

**NB: Unofficial translation, legally binding texts are those in Finnish and Swedish
Ministry of the Environment, Finland**

**Government Decree
on the limitation of emissions into the air from certain activities and installations that
use organic solvents**

64/2015

**Section 1
Scope of application**

(1) This Decree shall apply to activities and installations subject to permits referred to in Annex 1, table 2, section 6(a) and (b) and to registration referred to in Annex 2 of the Environmental Protection Act (527/2014) that use organic solvents and in which solvents are consumed in greater quantities than the quantities mentioned for the operation in the tables in Annex 1 of this Decree.

(2) This Decree shall not apply to solvent-using activities in which the solvent reacts in the process used.

**Section 2
Definitions**

For the purpose of this Decree:

- 1) *installation* means a stationary technical unit where one or more of the activities referred to in Annex 1 are carried out, and any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions;
- 2) *existing installation* means an installation in operation on 29 March 1999 or an installation which was authorised or registered before 1 April 2001 or an installation for which the application for an environmental permit has been publicly announced before 1 April 2001, provided that the installation has been put into operation no later than on 1 April 2002;
- 3) *waste gas* means the final gaseous discharge containing volatile organic compounds or other pollutants from a stack or abatement equipment into the air;
- 4) *fugitive emissions* mean emissions that are released into the outside environment via windows, doors, vents and similar openings and that are not emissions in waste gases resulting from the use of organic solvents, organic solvents or organic compounds lost or captured during the treatment of waste gas, organic solvents or organic compounds lost or captured during the treatment of wastewater, solvents contained in collected waste or solvents recovered for reuse;
- 5) *total emissions* means the sum of fugitive emissions and emissions in waste gases;
- 6) *emission limit value* means the quantity of volatile organic compound emissions calculated at standard conditions, which may not be exceeded during one or more periods of time and which is expressed as concentration, percentage or level of an emission;
- 7) *mixture* means a mixture or solution composed of two or more substances;

- 8) *volatile organic compound* means any organic compound having at 293,15 Kelvin a vapour pressure of 0.01 kilopascal or more, or having a corresponding volatility under the particular conditions of use, as well as the fraction of creosote which exceeds this value of vapour pressure at a temperature of 293,15 Kelvin;
- 9) *organic solvent* means a solvent which is used alone or in combination with other agents:
 - a) to dissolve raw materials, products or waste materials;
 - b) as a cleaning agent to dissolve contaminants;
 - c) as a dissolver;
 - d) as a dispersion medium;
 - e) as a viscosity adjuster;
 - f) as a surface tension adjuster;
 - g) as a plasticiser;
 - h) as a preservative;
- 10) *washing solvent* means a solvent used to clean equipment;
- 11) *coating* means a mixture containing organic solvents, which is used to provide a decorative, protective or other functional effect on a surface;
- 12) *adhesive* means a mixture containing organic solvents, which is used to adhere separate parts of a product;
- 13) *ink* means a mixture containing organic solvents, which is used in a printing activity to impress text or images on to a surface;
- 14) *varnish* means a transparent coating;
- 15) *consumption* means the total quantity of organic solvents and washing solvents used at an installation per calendar year, or any other 12-month period, excluding organic solvents that are recovered for reuse;
- 16) *input* means the quantity of organic solvents and their quantity in mixtures used when carrying out an activity, including the solvents recycled inside and outside the installation, and which are counted every time they are used to carry out the activity;
- 17) *reuse of organic solvents* means the use of organic solvents recovered from an installation for any technical or commercial purpose and including use as a fuel but excluding the treatment of such recovered organic solvent as waste;
- 18) *contained conditions* mean situations in which the volatile organic compounds released from an installation are collected and discharged in a controlled way either via a stack or abatement equipment and are therefore not fugitive;
- 19) *start-up and shut-down operations* mean operations related to activity phases other than those that are regularly oscillating, whilst bringing an activity, an equipment item or a tank into or out of service or into or out of an idling state.

Section 3 **Emission limit values**

(1) The emissions of volatile organic compounds into the air resulting from activities and installations referred to in Section 1 above shall not exceed the limit values provided in Annex 1 defined as milligrams of total organic carbon per normal cubic metre for emissions in waste gases, defined as percentage of solvents used for fugitive emissions or defined as per product unit or as percentage of solvents for total emissions.

(2) Instead of the emission limit value in waste gases and fugitive emission limit value, the total emission limit value provided in Annex 1 may be used.

(3) Activities and installations subject to a permit may be exempted from the limit value for fugitive emissions defined for the installation's activities in Annex 1 if compliance with the limit value is not technically and economically feasible. In this case, the operator shall demonstrate to the permit authority that the best available techniques are used in the activities and the installations.

(4) Activities subject to a permit and installations that carry out coating as referred to in Annex 1, Table 5a may be exempted from the emission limit value for waste gases and the limit value for fugitive emissions if the coating cannot be carried out under controlled conditions. In this case a reduction scheme shall be applied. If the use of a reduction scheme is not technically and economically feasible, the operator shall demonstrate to the permit authority that the best available techniques are used in the activities and the installations.

Section 4

Limitation of emission during start-up and shut-down operations

The activities and installations referred to above in Section 1 shall take all appropriate precautions to minimise the emissions of volatile organic compounds during start-up and shut-down operations.

Section 5

Substantial change in an existing installation

(1) If the operation of an installation undergoes a substantial change or if the installation comes within the scope of this Decree for the first time following a substantial change, that part of the installation which undergoes the substantial change shall be treated as a new installation.

(2) A change in the average maximum mass input of organic solvents by an existing installation is considered substantial if the installation is operated under normal operating conditions at its design output, excluding start-up and shut-down operations and maintenance, and:

- 1) the emissions of volatile organic compounds of an installation that, in activities referred to in Annex 1, Tables 1, 2, 5a, 5b, 5c, 11 and 12, uses solvents at the lowest quantities listed in these tables, or an installation that, in other activities referred to in Annex 1, uses less than 10 tonnes of solvents per year, increase by over 25 per cent;
- 2) the emissions of volatile organic compounds of an installation, other than those referred to in paragraph 1, increase by over 10 per cent.

Section 6

Emission reduction scheme

- (1) Instead of complying with the emission limit values provided above in Section 3, an operator may prepare an installation-specific emission reduction scheme, which it shall comply with. Under such a scheme the installation shall reduce its emissions by at least as much as it would if it were to comply with the limit values of Section 3.
- (2) The emissions reduction scheme shall comply with the requirements of Annex 2 or it shall otherwise reduce emissions by an equivalent amount.
- (3) The emissions of an existing installation shall comply with the emission target value referred to in the reduction scheme no later than one year following the granting of the environmental permit or the registration of activities in the environmental protection data-base.
- (4) The emission reduction scheme shall be presented with the application for an environmental permit or registration.
- (5) An operator shall comply with the emission limit values provided in Sections 7 and 8 regardless of whether it complies with an emission reduction scheme.

Section 7

Substitution and emission limit value of certain dangerous substances

- (1) Substances and mixtures which, because of their content of volatile organic compounds classified as carcinogens, mutagens, or toxic to reproduction under Regulation (EC) No 1272/2008 of the European Parliament and the Council on amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, are assigned or need to carry the hazard statements H340, H350, H350i, H360D or H360F, shall be replaced, as far as possible by less harmful substances or mixtures within the shortest possible time.
- (2) The emissions resulting from the use of the substances causing the labelling referred to above in Subsection 1 shall not exceed 2 milligrams per normal cubic metre if the mass flow of the sum of the compounds is at least 10 grams per hour.

Section 8

Emission limit value of certain halogenated volatile organic compounds

The emissions resulting from the use of halogenated volatile organic compounds which are designated as hazard statement H341 or H351 shall not exceed 20 milligrams per normal cubic metre if the mass flow of the sum of the compounds is at least 100 grams per hour.

Section 9

Application of emission limit values to installations where more than one activity is carried out

- (1) In installations where two or more of the activities mentioned in Annex 1 are carried out, the emission limit values presented in the tables of Annex 1 can be applied to each activity individually.
- (2) Installations can also apply a total emission limit value, which shall not exceed the emission calculated by adding up the annual emissions from each activity, assuming that the requirements of Section 3, Subsection 1 apply to each activity.
- (3) An installation where two or more of the activities mentioned in Annex 1 are carried out and where the substances and mixtures mentioned in Sections 7 and 8 are used shall comply with the limit values provided in Sections 7 and 8 for each activity individually.

Section 10

Emission monitoring in installations subject to a permit

- (1) An operator shall monitor emissions continuously if the installation's average emissions of volatile organic compounds after abatement equipment at the final point of discharge exceed 10 kilos of total organic carbon per hour.
- (2) In situations other than the ones referred to in Subsection 1, emissions shall be monitored using periodic measurements. For periodic measurements at least three readings shall be obtained during each measurement period.

Section 11

Compliance with emission limit values

- (1) In continuous measurements, the emission limit values shall be regarded as having been complied with if:
 - 1) none of the arithmetic averages recorded during any period of 24 hours during which the installation or activity is in operation, excluding start-up and shut-down periods and equipment maintenance, exceeds the emission limit values; and
 - 2) none of the hourly averages exceeds the emission limit values by more than 1.5 times.
- (2) In periodic measurements, the emission limit values shall be regarded as having been complied with if during a single measurement period:
 - 1) the average of all the readings does not exceed the emission limit values; and
 - 2) none of the hourly averages exceeds the emission limit values by more than 1.5 times.
- (3) Compliance with the emission limit values for waste gases presented in Annex 1 shall be verified on the basis of the quantity of total organic carbon unless otherwise provided in Annex 1.

(4) Compliance with the emission limit values provided in Sections 7 and 8 above shall be verified on the basis of the sum of the masses of individual volatile organic compounds.

Section 12

Providing information concerning activities and installations subject to a permit

An operator shall, by the end of February each year, submit to the competent supervisory authority information on whether their activities comply with the emission limit values for waste gases and the limit values for fugitive emissions or with a total emission limit value or a reduction scheme in accordance with Annex 2, as well as any exemption granted in accordance with Section 3, Subsections 3 or 4. This information may include a solvent management plan in accordance with Annex 3.

Section 13

Providing information concerning activities and installations subject to registration

An operator with activities registered in the environmental protection database shall, by the end of February each year, submit to the competent supervisory authority information on how the installation has complied with the provisions of this Decree. The report shall include information from the previous year concerning the input of solvents in activities, compliance with emission limit values, emission monitoring and compliance with the objectives of a reduction scheme, as well as any other information relevant to supervision.

Section 14

Notification on the termination of operation

An operator shall notify the competent supervisory authority of the termination of operation.

Section 15

Notification of changes in operation

An operator shall notify the competent supervisory authority without delay of any changes in operation that are substantial from the perspective of environmental protection.

Section 16

Entry into force

(1) This Decree enters into force on 5 February 2015.

(2) This Decree repeals the Government Decree on on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (435/2001).

ACTIVITIES FALLING WITHIN THE SCOPE OF THE DECREE AND THEIR EMISSION LIMIT VALUES

The emission limit values for waste gases are calculated in a temperature of 273.15 Kelvin and a pressure of 101.3 kilopascal and expressed in milligrams of total organic carbon (mg C) per normal cubic metre (m³(n)).

1. Printing

Printing shall mean the reproduction of text and/or images where ink is transferred onto a surface with the aid of an image carrier. This includes associated varnishing, coating and laminating techniques.

This Decree shall, however, apply only to the following processes:

- * *Flexography*; a printing activity using a printing surface of rubber or photopolymers on which the printing areas are above the non-printing areas, and using liquid inks which dry through evaporation.
- * *Heatset web offset*; a web-fed printing activity in which the material to be printed is fed into the machine from a reel rather than as separate sheets, and using an image carrier in which the printing and non-printing areas are in the same plane. The non-printing areas are treated to attract water and thus repel ink. The printing area is treated to receive and transmit ink to the printing surface. Evaporation of the organic solvent contained in the ink takes place in an oven where hot air is used to heat the printed material.
- * *Lamination associated with the printing process*; the adhering together of two or more flexible materials to produce laminates.
- * *Publication rotogravure*; a rotogravure printing activity used for printing paper for periodicals, brochures, catalogues and similar products, using toluene-based inks.
- * *Rotogravure*; a printing activity using a cylindrical printing surface on which the printing area is below the non-printing area, and using liquid inks which dry through evaporation. The recesses are filled with ink and the surplus is cleaned off the non-printing areas before the printing surface contacts the cylinder and lifts the ink from the recesses.
- * *Rotary screen printing*; a web-fed printing activity in which the material to be printed is fed into the machine from a reel rather than as separate sheets, and in which the ink is forced through a porous image carrier onto the printing surface, where the printing area is open and the non-printing area is sealed off, and using liquid inks which dry only through evaporation.
- * *Varnishing*; an activity in which a varnish or adhesive coating for the purpose of later sealing the packaging material is applied to a flexible material.

Table 1

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Heatset web offset printing (>15)	> 15–25 > 25	100 20	30 ⁽¹⁾ 30 ⁽¹⁾				(1) Solvent residue in finished product shall not be considered part of fugitive emissions
Publication rotogravure (>25)	>25	75	10	15			
Other rotogravure, flexography, rotary screen printing, other lamination or varnishing units (>15) rotary screen printing on tetiles/cardboard (>30)	> 15–25 > 25 > 30 ⁽¹⁾	100 100 100	25 20 20				(1) Solvent consumption for rotary screen printing on textile and cardboard.

2. Surface cleaning

Surface cleaning shall mean any activity except dry cleaning which uses organic solvents to remove contamination such as fat from the surface of a material or product, including degreasing. A cleaning activity consisting of more than one stage before any other activity shall be considered one surface cleaning activity. Car washes at service stations shall not be considered surface cleaning in the sense intended here.

Table 2

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Surface cleaning ⁽¹⁾ (>1)	> 1–5 > 5	20 ⁽²⁾ 20 ⁽²⁾	15 10				(1) Using compounds specified in Sections 7 and 8. (2) Limit value refers to the mass of individual compounds (mg/Nm ³) and not the total amount of carbon.
Other surface cleaning (> 2)	> 2–10 > 10	75 75	20 15				(1) Installations which demonstrate to the environmental permit authority that the average organic solvent content of all cleaning material used does not exceed 30 per cent by weight shall be exempt from application of these values.

3. The coating and original coating of vehicles outside of manufacturing installations (≤ 15 t/a)

The coating of vehicles done outside of manufacturing installations means industrial or commercial coating activities or associated degreasing activities included in the original coating of cars as defined in the Vehicles Act (1090/2002) or parts of them with refinishing-type materials, when this is done away from the original manufacturing lines, and the coating of trailers as defined in the Vehicles Act.

Table 3

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Coating and original coating of vehicles outside of manufacturing installations	≤ 15	50 ⁽¹⁾	25				(1) In demonstrating compliance with the emission limit value under Section 11, paragraph 2, the average duration of measurements shall be 15 minutes.

4. Coil coating

Coil coating shall mean any activity in which coiled steel, stainless steel, coated steel, copper alloys or aluminium strip is coated with either a film or a laminate in a continuous process.

Table 4

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Coil coating (>1)	> 25	50 ⁽¹⁾	5	10			(1) The emission limit value for installations which use techniques that enable reuse of recovered solvents shall be 150 mg C/Nm ³ .

5. Coating activity

Coating shall mean any activity in which one or more layers of coating preparation or varnish are applied to one of the following surfaces:

- * Vehicles
 - new passenger cars that have been classified under category M1 in accordance with the Vehicles Act and new vans that have been classified under category N1, if they are coated in the same installation as M1-classified vehicles
 - the cabins of lorries that have been defined as drivers' living compartments, and the technical equipment related to living compartments in accordance with vehicle classification categories N2 and N3 as defined in the Vehicles Act
 - vans that have been classified in category N1 in accordance with the Vehicles Act and lorries that have been classified in categories N2 and N3 in accordance with the Vehicles Act, excluding the cabins of lorries
 - buses or coaches that have been classified in categories M2 and M3 in accordance with the Vehicles Act.
- * Trailers that have been classified in categories O1, O2, O3 and O4 in accordance with the Vehicles Act.
- * Metallic and plastic surfaces, including surfaces of aircraft, ships, trains, tractors and other similar surfaces.
- * Wooden surfaces
- * Textile, fabric, film and paper surfaces
- * Leather

Coating activities shall not include coating of substrate with metals by electrophoretic or spraying techniques. If at some stage of the coating the same item is subject to a printing technique, the printing stage shall be considered part of the coating activity.

Table 5a

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Other coating, including metal, plastic, textiles (5), 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 and drying in contained conditions. (2) The first emission limit value applies to drying processes, the second to coating. (3) In textile coating installations which use techniques that enable reuse of recovered solvents, the emission limit value applying to coating and drying processes shall be a total of 150 mg C/Nm ³ . (4) Coating which cannot be performed in contained conditions (such as in shipbuilding and aircraft manufacture) may be exempted from application of these values, in accordance with Section 3, paragraph 4. (5) Rotary screen printing on textiles is an activity referred to under subparagraph 1.

Table 5b

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Coating of wooden surfaces (>15)	> 15-25 > 25	100 ⁽¹⁾ 50/75 ⁽²⁾		25 20			(1) Emission limit value applies to coating and drying processes in contained conditions. (2) The first value applies to drying, the second to coating.

Table 5c

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Coating of leather (>10)	>10–25 > 25 > 10 ⁽¹⁾				85 g/m ² 75 g/m ² 150 g/m ²		Emission limit values are expressed as grams of solvents emitted per square metre of finished product. ⁽¹⁾ For coating of leather used for interior furnishing and as consumer goods in individual leather products such as bags, belts, wallets, etc.

THE VEHICLE COATING INDUSTRY

The total emissions limits shall be expressed as grams of emitted solvent in relation to the surface area of the product in square metres and as kilograms of solvent emitted per car body.

The surface areas of all products presented in the table below shall be determined as follows:

- the surface area calculated from the total electrophoretic coating area together with the surface areas of any parts that might be added in subsequent stages 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 at the installation.

The surface of the electrophoretic coating area shall be calculated using the following formula:

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

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

Computer-aided design (CAD) or other similar method shall be used in calculating the surface areas of the other parts added or the total surface area coated at the installation.

The total emissions limit value in the table below refers to all process stages performed at the same installation from electrophoretic coating, or any other coating process, to final waxing and polishing of the protective coating, including the solvent used for cleaning the process equipment and spray booths and other fixed equipment both during and outside production time. The total emissions limit value is expressed as the mass sum of organic compounds per square metre of total surface area of the coated product and as their sum per car body.

Table 5d

Activity (solvent consumption in tonnes/year)	Production quantity (refers to annual production of coated product)	Total emissions limit values	
		New installations	Existing installations
Coating of new cars (>15)	> 5 000	45 g/m ² or 1,3 kg/body + 33 g/m ²	60 g/m ² or 1.9 kg/body + 41 g/m ²
	≤ 5 000 monocoque or >3 500 chassis-built	90 g/m ² or 1,5 kg/body + 70 g/m ²	90 g/m ² 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 (>15)	≤ 2 500 > 2 500	90 70	120 90
Coating of new buses (>15)	≤ 2 000 > 2 000	210 150	290 225

Painting shops where vehicles defined in Table 5 b are coated and in which solvents are consumed less than the consumption specified in Table 5 d shall comply with the requirements of Section 3 of this Annex on the coating and original coating of vehicles outside of manufacturing installations (≤ 15 t/a).

6. Winding wire coating

Winding wire coating shall mean the coating of metallic conductors used for winding the coils for transformers, motors and other similar purposes.

Table 6

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Winding wire coating (>5)	> 5				10 g/kg ⁽¹⁾ 5 g/kg ⁽²⁾		(1) Applies to installations in which the average diameter of wire is =0.1 mm. (2) Applies to all other installations.

7. Dry cleaning

Dry cleaning shall mean any industrial or commercial activity in which volatile organic compounds are used in an installation intended for cleaning garments, furnishing or similar consumer goods, excluding manual removal of stains and spots in the textile and clothing industry.

Table 7

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Dry cleaning					20 g/kg ⁽¹⁾ , ⁽²⁾		(1) Expressed as mass of solvent emitted per kilogram of product cleaned. (2) The emission limit value specified in Section 8 above shall not apply to this sector.

8. Wood impregnation

Impregnation shall mean any activity which improves the preservation of timber.

Table 8

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Wood impregnation (< 25)	< 25	100 ⁽¹⁾	45		11 kg/m ³		(1) Does not apply to impregnation with creosote

9. Footwear manufacture

Footwear manufacture shall mean any activity for the purpose of producing complete footwear or parts thereof.

Table 9

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Footwear manufacture (>5)	> 5				25 g per pair		Total emissions limit values are expressed as grams of solvents emitted per complete pair of footwear produced.

10. Lamination

Lamination shall mean the adhering together of wood and/or plastic to produce laminates.

Table 10

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Lamination (>5)	> 5				30 g/m ²		

11. Adhesive coating

Adhesive coating shall mean any activity other than those referred to in subparagraphs 9 and 10 above in which adhesive is applied to a surface, but excluding adhesive coating and lamination associated with printing activities.

Table 11

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Adhesive coating (>5)	> 5-15 > 15	50 ⁽¹⁾ 50 ⁽¹⁾		25 20			(1) If the techniques used enable reuse of recovered solvents, the limit value for emissions in waste gases shall be 150 mg C/Nm ³ .

12. Manufacture of coating mixtures, varnishes, inks and adhesives

Manufacture shall mean the production of coating mixtures, varnishes, inks and adhesives by mixing pigments, resins and adhesive materials with organic solvents or other carriers. Manufacture shall also mean the production of intermediate products if this occurs in the same place of business as the activities referred to above. Manufacture includes dispersion and predispersion activities, viscosity and tint adjustments, and operations concerning packaging of the finished product.

Table 12

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Manufacture of coating mixtures, varnishes, inks and adhesives (>100)	> 100 - 1 000	150	5		5% of solvent input		Fugitive emissions shall not include solvent sold as part of the mixtures in closed containers.
	> 1 000	150	3		3% of solvent input		

13. Rubber conversion

Conversion shall mean the mixing, milling, blending, calendering, extrusion and vulcanization of natural or synthetic rubber and all ancillary activities in converting natural or synthetic rubber into a finished product.

Table 13

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Rubber conversion (> 15)	> 15	20 ⁽¹⁾	25 ⁽²⁾		25% of solvent input		(1) If the techniques used enable reuse of recovered solvents, the limit value for emissions in waste gases shall be 150 mg C/Nm ³ . (2) Fugitive emissions shall not include solvent sold as part of the product or mixtures in closed containers.

14. Vegetable oil and animal fat extraction and vegetable oil refining activities

Vegetable oil and animal fat extraction and vegetable oil refining shall mean any activity to extract vegetable oils from seeds and other vegetable matter, the processing of dry residues to produce animal feed, and the purification of fats and vegetable oils derived from seeds, vegetable matter and/or animal matter.

Table 14

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Vegetable oil and animal fat extraction and vegetable oil refining activities (> 10)	> 10				Animal fat: 1.5 kg/tonne Castor oil: 3.0 kg/tonne Rapeseed: 1.0 kg/tonne Sunflower seed: 1.0 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 emissions limit values for installations processing individual batches of seeds and other vegetable matter shall be set by the environmental permit authority on a case-by-case basis, applying the best available techniques. (2) Applies to all fractionation processes with the exception of de-gumming (the removal of gums from the oil). (3) Applies to de-gumming.

15. Manufacturing of pharmaceutical products

Manufacturing of pharmaceutical products shall mean the industrial manufacture of pharmaceutical mixtures, the chemical synthesis, fermentation, extraction, formulation and finishing of bulk drug substances, and, where this takes place at the same site, the manufacture of intermediate products in accordance with the Medicines Act (395/1987).

Table 15

Activity (solvent consumption in tonnes/year)	Solvent consumption (tonnes/year)	Limit values for emissions in waste gases (mg C/Nm ³)	Limit values for fugitive emissions (percentage of solvent input)		Total emission limit value		Special provisions
			New installations	Existing installations	New installations	Existing installations	
Manufacturing of pharmaceutical products (> 50)	> 50	20 ⁽¹⁾	5 ⁽²⁾	15 ⁽²⁾	5% of solvent input	15% of solvent input	(1) If the techniques used enable reuse of recovered solvents, the limit value for emissions in waste gases shall be 150 mg C/Nm ³ . (2) Fugitive emissions shall not include solvent sold as part of the product or mixtures in closed containers.

EMISSIONS REDUCTION SCHEME

An installation may apply an emissions reduction scheme instead of the limit values for emissions in waste gases and fugitive emissions or the total emissions limit values specified in Annex 1. Under such a scheme the installation shall reduce its emissions by at least as much as it would if it were to comply with the limit values of Annex 1.

The operator shall submit the emissions reduction scheme to the permit or registration authority in accordance with section 6, paragraph 4.

An emissions reduction scheme may be drafted for any installation which uses coatings, varnishes, inks or adhesives. The main aim is to reduce the average solvent content of products used at the installation and/or to increase the installation's efficiency in the use of solids to achieve a reduction in its total emissions to a given percentage of the annual reference emissions, termed the target emission. In the case of existing activities, the emission target value shall be reached within the time frame provided in Section 6, Subsection 3.

Annual reference emission:

The annual reference emission shall be calculated to correspond as closely as possible to the emissions that would have resulted had no reduction action been taken at the installation or to the situation prevailing when the emission reduction scheme is prepared.

The annual reference emission shall be calculated as follows:

- 1) The total mass of solids contained in the coating, ink, varnish or adhesive consumed in a year is first determined. For these purposes solids are all materials in coatings, inks, varnishes or adhesives that become solid once the water or volatile organic compounds are evaporated.
- 2) The reference emission is then calculated by multiplying the total mass of solids determined in subparagraph 1 by the appropriate factor given in Table 2.1. The factors in the table are constants which describe the typical ratio of the mass of solvents to solids for the products used in each activity in cases where traditional solvent-based products are used. If it can be demonstrated to the permit authority, or, in the case of an installation registered in the environmental protection database, to the supervisory authority, that the multiplier calculated from the ratio of solids and solvents in the product input in the activities is something other than the constant presented below, the multiplier may be used for calculating the reference emission.

Table 2.1

	Factor
Rotogravure, flexography, lamination as part of a printing activity, varnishing as part of a printing activity	4
Coating of wooden surfaces	4
Coating of textiles, fabric, film or paper	4
Adhesive coating	4
Coil coating	3
Coating and original coating of vehicles outside of manufacturing installations (≤ 15 t/a)	3
Food contact coatings	2,33
Aviation and space industry coatings	2,33
Other coating	1,5
Rotary screen printing	1,5

Target emission:

3) The target emission is equal to the annual reference emission multiplied by a percentage equal to

(limit value for fugitive emissions given in Annex 1 + 15), for installations which fall within the scope of refinishing under Annex 1 (Table 3) or exceed the lower solvent consumption levels of the subparagraphs of Annex 1 dealing with other coating (Table 5a) and coating of wooden surfaces (Table 5b);

(limit value for fugitive emissions given in Annex 1 + 5), for all other installations.

4) The Decree's requirements are considered to be complied with when the actual annual emission determined with the aid of the solvent management plan under Annex 3 or otherwise in a manner approved by the permit authority or, in the case of an installation registered in the environmental protection database, by the supervisory authority, is less than or equal to the target emission.

SOLVENT MANAGEMENT PLAN

1. Principles

The solvent management plan shall be used to verify and ensure that an installation complies with the emission limit values referred to in Section 3 or the emission reduction scheme referred to in section 6 and in outlining emission reduction measures and in evaluating the installation's consumption of solvents, emissions and compliance with other provisions.

2. Definitions

Amount of organic solvents entering the process, i.e. input of organic solvents (I):

$$I = I1 + I2$$

I1. The quantity of organic solvents or their quantity in mixtures used in the activities in the time frame over which the mass balance is being calculated.

I2. The quantity of recovered organic solvents or their quantity in recovered mixtures re-used as a solvent in activities. The recycled solvent is counted every time it is used in the activity.

Amount of organic solvents emitted from the process or activity, i.e. output of organic solvents (O):

O1. Emissions in waste gases

O2. Organic solvents dissolved in water

O3. Amount of organic solvents which remain as contamination or residue in products manufactured in the process.

O4. Uncaptured emissions of organic solvents to air. This includes emissions of organic solvents via general ventilation, where air is released through doors, windows, vents and other similar openings.

O5. Organic solvents or organic compounds lost due to chemical or physical reactions, e.g. by incineration or other waste gas treatment, or captured by adsorption, or organic solvents or organic compounds lost or captured in waste-water treatment, provided that they are not counted under O6, O7 or O8.

O6. Organic solvents contained in collected waste.

O7. Organic solvents, or organic solvents contained in mixtures, which are sold as products with a commercial value.

O8. Organic solvents contained in mixtures, but not those counted in O7, which are recovered for reuse elsewhere than in the process.

O9. Organic solvents emitted in any other way.

3. Use of the solvent management plan

Use of a solvent management plan in determining fugitive emissions (F)

- i) The fugitive emissions (F) shall be calculated according to one of the following equations:

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

or

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

Fugitive emissions shall be determined either by direct measurement or by an equivalent calculation, for instance by using the capture efficiency of the process.

The limit value for fugitive emissions is expressed or calculated as a percentage (%) of the solvent input in the process (I).

- ii) Determination of fugitive emissions shall be done using a short but comprehensive set of measurements. It needs not be done again until the equipment is modified.

Use of a solvent management plan in complying with an emissions reduction scheme under Annex 2

If the installation is applying an emissions reduction scheme, the annual solvent consumption (C) may be determined using the solvent management plan as follows:

$$C = I1 - O8$$

The annual consumption may also be used to determine the content of solids in coatings, inks, varnishes or adhesives for calculation of the annual reference emissions and target emissions on the basis of the content (% or g/l) and the density (g/l) of solids in the product used.

Use of a solvent management plan in calculating total emissions (E)

To determine the total emissions (E) of the installation or operating unit, a solvent management plan should be drawn up annually. Total emissions may be calculated as follows:

$$E = F \text{ (fugitive emissions)} + O1 \text{ (emissions in waste gases)}$$

In an installation which carries out two or more activities falling within the scope of the Decree or which applies a total emissions limit referred to in section 9, paragraph 2, a solvent management plan should be drawn up annually to allow calculation of the total emis-

sions caused by all relevant activities and to allow the emissions to be compared with those total emissions that would be achieved by complying with the emission limit values specified in Annex 1 for each activity separately.