically and economically feasible? Y/N ____
- the installation provides no significant risk to human health or the environment? Y/N ____
- the best available technique is being used at the installation? Y/N ____

Does the AIC inspector recommend to the local authority that this exemption be granted? Y/N ____

3.2 Exemption under Article 13(3) from Reduction Scheme or ELV requirements for Other Coating Activities that cannot be operated under controlled conditions*

- An exemption is being sought under article 13(3) of the Regulations from the emission limit values (ELVs) and from the requirements of the reduction scheme in Schedule 3 for other coating activities (activity 8 of Schedule 2 to the Regulations) which cannot be operated under controlled conditions[32].

Has the operator of the installation developed for the local authority a report from a competent independent consultant which sets out the reasons why an exemption should be granted? Y/N ____

Does this report demonstrate to the satisfaction of the AIC inspector that:

- the requirements of the emission limit values (ELVs) in Schedule 2 and the reduction scheme in Schedule 3 to the Regulations are not technically and economically feasible? Y/N ____
- the best available technique is being used at the installation? Y/N ____

Does the AIC inspector recommend to the local authority that this exemption be granted? Y/N ____

4 REDUCTION SCHEME*

4.1 Determining the Relevant Reduction Scheme Requirements for this Installation

The installation proposes to[33]:

- use the reduction scheme outlined in Schedule 3 to S.I. 543 of 2002. Section 4.2 is relevant.
- use a reduction scheme specially designed for the installation that in the end can achieve an equivalent emission reduction. Section 4.3 is relevant.

4.2 Reduction Scheme Outlined in Schedule 3 to S.I. 543 of 2002*

The reduction scheme requirements under the Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 (S.I. 543 of 2002) that are relevant to the installation are as follows[34]:

Annual Reference Emission

= (total tonnes of solids in coatings consumed in 12 month period) x (multiplication factor)

= ([35]) x ([36])

= ( ) tonnes solvent

Target Emission

= (Annual Reference Emission) x (percentage)

= ([37]) x ([38])

= ( ) tonnes solvent

Maximum Allowed Total Annual Emissions

Interim: Maximum Allowed Total Annual Emissions = (Target Emission) x 1.5

= ( ) x 1.5

= ( ) tonnes solvent

Final: Maximum Allowed Total Annual Emissions = (Target Emission)

= ( ) tonnes solvent

Time period	Maximum Allowed Total Annual Emissions[39]
Interim[40]: By	
Final[41]: By	

4.3 Alternative Reduction Scheme Specially Designed for the Installation*

Outline the alternative reduction scheme specially designed for the installation[42]:

Demonstrate how it can achieve an emission reduction equivalent to the reduction scheme in Schedule 3 to S.I. 543 of 2002:

5 SOLVENT MANAGEMENT PLAN

5.1 Mass Balance Terms

The mass balance terms for the solvent management plan in Schedule 6 to S.I. 543 of 2002 are as follows (see page 6 of the procedure for an illustration):

Mass Balance Terms	
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 is 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 preparations, 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

5.2 Determining Consumption

The relevant mass balance terms for calculating solvent consumption are as follows:

Mass Balance Term		Value for the Installation (tonnes)
		12 month period: _ / _ / _ to _ / _ / _
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	
O8	Organic solvents contained in preparations recovered for reuse but not as input into the process, as long as not counted under O7	

Therefore solvent consumption for the installation is as follows:

C = I1 – O8
C = ( ) – ( )
C = ( ) tonnes

5.3 Demonstrating Compliance

The mass balance terms that are relevant to the installation are dependent on what the solvent management plan is being used to demonstrate, and also on the type of activity being carried on at the installation. Where the installation is using the solvent management plan to (tick appropriate one):

- demonstrate compliance with a total Emission Limit Value expressed in solvent emissions per unit product or otherwise stated in Schedule 2 to S.I. 543 of 2002 (see Appendix 1 to the procedure), section 5.4.1 outlines the mass balance terms relevant to the installation.
- demonstrate compliance with a Fugitive Emission Value in Schedule 2 to S.I. 543 of 2002 (see Appendix 1 to the procedure), section 5.4.2 outlines the mass balance terms relevant to the installation.
- demonstrate compliance with the Reduction Scheme in Schedule 3 to S.I. 543 of 2002 (see Appendix 1 to the procedure), section 5.5.1 outlines the mass balance terms relevant to the installation.
- demonstrate compliance with any other Reduction Scheme, section 5.5.2 outlines the mass balance terms relevant to the installation.

5.4 Solvent Management Plan – Emission Limit Value Route*

5.4.1 Solvent Management Plan – demonstrating compliance with Total Emission Limit Values per Unit Product*

Where the installation is demonstrating compliance with a total Emission Limit Value expressed in solvent emissions per unit product or otherwise stated in Schedule 2 to S.I. 543 of 2002 (see Appendix 1 to the procedure), the mass balance terms that are relevant to this installation and the values that have been calculated are as follows[43]:

Mass Balance Term		**Value for the Installation (tonnes)**
		12 month period: _ / _ / _ to _ / _ / _
F	Fugitive emissions - see section 5.4.3 for the calculation.	
O1	Emissions in waste gases	

Therefore emissions for the installation are as follows:

E = F + O1
E = ( ) + ( )
Also relevant to this installation is:

	Value for the Installation	**Units**
	12 month period: _ / _ / _ to _ / _ / _	
Relevant product parameter[44]		

Total 'per product' emission value = E / Relevant product parameter

= ( )/( )

= ( )

5.4.2 Solvent Management Plan - demonstrating compliance with Fugitive Emission Values*

Where the installation is demonstrating compliance with a Fugitive Emission Value, the mass balance terms that are relevant to this installation and the values that have been calculated are as follows[45]:

Mass Balance Term		**Value for the Installation (tonnes)**
		12 month period: _ / _ / _ to _ / _ / _
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)	
F	Fugitive emissions - see section 5.4.3 for the calculation.	

Therefore fugitive emissions for the installation are calculated as follows:

I = I1 + I2

I = ( ) + ( )

Fugitive emission = F / I

= ( )/( )

= ( )

5.4.3 Solvent Management Plan – Calculating Fugitive Emissions*

Fugitive emissions for the installation are calculated as follows:

- F = I1 – O1 – O5 – O6 - O7 - O8 (section 5.4.3.1)

or

- F = O2 + O3 + O4 + O9 (section 5.4.3.2)

or

- An equivalent calculation (section 5.4.3.3)

or

- Direct measurement (section 6.2)

---

*5.4.3.1 Calculating Fugitive Emissions using F = I1 – O1 – O5 – O6 - O7 - O8 **

Mass Balance Term[46]		**Value for the Installation (tonnes)**
		12 month period: _ / _ / _ to _ / _ / _
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	
O1	Emissions in waste gases	
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 preparations, 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	

F = I1 – O1 – O5 – O6 - O7 - O8

F = ( ) - ( ) - ( ) - ( ) - ( ) - ( )

F = ( ) tonnes

---

*5.4.3.2 Calculating Fugitive Emissions using F = O2 + O3 + O4 + O9 **

Mass Balance Term[47]		**Value for the Installation (tonnes)**
		12 month period: _ / _ / _ to _ / _ / _
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 is released to the outside environment via windows, doors, vents and similar openings.	
O9	Organic solvents released in other ways	

F = O2 + O3 + O4 + O9

F = ( ) + ( ) + ( ) + ( )

F = ( ) tonnes

_____

5.4.3.3 Calculating Fugitive Emissions using an Equivalent Calculation*

Fugitive emissions have been calculated using an equivalent calculation to those outlined in Schedule 6 to S.I. 543 of 2002 as follows:

Is the AIC inspector satisfied that this calculation provides an adequate estimate of fugitive emissions? Y/N ____

_____

5.5 Solvent Management Plan – Reduction Scheme Route*

_____

5.5.1 Solvent Management Plan – demonstrating compliance with the Reduction Scheme in Schedule 3 to S.I. 543 of 2002*

Where the installation is demonstrating compliance with the Reduction Scheme in Schedule 3 to S.I. 543 of 2002 (see Appendix 1 to the procedure), the mass balance terms that are relevant to this installation and the values that have been calculated are as follows[48]:

Mass Balance Term		**Value for the Installation (tonnes)**
		12 month period: _ / _ / _ to _ / _ / _
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	
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 preparations, 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	

Therefore emissions for the installation are as follows:

E = I1 – O5 – O6 – O7 – O8
E = ( ) - ( ) - ( ) - ( ) - ( )
E = ( )

Also relevant to this installation is:

	Value for the Installation (tonnes)
	12 month period: / / to / /
Total mass of solids in coatings consumed in the 12 month period	

_____

5.5.2 Solvent Management Plan – demonstrating compliance with any other Reduction Scheme*

Where the installation is demonstrating compliance with an alternative Reduction Scheme, the mass balance terms that are relevant to this installation and the values that have been calculated are as follows[49]:

Is the AIC inspector satisfied that the reduction scheme proposed is suited to demonstrate compliance with the solvents Directive? Y/N ____

6 MEASUREMENT OF EMISSIONS*

6.1 Measurement of Emissions – Waste Gases*

Note: measurement of ***waste gas emissions*** is usually only carried out where the emission limit value (ELV) route has been chosen, where the sector involved has an ELV set for waste gases, and to demonstrate compliance with such a waste gas ELV.

Measurement has been carried out by (specify):

date:

The recommended method for measurement (Continuous Flame Ionisation Detector Method in accordance with IS EN 13526:2002) has been used yes • /no •

Measurement of emissions conforms to the requirements of articles 16, 17, 18, 19, and 20(3) to S.I. 543 of 2002 as appropriate yes • /no •

Ilab Ref. No.:

Procedure No.:

Instrument I.D. No.:

Analytical Laboratory Report No.: (also append original report)

Last/next calibration.:

Emissions in waste gases have been measured directly. Results for actual emissions in waste gases are as follows (note measurement result here and include it in relevant compliance table in section 8) for each emission point measured:

Emission point	Result (mg C/m^3)

Is the AIC inspector satisfied that measurements have been taken correctly? Y/N ____

6.2 Measurement of Emissions – Fugitive Emissions*

Note: measurement of ***fugitive emissions*** can be carried out but this is usually for certain sectors only and on a once-off basis. It is more common to calculate fugitive emissions using the solvent management plan (see section 5.4.3).

Measurement has been carried out by (specify):

date:

The recommended method for measurement (Continuous Flame Ionisation Detector Method in accordance with IS EN 13526:2002) has been used yes • /no •

Measurement of emissions conforms to the requirements of articles 16, 17, 18, 19, and 20(3) to S.I. 543 of 2002 as appropriate yes • /no •

Ilab Ref. No.:

Procedure No.:

Instrument I.D. No.:

Analytical Laboratory Report No.: (also append original report)

Last/next calibration.:

Fugitive emissions have been measured directly. Results for actual fugitive emissions are as follows:

Emission point	Result (mg C/m^3)	Volumetric flowrate[50]

Is the AIC inspector satisfied that measurements have been taken correctly? Y/N ____

7 DEMONSTRATION OF COMPLIANCE

For solvents with the risk phrase(s) specified in section 1.1 the installation (tick the relevant option):

- Does not use any such solvents.
- Uses such solvents, but discharges are below the mass flow thresholds specified in section 1.3. Therefore **Section 7.1** is relevant to the installation.
- Uses such solvents, and has discharges of such solvents at mass flow thresholds above those specified in section 1.3. Therefore **Section 7.2** is relevant to the installation.

For solvents other than those with the risk phrase(s) specified in section 1.1, the installation (tick the relevant option):

- Is demonstrating compliance using the waste gas and fugitive Emission Limit Values, or using the per unit product total Emission Limit Value as outlined in section 3. Therefore **Section 7.3** is relevant to the installation.
- Is demonstrating compliance using the Reduction Scheme as outlined in section 4. Therefore **Section 7.4** is relevant to the installation.

7.1 Demonstration of Compliance – Use of Specified Risk Phrases below Specified Mass Flows*

The measures proposed for the installation to meet the requirement to replace as far as possible specified risk phrase solvents by less harmful substances or preparations are satisfactory[51]? Y/N ____

7.2 Demonstration of Compliance - Discharges with Specified Risk Phrases above Specified Mass Flows*

The measures proposed for the installation to meet the requirement to replace as far as possible specified risk phrase solvents by less harmful substances or preparations are satisfactory[52]? Y/N ____

The Emission Limit Value requirements for the installation and the actual emissions from the installation are as follows[53]:

Limits				**Actual**[54]		
Solvent Name	**Risk Phrase**	**Threshold mass flow of the sum of such compounds** (g/h)	**Emission limit value** (mass sum of the individual compounds) (mg/Nm^3)	**Discharge Point** (e.g. flue/fan at elevated or ground level)	**Actual mass flow of the sum of such compounds** (g/h)	**Actual emissions** (mass sum of the individual compounds) (mg/Nm^3)

As can be seen from the above table, the installation:

- is in compliance
- is not in compliance

with the Emission Limit Value requirements in relation to discharges with specified risk phrases above specified mass flows.

7.3 Demonstration of Compliance - Emission Limit Values*

7.3.1 Waste Gas and Fugitive ELVs*

The emission limit value (ELV) requirements in waste gases for the installation, and the actual emissions from the installation are as follows[55]:

ELV waste gases ($mg\ C/Nm^3$)	Discharge Point	Actual Emissions ($mg\ C/Nm^3$)

- Meets ELVs in waste gases without need for abatement, no changes to process/equipment since emissions last measured (date _ / _ / _). Annual emissions measurement not required.

Where the exemption is being used under article 7(4) from the waste gases ELV until 1 April 2013 for an existing installation with existing abatement equipment:

Total emissions had all the requirements of Schedule 2 been met (tonnes/year)[56]	Actual Total Emissions (tonnes/year)

- Meets the requirement for total emissions of the whole installation not to exceed those that would have resulted had all the requirements of Schedule 2 to S.I. 543 of 2002 been met.

The fugitive emission value requirements for the installation, and the actual fugitive emissions from the installation are as follows[57]:

Fugitive ELV	
Limits (% of solvent input)	Actual Emissions (% of solvent input)

As can be seen from the above, the installation:

- is in compliance
- is not in compliance

with the waste gas and fugitive emission limit value requirements.

7.3.2 Total ELVs per Unit Product*

The total emission limit value (ELV) per unit product requirements for the installation, and the actual emissions from the installation are as follows[58]:

Total ELV (per unit product)	
Limits (units:)	Actual Emissions (units:)

As can be seen from the above, the installation:

- is in compliance
- is not in compliance

with the total emission limit value per unit product requirements.

7.4 Demonstration of Compliance - Reduction Scheme*

The Reduction Scheme requirements for the installation (see section 2), and the actual performance of the installation relative to the Reduction Scheme are as follows (as per the solvent management plan)[59]:

Time period	Maximum Allowed Total Annual Emissions	Actual Emissions
Interim: By		
Final: By		

As can be seen from the above table, the installation:

- is in compliance
- is not in compliance

with the reduction scheme requirements.

An emission reduction plan for the installation has been developed by the operator to maintain compliance with the reduction scheme? Y/N ____

Is the AIC inspector satisfied that this emission reduction plan will maintain compliance with the reduction scheme? Y/N ____

8 MAJOR AND MINOR NON-COMPLIANCES, AND OBSERVATIONS[60]

8.1 Major Non-compliances*

Major non-compliances: issues which result in a failed inspection and must be rectified to ensure compliance is restored within the shortest time possible (if there is immediate danger to human health the operator must suspend operation until the competent authority allows).

Major non-compliance(s) in relation to the installation are as follows:

8.2 Minor Non-compliances*

Minor non-compliances: issues which do not result in a failed inspection but which should be addressed by the operator in the next 12 month period, perhaps to avoid major non-compliances arising in future.

Minor non-compliance(s) in relation to the installation are as follows:

8.3 Observations*

Observations(s): issues which do not result in a failed inspection but which should be addressed by the operator in the next 12 month period, perhaps to avoid minor non-compliances arising in future.

Observations(s) in relation to the installation are as follows:

ENDNOTES TO THE AIC REPORT

* Where any section or subsection marked with an asterisk (*) is not relevant to the installation, retain the heading of that section or subsection, delete the content, and insert "Not applicable".

[1] This should be a legal entity, i.e. either a person, sole trader, or body corporate, and not simply a trading name or trading company. The operator address can be different to the address where the installation is located or is to be located.

[2] Tick if any of the activities need to be IPPC licensed by the EPA. See Appendix 2 to the procedure.

[3] Tick if any of the activities under Emissions of Volatile Organic Compounds from Organic Solvents Regulations 2002 are relevant to the installation. See Appendix 2 to the procedure.

[4] Tick if none of the activities are relevant to the installation, or if any of the activities relevant to the installation do not exceed the stated thresholds. See Appendix 2 to the procedure.

[5] Indicate which activity or activities are being carried on or will be carried on at the installation from Schedule 1 to the Regulations (see appendix 1 to the procedure). Use only those words from the description given for the appropriate activity that best describes the activity. Remember more than one activity may be applicable to the installation, if so insert a new row.

[6] For each of the activities relevant to the installation insert here the corresponding solvent consumption threshold from Schedule 2 to the Regulations (see appendix 1 to the procedure). There is no solvent consumption threshold for dry cleaning. If this is the relevant activity just state "no threshold".

[7] Insert here the solvent consumption of the activity for each of the activities as determined by section 5.2 of the solvent management plan, or other means. If the installation falls below the thresholds of all the relevant activities, the requirements of S.I. 543 of 2002 do not apply to the installation.

[8] Tick that which is applicable based on the evidence of the site visit and section 7 of the AIC report.

[9] List here from section 8 the major non-compliances, minor non-compliances, and observations for the installation. Insert 'none' if appropriate.

[10] Indicate who is the competent authority. In the case of activities which are IPPC licensable, the competent authority is the EPA. For all other scheduled solvent activities, the competent authority is the county council or city council in whose functional area the installation is located.

[11] Tick whether the AIC report is being submitted to fulfil the annual reporting requirement, or because a substantial change is planned for the installation, or because the installation is a new installation which has not yet commenced operation.

A substantial change is:

- an increase of more than 25% in emissions of VOCs (small installations– those that fall within the lower threshold band of activities 1, 3, 4, 5, 8, 10, 13, 16 or 17 of Schedule 2 to the Regulations or for the other activities of Schedule 2 those that have a solvent consumption of less than 10 tonnes/year)
- an increase of more than 10% in emissions of VOCs (all installations other than the above).

Also the local authority can decide a change is a substantial change if it considers it may have significant negative effects on human health or the environment.

[12] This is the register number assigned to the installation by the competent authority. If this is the first AIC report to be submitted for the installation, a register number will not yet have been assigned. In this case insert "to be assigned" in this section. If an installation has previously submitted an AIC report to the competent authority, a

register number will have been assigned to the installation on the certificate of compliance. In this case insert this register number, if known.

[13] Not required where no abatement needed to meet ELV.

[14] Insert value for I1 from section 5.2 of the solvent management plan.

[15] The name of the person - the Accredited Inspection Contractor (AIC) - who carried out the site visit and compiled the AIC report. Remote electronic submittal will require the approval of the competent authority e.g. subject to electronic signature.

[16] The name of the accredited inspection contractor organisation or company.

[17] This is the reference number assigned to the accredited inspection contractor by the Irish National Accreditation Board (INAB) in accordance with the list referred to in article 22 of S.I. 543 of 2002.

[18] List any solvents used by the installation that carry any of the specified risk phrases. The operator may obtain this information by referring to the MSDS sheet available from solvent suppliers (ensuring the MSDS is up to date and of EU format). Where more than one solvent has a particular risk phrase, insert additional rows. List the solvent by its chemical name. It may also be useful to insert any trade name in brackets after the chemical name.

[19] Insert the annual consumption of the specified risk phrase *solvent* - remember the solvent may only be a percentage of the product in use.

[20] If the only solvents with specified risk phrases are those with risk phrase R40 and halogenated, there is no requirement in the Regulations to replace such solvents. Therefore, retain the heading of this subsection, delete the content, and insert “Not applicable – only solvents with risk phrase R40 and halogenated are in use”.

[21] These measures can be proposed by the operator of the installation or their consultants, or recommended by the European Commission (Article 7 of the Directive). These measures must be documented by the operator. Where it is not possible to replace these substances, satisfactory documented reasons must be provided. Operators should refer to any Best Practice Guidelines issued or may like to consult their sectoral representative body, or a consultant. Note, solvents with risk phrase R40 and halogenated do not require replacement. The AIC inspector should comment here on the adequacy or otherwise of the replacement measures proposed.

Written materials may be appended to the AIC report.

[22] If the activity concerned is dry cleaning using perchloroethylene, retain the heading of this subsection, delete the content, and insert “Not applicable – dry cleaning activity is exempt from the emission limit values (ELVs) for Certain Discharges of Solvents with Specified Risk Phrases”.

[23] Tick this box if none of the discharges exceed the thresholds stated.

[24] From the previous table, insert the relevant risk phrase in the first column, the relevant threshold in the second column, and the relevant ELV in the final column. In the third column insert the reference name or number of the discharge point (e.g. flue/fan at elevated or ground level). In the fourth column insert the actual mass flow of the discharge point as measured.

If more than one discharge exceeds the relevant threshold, insert additional rows.

[25] Insert here the ELVs from Schedule 2 to S.I. 543 of 2002 for the activity or activities in that have been identified as being relevant to the installation. If there are different ELVs for the activity depending on solvent consumption only insert those ELVs that are applicable to the level of solvent consumption identified by the solvent management plan. If any of the columns are not relevant to the particular activity, leave it blank. If more than one activity is applicable to the installation, insert a new row for each activity.

[26] Including, where applicable, the relevant solvent consumption threshold in tonnes/year.

[27] Insert the reference name/number of the discharge point (e.g. flue/fan at elevated or ground level) together with the relevant ELV in waste gases from the previous table. If

there is more than one discharge point, insert a new row for each discharge point. If there is no applicable ELV in waste gases state "n/a".

[28] See article 7(3) to Schedule 2 to S.I. 543 of 2002 for the definition of new and existing abatement equipment.

[29] Insert the reference name/number of the discharge point together with the relevant ELV in waste gases from the previous table depending on whether the existing abatement equipment is incineration or any other type of abatement. If there is more than one discharge point, insert a new row for each discharge point.

[30] Using the ELVs from Schedule 2 to the Regulations (see appendix 1 to the procedure) for the activity or activities that have been identified as being relevant to the installation, the operator should calculate the total emissions that would have occurred had these ELVs been met.

[31] Exemptions under article 13(2) of the Regulations from fugitive emission limits require a report to be developed by the operator for the local authority. Such a report shall be provided by a competent independent consultant. The report must set out the reasons why an exemption should be granted and satisfactorily demonstrate that the fugitive emission value is not technically and economically feasible, 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 AIC inspector should make a recommendation to the competent authority on whether the exemption should be granted or not.

[32] Exemptions under article 13(3) of the Regulations from emission limit values (ELVs) and from the reduction scheme requirements for other coating activities (activity 8 of Schedule 2 to the Regulations) require a report to be developed by the operator for the local authority. Such a report shall be provided by a competent independent consultant. The report must set out the reasons why an exemption should be granted and satisfactorily demonstrate that the ELVs and the requirements of the reduction scheme are not technically and economically feasible, and that the best available technique is being used at the installation. The AIC inspector should make a recommendation to the competent authority on whether the exemption should be granted or not

[33] Select the appropriate option. The installation is allowed to use either.

- the reduction scheme requirements from Schedule 3 to the Regulations (see appendix 1 to the procedure) for the activity or activities that have been identified as being relevant to the installation, or
- the requirements of any reduction scheme specially designed for the installation that in the end can achieve an equivalent emission reduction. This should be supported by an appropriate documented explanation of the reduction scheme usually from a competent independent consultant.

If the activity plans to seek an exemption for other coating activities which can not be operated under controlled conditions from the application of reduction scheme or ELV requirements in accordance with the requirements under Article 13(3) of the Regulations, this should be indicated here.

[34] If more than one activity is applicable to the installation, ensure that the reduction scheme calculation steps are repeated for each activity.

[35] Insert here the total mass of solids in coatings consumed in a year (in tonnes) as determined in the solvent management plan or by any other means e.g. product supplier information.

[36] Insert here the multiplication factor for the activity applicable to the installation from the table in Schedule 3, part 2(ii)(b) to the Regulations (see appendix 1 to the procedure). The competent authority may adjust these multiplication factors for individual installations to reflect documented increased efficiency in the use of solids.

[37] Insert here the value already calculated for the Annual Reference Emission.

[38] Insert here the appropriate percentage as calculated in Schedule 3, part 2(ii)(c) to the Regulations (see appendix 1 to the procedure).

[39] Insert in the first row of this second column the value calculated for 'Interim: Maximum Allowed Total Annual Emissions'. Insert in the second row the value calculated for 'Final: Maximum Allowed Total Annual Emissions'.

[40] Insert here the appropriate *interim* date from the table in Schedule 3, part 2(i) to the Regulations (see appendix 1 to the procedure), depending on whether the installation is a new installation or an existing installation.

[41] Insert here the appropriate *final* date from the table in Schedule 3, part 2(i) to the Regulations (see appendix 1 to the procedure), depending on whether the installation is a new installation or an existing installation.

[42] An installation is allowed to use an alternative to the Reduction Scheme specified in Schedule 3 to the Regulations (see appendix 1 to the procedure) as long as an equivalent emission reduction is achieved. Normally such a scheme should be drawn up and documented for AIC inspection by a competent independent consultant for the operator.

[43] Note that not every term will be applicable to every activity. For example, an installation may have no flues in place and therefore no waste gas emissions (O1), only fugitive emissions (F). If a term is not applicable to the activity, insert 'not applicable' in the table, and put zero in the appropriate part of the equation.

[44] The relevant product parameter is that in which the Total Emission Limit Value in Schedule 2 to the Regulations (see appendix 1 to the procedure) is expressed, for example, for wood and plastic lamination the Total Emission Limit Value is 30 g/m^2. Therefore the relevant product parameter is the m^2 of laminated wood/plastic produced in the year. Another example is dry cleaning where the product parameter is product dry cleaned in kg.

[45] Note that not every term will be applicable to every activity. For example, an installation may not recover and reuse solvent in the process (I2). If a term is not applicable to the activity, state 'not applicable' in the table, and put zero in the appropriate part of the equation.

[46] Note that not every term will be applicable to every activity. For example, for dry cleaning emissions consist of E = I1 – 06 since all emissions are fugitive apart from those captured in waste. If a term is not applicable to the activity, state 'not applicable' in the table, and put zero in the appropriate part of the equation.

[47] Note that not every term will be applicable to every activity. For example, there may be no residue remaining in product (O3). If a term is not applicable to the activity, state 'not applicable' in the table, and put zero in the appropriate part of the equation.

[48] Note that not every term will be applicable to every activity. For example, an installation may not recover any solvent for reuse outside the process (O8). If a term is not applicable to the activity, state 'not applicable' in the table, and put zero in the appropriate part of the equation.

[49] In this case, the relevant mass balance terms will depend on the design of the alternative reduction scheme. The relevant terms should be written out here and calculations clearly shown by the operator.

[50] Fugitive emission limits are expressed as a percentage of solvent input in tonnes. Therefore in order to convert measured solvent concentrations in mg C/m^3 to tonnes for the 12 month period, a measurement or an estimate of the volumetric emission rate in terms of m^3 per unit time is needed (for example in the measurement of emissions from building ventilation). Measurement of fugitive emissions is usually only carried out for certain sectors and on a once-off basis. It is more common to calculate fugitive emissions using the solvent management plan (see section 5.4.3).

[51] Note if the measures proposed by the operator to replace as far as possible those specified risk phrase solvents by less harmful substances or preparations are/are not satisfactory.

Note, if the only specified risk phrase solvents in use are R40 and halogenated, then insert the phrase "The only specified risk phrase solvents in use are R40 and halogenated. The requirement for replacement as far as possible of risk phrase solvents

by less harmful substances or preparations does not apply to solvents with risk phrase R40 and halogenated".

[52] Note if the measures proposed by the operator to replace as far as possible those specified risk phrase solvents by less harmful substances or preparations are/are not satisfactory.

Note, if the only specified risk phrase solvents in use are R40 and halogenated, then insert the phrase "the only specified risk phrase solvents in use are R40 and halogenated. The requirement for solvent replacement does not apply to such solvents".

[53] Even if the installation is using the reduction scheme, but has discharges of solvents with the risk phrases specified in section 1.1, at mass flow thresholds above those specified in section 1.3, this section must be used for demonstrating compliance or otherwise with these ELVs.

Insert here the ELV requirements, including dates, identified in section 1.3 for solvents with specified risk phrases. Also insert here the information obtained via emissions measurement to show actual emissions. Comment as to whether the installation is in compliance or otherwise.

[54] Emissions measurement to be made as specified in section 5.3.7 of the procedure.

[55] Insert here the waste gas ELV requirements identified in section 3. Also insert here information obtained via emissions measurement as recorded in section 6 to show actual emissions in waste gases. Indicate as to whether the installation is in compliance or otherwise.

[56] Insert here the value from section 3.1.2.

[57] Insert here the fugitive ELV requirements identified in section 3. Also insert here information obtained via the solvent management plan (section 5), emissions measurement (section 6), or any other means to show actual fugitive emissions. Indicate as to whether the installation is in compliance or otherwise.

[58] Insert here the total ELV per unit product requirements identified in section 3. Also insert here information obtained via the solvent management plan (section 5), emissions measurement (section 6), or any other means to show actual total emissions. Indicate as to whether the installation is in compliance or otherwise.

[59] Insert here the reduction scheme requirements, including dates, identified in section 4. Also insert here the information obtained via the solvent management plan (section 5) or any other means on actual performance of the installation relative to the reduction scheme. Indicate as to whether the installation is in compliance or otherwise.

[60] Outline here the major non-compliances (where facility does not meet compliance requirements), minor non-compliances (issues requiring attention but currently meet requirements), and observations (issues to be addressed by operator to avoid minor non-compliances in the future) for the installation. Insert 'none' if appropriate.