

ANNEX I

GENERAL PROVISIONS

This Annex is divided into three headings which set out the general provisions applicable to all the substances concerned:

- A: limit values for emission standards,
- B: quality objectives,
- C: reference methods of measurement.

The general provisions are amplified and supplemented in Annex II by a series of specific provisions applicable to individual substances.

HEADING A Limit values, dates set for compliance therewith and procedures for monitoring discharges

1. The limit values and the dates set for compliance therewith are set out in Annex II, under heading A, in respect of the different types of industrial plant concerned.
2. The quantities of substances discharged are expressed in terms of the quantity of substances produced, processed or used by the industrial plant during the same period or, in accordance with Article 6 (1) of Directive 76/464/EEC, of another parameter characteristic of that activity.
3. Limit values for industrial plants which discharge substances referred to in Article 2 (a) and which are not mentioned under heading A in Annex II will, where necessary, be determined by the Council at a later stage. Meanwhile, the Member States will independently set, in accordance with Directive 76/464/EEC, emission standards for discharges of such substances. Such standards must take into account the best technical means available and must not be less stringent than the most nearly comparable limit value set out under heading A in Annex II.

This paragraph will also apply where an industrial plant has activities other than those for which limit values have been set under heading A in Annex II and which are likely to be a source of discharges of the substances referred to in Article 2 (a).

4. Limit values expressed as concentrations which, in principle, must not be exceeded are given in Annex II under heading A, in respect of the industrial plants concerned. In no instance may limit values expressed as maximum concentrations, when they are not the only values applicable, be greater than limit values expressed by weight divided by water requirements per element characteristic of the polluting activity. However, because the concentration of these substances in effluents depends on the volume of water involved, which varies for different processes and plants, the limit values expressed in terms of the weight of the substances discharged in relation to the parameters characteristic of the activity given under heading A in Annex II, must be complied with in all cases.
5. A monitoring procedure must be instituted to check whether the discharges of the substances referred to in Article 2 (a) comply with the emission standards.

This procedure must provide for the taking and analysis of samples and for measurement of the flow of the discharge and the quantity of substances handled or, where appropriate, measurement of the parameters characteristic of the activity causing pollution as listed in Annex II, heading A.

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In particular, should the quantity of substances handled be impossible to determine, the monitoring procedure may be based on the quantity of substances that may be used as a function of the production capacity on which the authorization was based.

6. A sample representative of the discharge over a period of 24 hours must be taken. The quantity of substances discharged over one month must be calculated on the basis of the daily quantities of substances discharged.

Annex II may, however, lay down for discharges of certain substances quantitative thresholds below which the Member States may apply a simplified monitoring procedure.

7. The sampling and flow measurement provided for in paragraph 5 shall normally be effected at the points of application of the limit values provided for in Article 3 (2).

However, where necessary to ensure that the measurements comply with the requirements of heading C of the Annexes, a Member State may allow the sampling and flow measurement to be effected at another point before that at which the limit values apply, provided that:

- all waters discharged from the plant that may have been polluted by the substance in question are taken into account by those measurements,
- regular checks show that the measurements are fully representative of the quantities discharged at the points of application of the limit values or are always higher.

HEADING B Quality objectives, dates set for compliance therewith and procedure for monitoring compliance with them

1. For those Member States which opt for the exception provided for in Article 6 (3) of Directive 76/464/EEC, the emission standards which they must establish and apply, pursuant to Article 5 of that Directive, will be fixed so that the appropriate quality objective or objectives from those fixed pursuant to paragraphs 2 and 3 below is or are complied with in the area affected by discharges of the substances referred to in Article 2 (a). The competent authority will determine the area affected in each case and will select from the quality objectives fixed pursuant to paragraphs 2 and 3 below the objective or objectives that it deems appropriate having regard to the intended use of the area affected, while taking account of the fact that the purpose of this Directive is to eliminate all pollution.
2. With a view to eliminating pollution, as defined in Directive 76/464/EEC, and pursuant to Article 2 of that Directive, the quality objectives and dates set for compliance therewith are set out under heading B in Annex II.
3. Unless otherwise specified under heading B in Annex II, all the concentrations mentioned as quality objectives refer to the arithmetic mean of the results obtained over a year.
4. Where more than one quality objective is applied to waters within one area, the quality of the water must be sufficient to comply with each of those objectives.
5. For each authorization granted pursuant to this Directive, the competent authority will specify the detailed rules, monitoring procedures and dates for ensuring compliance with the quality objective or objectives concerned.

6. In accordance with Article 6 (3) of Directive 76/464/EEC, the Member States will, for each quality objective chosen and applied, report to the Commission on:
 - the points of discharge and the means of dispersal,
 - the area in which the quality objective is applied,
 - the location of sampling points,
 - the frequency of sampling,
 - the methods of sampling and measurement,
 - the results obtained.
7. Samples must be taken at a point sufficiently close to the discharge point to be representative of the quality of the aquatic environment in the area affected by the discharges, and the frequency of sampling must be sufficient to show any changes in the aquatic environment, having regard in particular to natural variations in hydrological conditions.

HEADING Reference methods of measurement and limit of detection

C

1. The definitions given in Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States⁽¹⁾ will apply in the context of this Directive.
2. The reference methods of measurement to be used for determining the concentration of the substances in question and the limit of detection for the environment concerned are set out under heading C in Annex II.
3. The limit of detection, the accuracy and the precision of the method are specified for each substance under heading C in Annex II.
4. Effluent flow measurements must be carried out to an accuracy of $\pm 20\%$.

ANNEX II

SPECIFIC PROVISIONS

1. Relating to carbon tetrachloride
2. Relating to DDT
3. Relating to pentachlorophenol
4. [^{F1}Relating to aldrin, dieldrin, endrin and isodrin
5. Relating to hexachlorobenzene
6. Relating to hexachlorobutadiene
7. Relating to chloroform]
8. [^{F2}Relating to 1,2-dichloroethane (EDC)
9. Relating to trichloroethylene (TRI)
10. Relating to perchloroethylene (PER)

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11. Relating to trichlorobenzene (TCB).]

Textual Amendments

- F1** Inserted by [Council Directive of 16 June 1988 \(88/347/EEC\)](#).
F2 Inserted by [Council Directive of 27 July 1990 \(90/415/EEC\)](#).

The numbering of the substances listed in this Annex corresponds to the list of 129 substances contained in the communication from the Commission to the Council of 22 June 1982⁽²⁾.

Should substances be included in future in this Annex which are not set out in the abovementioned list, they shall be numbered in chronological order of inclusion beginning with No 130.

I. Specific provisions relating to carbon tetrachloride (No 13)⁽³⁾ CAS No 56-23-5⁽⁴⁾

Heading Limit values for emission standards
 A (13):

Type of industrial plant ^{ab}	Type of average value	Limit values expressed as ^c		To be complied with as from	
		weight	concentration		
1. Carbon tetrachloride production by perchlorination	Monthly	a)	process involving washing: 40 g CCl ₄ per tonne of total production capacity of CCl ₄ and perchlorethylene	1,5 mg/l	1. 1. 1988
		b)	process not involving washing:		

a Among the industrial establishments referred to under heading A, point 3, of Annex I, reference is made in particular to plants using carbon tetrachloride as solvent.

b A simplified monitoring procedure may be introduced if annual discharges do not exceed 30 kg a year.

c In view of the volatility of carbon tetrachloride and in order to ensure compliance with Article 3 (6), where a process involving agitation in the open air of effluent containing carbon tetrachloride is used, the Member States shall require compliance with the limit values upstream of the plant concerned; they shall ensure that all water likely to be polluted is taken fully into account.

d It is not possible at present to adopt limit values for this sector. The Council is to adopt such limit values at a later date, acting on a Commission proposal.

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			2,5 g/tonne		
		Daily	a) process involving washing: 80 g/tonne	3 mg/l	
			b) process not involving washing: 5 g/tonne	3 mg/l	
2.	Production of chloromethanes by methane chlorination (including high-pressure electrolytic chlorine generation) and from methanol	Monthly	10 g CCl ₄ per tonne of total production capacity of chloromethanes	1,5 mg/l	1. 1. 1988
		Daily	20 g/tonne	3 mg/l	
3.	Production of chlorofluorocarbons ^d	Monthly	—	—	—
		Daily	—	—	—

a Among the industrial establishments referred to under heading A, point 3, of Annex I, reference is made in particular to plants using carbon tetrachloride as solvent.

b A simplified monitoring procedure may be introduced if annual discharges do not exceed 30 kg a year.

c In view of the volatility of carbon tetrachloride and in order to ensure compliance with Article 3 (6), where a process involving agitation in the open air of effluent containing carbon tetrachloride is used, the Member States shall require compliance with the limit values upstream of the plant concerned; they shall ensure that all water likely to be polluted is taken fully into account.

d It is not possible at present to adopt limit values for this sector. The Council is to adopt such limit values at a later date, acting on a Commission proposal.

^{F3}Heading Quality objectives

B (13):

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Textual Amendments

- F3** Deleted by Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council.

Heading Reference method of measurement

C (13):

1. The reference method of measurement to be used for determining the presence of tetrachloride in effluents and water is gas chromatography.
2. A sensitive detector must be used when concentration levels are below 0,5 mg/l and in this case the determination limit⁽⁵⁾ is 0,1 µg/l. For concentration levels higher than 0,5 mg/l a determination limit⁽⁶⁾ of 0,1 mg/l is acceptable.
2. The accuracy and precision of the method must be ± 50 % at a concentration which represents twice the value of the determination limit⁽⁷⁾.

II. Specific provisions relating to DDT (No 46)⁽⁸⁾⁽⁹⁾

CAS No 50 - 29 - 3⁽¹⁰⁾

STANDSTILL:

The concentration of DDT in the aquatic environment, sediments and/or molluscs and/or shellfish and/or fish must not increase significantly with time.

Heading A (46):

LIMIT VALUES FOR EMISSION STANDARDS⁰⁰

Type of industrial plant ^{cd}	Type of average value	Limit value expressed as		To be complied with as from
		g/tonne of substances produced, handled or used	mg/l of water discharged	
Production of DDT including formulation of DDT on the same site	Monthly	8	0,7	1. 1. 1988
	Daily	16	1,3	1. 1. 1988
	Monthly	4	0,2	1. 1. 1991
	Daily	8	0,4	1. 1. 1991

a With regard to new plants, the best technical means available must already make it possible to lay down, for DDT, emission standards lower than 1 g/tonne substances produced.

b On the basis of experience gained in implementing this Directive, the Commission will submit to the Council, pursuant to Article 6 (3) of this Directive, in good time, proposals aimed at fixing more stringent limit values to enter into force by 1994.

c Among the industrial plants referred to under heading A, point 3, of Annex I, reference is made in particular to plants formulating DDT away from the production site and to the dicofol production industry.

d A simplified monitoring procedure may be introduced if annual discharges do not exceed 1 kg a year.

^{F3}Heading Quality objectives

B (46):

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Heading Reference method of measurement

C (46):

1. The reference method of measurement to be used for determining DDT in effluents and the aquatic environment is gas chromatography with electron capture detection after extraction by means of an appropriate solvent. The limit of determination⁽¹¹⁾ [^{X1} for total DDT is approximately 4 ng/l for the aquatic environment] and 1 µg/l for effluents, depending on the number of extraneous substances present in the sample.
2. The reference method to be used for determining DDT in sediments and organisms is gas chromatography with electron capture detection after appropriate preparation of samples. The limit of determination⁽¹²⁾ is 1 µg/kg.
3. The accuracy and precision of the method must be ± 50 % at a concentration which represents twice the value of the limit of determination⁽¹³⁾.

Editorial Information

X1 Substituted by [Corrigendum to Council Directive 86/280/EEC of 12 June 1986 on limit values and quality objectives for discharges of certain dangerous substances included in List I of the Annex to Directive 76/464/EEC \(Official Journal of the European Communities No L 181 of 4 July 1986\)](#).

III. Specific provisions relating to pentachlorophenol (No 102)⁽¹⁴⁾⁽¹⁵⁾

CAS 87-86-5⁽¹⁶⁾

STANDSTILL:

The concentration of PCP in sediments and/or molluscs and/or shellfish and/or fish must not increase significantly with time.

Heading Limit values for emission standards

A (102):

Type of industrial plant ^{ab}	Type of average value	Limit values expressed as		To be complied with as from
		g/tonne production/ utilization capacity	mg/l of water discharged	
Production of sodium pentachlorophenate by hydrolysis of hexachlorobenzene	Monthly	25	1	1. 1. 1988
	Daily	50	2	1. 1. 1988

a Among the industrial plants referred to under heading A, point 3, of Annex I, reference is made in particular to plants producing sodium pentachlorophenate by saponification and those producing pentachlorophenol by chlorination.

b A simplified monitoring procedure may be introduced if annual discharges do not exceed 3 kg a year.

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^{F3}Heading Quality objectives

B (102):

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Heading Reference method of measurement

C (102):

1. The reference method of measurement to be used for determining pentachlorophenol in effluents and the aquatic environment is high-pressure liquid chromatography with electron-capture detection after extraction by means of an appropriate solvent. The limit of determination⁽¹⁷⁾ is 2 µg/l for effluents and 0,1 µg/l for the aquatic environment.
2. The reference method to be used for determining pentachlorophenol in sediments and organisms is high-pressure liquid chromatography or gas chromatography with electroncapture (SIC! electron-capture) detection after appropriate preparation of samples. The limit of determination⁽¹⁸⁾ is 1 µg/kg.
3. The accuracy and precision of the method must be ± 50 % at a concentration which represents twice the value of the limit of determination⁽¹⁹⁾.

[^{F1}IV. Specific provisions relating to:

—	aldrin (No 1) ^a	CAS-No 309-00-2
—	dieldrin (No 71) ^b	CAS-No 60-57-1
—	endrin (No 77) ^c	CAS-No 72-20-8
—	isodrin (No 130) ^d	CAS-No 465-73-6

a Aldrin is the chemical compound C₁₂H₈Cl₆
1, 2, 3, 4, 10, 10-hexachloro-1, 4, 4a, 5, 8, 8a-hexahydro-1, 4-endo-5, 8-exo-dimethanonaphtalene.

b Dieldrin is the chemical compound C₁₂H₈Cl₆O
1, 2, 3, 4, 10, 10-hexachloro-6, 7-epoxy-1, 4, 4a, 5, 6, 7, 8, 8a-octahydro-1, 4-endo-5, 8-exo-dimethanonaphtalene.

c Endrin is the chemical compound C₁₂H₈Cl₆O
1, 2, 3, 4, 10, 10-hexachloro-6, 7- epoxy-1, 4, 4a, 5, 6, 7, 8, 8a-octahydro-1, 4-endo-5, 8-endo-dimethanonaphtalene.

d Isodrin is the chemical compound C₁₂H₈Cl₆
1, 2, 3, 4, 10, 10-hexachloro-1, 4, 4a, 5, 8, 8a-hexahydro-1, 4-endo-5, 8-endo-dimethanonaphtalene.

Heading Limit values for emission standards⁽²⁰⁾

A (1,
71, 77,
130):

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Type of industrial plant ^a	Type of average value	Limit value expressed as	Weight	Concentration in effluent µg/l of water discharged ^b	To be complied with as from
Production of aldrin and/or dieldrin and/or endrin including formulation of these substances on the same site	Monthly	3 g per tonne of total production capacity (g/tonne)	2	1. 1. 1989	
	Daily	15 g per tonne of total production capacity (g/tonne) ^c	10 ^c	1. 1. 1989	

a Among the industrial plants referred to under heading A, point 3, of Annex I, reference is made in particular to plants formulating aldrin, and/or dieldrin and/or endrin away from the production site.

b These figures take account of the total amount of water passing through the plant.

c If possible, daily values should not exceed twice the monthly value.

^{F3}Heading B (1, 71, 77, 130):Quality objectives

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Heading Reference method of measurement

C (1,
71, 77,
130):

1. The reference method of measurement to be used for determining aldrin, dieldrin, endrin and/or isodrin in effluents and the aquatic environment is gas chromatography with electron-capture detection after extraction by means of an appropriate solvent. The limit of determination⁽²¹⁾ for each substance is 2,5 ng/l for the aquatic environment and 400 ng/l for effluents, depending on the number of parasite substances present in the sample.
2. The reference method to be used for determining aldrin, dieldrin and/or endrin and/or isodrin in sediments and organisms is gas chromatography with electron-capture detection after appropriate preparation of samples. The limit of determination is 1 µg/kg dry weight for each separate substance.
3. The accuracy and precision of the method must be $\pm 50\%$ at a concentration which represents twice the value of the limit of determination.

V. Specific dispositions relating to hexachlorobenzene (HCB) (No 83)
CAS-118-74-1

Heading Limit values for emission standards

A (83):

Standstill:

There must be no significant direct or indirect increase over time in pollution arising from discharges of HCB and affecting concentrations in sediments and/or molluscs and/or shellfish and/or fish.

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Type of industrial plant ^{abc}	Type of average value	Limit values expressed as		To be complied with as from
		weight	concentration	
1. HCB production and processing	monthly	10 g HCB/tonne of HCB production capacity	1 mg/l of HCB	1. 1. 19990
	daily	20 g HCB/tonne of HCB production capacity	2 mg/l of HCB	
2. Production of perchloroethylene (PER) and carbon tetrachloride (CCl ₄) by perchlorination	monthly	1,5 g HCB/tonne of PER + CCl ₄ total production capacity	1,5 mg/l of HCB	1. 1. 1990
	daily	3g HCB/tonne of PER + CCl ₄ total production capacity	3 mg/l of HCB	
3. Production of trichloroethylene and/or perchloroethylene by any other process ^d	monthly	—	—	—
	daily	—	—	—

a A simplified monitoring procedure may be introduced if annual discharges do not exceed 1 kg a year.

b Among the industrial plants referred to in Annex I, heading A, point 3, reference is made in particular to industrial plants producing quinoxaline and tecnazene, industrial plants producing chlorine by chlor-alkali electrolysis with graphite electrodes, industrial rubber processing plants, plants manufacturing pyrotechnic products and plants producing vinylchloride.

c On the basis of experience gained in implementing the Directive, and taking into account the fact that the use of best technical means already makes it possible to apply in some cases much more stringent values than those indicated above, the Council shall decide, on the basis of proposals from the Commission, upon more stringent limit values, such decision to be taken by 1 January 1995.

d It is not possible at present to adopt limit values for this sector. The Council shall adopt such limit values at a later stage, acting on a proposal from the Commission. In the meantime, Member States will apply national emission standards in accordance with Annex I, heading A, point 3.

^{F3}Heading B (83):Quality objectives

Heading Reference method of measurement
C (83):

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1. The reference method of measurement to be used for determining the presence of HCB in effluents and waters is gas chromatography with electron-capture detection after extraction by means of an appropriate solvent.

The limit of determination⁽²²⁾ for HCB shall be within the range 1 to 10 ng/l for waters and 0,5 to 1 µg/l for effluents depending on the number of extraneous substances present in the sample.

2. The reference method to be used for determining HCB in sediments and organisms is gas chromatography with electron-capture detection after appropriate preparation of the sample. The limit of determination⁽²³⁾ shall be within the range 1 to 10 µg/kg of dry matter.
3. The accuracy and precision of the method must be $\pm 50\%$ at a concentration which represents twice the value of the limit of determination⁽²⁴⁾.

VI. Specific provisions relating to hexachlorobutadiene (HCB) (No 84) CAS-87-68-3

Heading Limit values for emission standards

A (84):

Standstill:

There must be no significant direct or indirect increase over time in pollution arising from discharges of HCB and affecting concentrations in sediments and/or molluscs and/or shellfish and/or fish.

Type of industrial plant ^{abc}	Type of average value	Limit values expressed as		To be complied with as from
		weight	concentration	
1. Production of perchloroethylene (PER) and carbon tetrachloride (CCl ₄) by perchlorination	monthly	1,5 g HCB/tonne of total production capacity of PER + CCl ₄	1,5 mg/l of HCB	
	daily	3 g HCB/tonne of total production capacity of PER + CCl ₄	3 mg/l of HCB	1. 1. 1990
2. Production of	monthly	—	—	—
	daily	—	—	—

a A simplified monitoring procedure may be introduced if annual discharges do not exceed 1 kg a year.

b Among the industrial plants referred to in Annex I, heading A, point 3, reference is made in particular to industrial plants using HCB for technical purposes.

c On the basis of experience gained in implementing this Directive, and taking into account the fact that the use of best technical means already makes it possible to apply in some cases much more stringent values than those indicated above, the Council shall decide on the basis of proposals from the Commission, upon more stringent limit values, such decision to be taken by 1 January 1995.

d It is not possible at present to adopt limit values for this sector. The Council shall adopt such values at a later stage, acting on a proposal from the Commission. In the meantime, Member States will apply national emission standards in accordance with Annex I, heading A, point 3.

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trichloroethylene and/or perchloroethylene by any other process ^d			
a	A simplified monitoring procedure may be introduced if annual discharges do not exceed 1 kg a year.		
b	Among the industrial plants referred to in Annex I, heading A, point 3, reference is made in particular to industrial plants using HCBD for technical purposes.		
c	On the basis of experience gained in implementing this Directive, and taking into account the fact that the use of best technical means already makes it possible to apply in some cases much more stringent values than those indicated above, the Council shall decide on the basis of proposals from the Commission, upon more stringent limit values, such decision to be taken by 1 January 1995.		
d	It is not possible at present to adopt limit values for this sector. The Council shall adopt such values at a later stage, acting on a proposal from the Commission. In the meantime, Member States will apply national emission standards in accordance with Annex I, heading A, point 3.		

F³Heading B (84):Quality objectives

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Heading Reference method of measurement C (84):

- The reference method of measurement to be used for determining HCBD in effluents and waters is gas chromatography with electron-capture detection after extraction by means of an appropriate solvent.

The limit of determination⁽²⁵⁾ for HCBD shall be within the range 1 to 10 ng/l for waters and 0,5 to 1 µg/l for effluents, depending on the number of extraneous substances present in the sample.

- The reference method to be used for determining HCDB in sediments and organisms is gas chromatography with electron-capture detection after appropriate preparation of the sample. The limit of determination⁽²⁶⁾ shall be within the range 1 to 10 µg/kg of dry matter.
- The accuracy and precision of the method must be ± 50 % at a concentration which represents twice the value of the limit of determination⁽²⁷⁾.

VII. Specific provisions relating to chloroform (CHCl₃) (No 23)⁽²⁸⁾ CAS-67-66-3

Heading Limit values for emission standards A (23):

Type of industrial plant ^{ab}	^{cd} Limit value (monthly averages) expressed as		To be complied with as from
	weight	concentration	
1. Production of chloromethanes from methanol	10 g CHCl ₃ /tonne of total production capacity of chloromethanes	1 mg/l	1. 1. 1990

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	or from a combination of methanol and methane ^e			
2.	Production of chloromethanes by chlorination of methane	7,5 g CHCl ₃ /tonne of total production capacity of chloromethanes	1 mg/l	1. 1. 1990
3.	Production of chlorofluorocarbon CFC ^f	—	—	—

a Among the industrial plants referred to under heading A, point 3 of Annex I, special reference is made, in the case of chloroform, to plants manufacturing monomer vinyl chloride using dichlorethane pyrolysis, those producing bleached pulp and other plants using CHCl₃ as a solvent and plants in which cooling waters or other effluents are chlorinated. The Council shall adopt limit values for these sectors at a later stage, acting on proposals from the Commission.

b A simplified monitoring procedure may be introduced if annual discharges do not exceed 30 kg a year.

c Daily average limit values are equal to twice the monthly average values.

d In view of the volatility of chloroform and in order to ensure compliance with Article 3 (6), where a process involving agitation in the open air of effluent containing chloroform is used, the Member States shall require compliance with the limit values upstream of the plant concerned; they shall ensure that all water likely to be polluted is taken fully into account.

e I.e. by hydrochlorination of methanol, then chlorination of methyl chloride.

f It is not possible at present to adopt limit values for this sector. The Council shall adopt such limit values at a later date, acting on a proposal from the Commission. In the meantime, Member States will apply national emission standards in accordance with Annex I, heading A, point 3.

^{F3}Heading Quality objectives

B (23):

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Heading Reference method of measurement

C (23):

1. The reference method of measurement to be used for determining the presence of chloroform in effluents and the aquatic environment is gas chromatography.

A sensitive detector must be used when concentration levels are below 0,5 mg/l and in this case the determination limit⁽²⁹⁾ is 0,1 µg/l. For concentration levels higher than 0,5 mg/l a determination limit of 0,1 mg/l is acceptable.

2. The accuracy and precision of the method must be ± 50 % at a concentration which represents twice the value of the determination limit.]

[^{F2}VIII. Specific provisions relating to 1,2-dichloroethane (EDC) (No 59)⁽³⁰⁾
CAS — 107-06-2

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Heading Limit values for emission standards⁽³¹⁾
A (59):

Type of industrial plant ^{ab}	Type of average value	Limit values expressed as		To be complied with as from
		weight (g/tonne) ^c	concentration (mg/litre) ^d	
a) Production only of 1,2-dichloroethane (without processing or use on the same site)	Monthly	4	2	1. 1. 1993
		2,5	1,25	1. 1. 1995
	Daily	8	4	1. 1. 1993
		5	2,5	1. 1. 1995
b) Production of 1,2-dichloroethane, and processing or use at the same site, except for the use defined in (e) below ^{ef}	Monthly	12	6	1. 1. 1993
		5	2,5	1. 1. 1995
	Daily	24	12	1. 1. 1993
		10	5	1. 1. 1995
c) Processing of 1,2-dichloroethane into substances other than vinyl chloride ^g	Monthly	2,5	1	1. 1. 1993
	Daily	5	2	1. 1. 1993
d) Use of EDC for degreasing metals (away from an	Monthly	—	0,1	1. 1. 1993
	Daily	—	0,2	1. 1. 1993

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	industrial site covered by (b) ^a			
e)	use of EDC in the production of ion exchangers ⁱ	Monthly	—	—
		Daily	—	—

a The purified EDC production capacity includes that fraction of the EDC which is not cracked in the vinyl chloride (VC) production unit associated with the EDC production unit and which is recycled to the EDC purification section of the plant.
Production or processing capacity is the capacity authorized by administration or, failing that, the highest annual quantity produced or processed over the four years prior to the granting or review of the authorization. The capacity authorized by the administration should not differ greatly from actual production.

b A simplified monitoring procedure may be introduced where annual discharges do not exceed 30 kg/year.

c These limit values relate:
— for sectors (a) and (b), to purified EDC production capacity in tonnes,
— for sector (c), to EDC processing capacity expressed in tonnes.
However, in the case of sector (b), if the processing and utilization capacity is greater than the production capacity, the limit values shall be applied in relation to the global processing and utilization capacity. If there are several plants on the same site, the limit values shall apply to the plants taken together.

d Without prejudice to the provisions of heading A (4) in Annex I, these concentration limits relate to the following reference volumes:
(a) 2 m³/tonne of purified EDC production capacity;
(b) 2,5 m³/tonne of purified EDC production capacity;
(c) 2,5 m³/tonne of EDC processing capacity.

e The limit values take account of all diffuse internal sources and/or of EDC used as a solvent within the industrial production site; this will ensure a reduction in EDC discharges of more than 99 %.
Nevertheless, the combination of the best available technology and the absence of any diffuse internal source enables reduction amounts greater than 99,9 % to be achieved.
On the basis of the experience acquired in the application of the present measures, the Commission will present to the Council in good time proposals for more severe limit values to be applied from 1998.

f Where a Member State takes the view that, owing to the integration of EDC production with the manufacture of other chlorinated hydrocarbons, an EDC production process is unlikely to comply with these limit values by the 1 January 1993 deadline, it must advise the Commission thereof before 1 January 1991. A programme for the reduction of EDC discharges which will enable these limit values to be complied with by 1 January 1997 will be submitted to the Commission no later than 31 December 1993. The following limit value must, meanwhile, be complied with as at 1 January 1993:
— 40 g EDC/tonne of purified EDC production capacity (monthly and daily averages).
The limit value expressed as concentration is deduced on the basis of the volume of water discharged by the plant(s) concerned.

g The production of the following substances specifically is involved here: ethylene diamine, ethylene polyamine, 1.1.1.-trichloroethane, trichloroethylene and perchloroethylene.

h These limit values apply only to plants the annual discharges from which exceed 30 kg/year.

i It is not possible at present to adopt limit values for this sector. The Council shall adopt such limit values at a later stage, acting on a proposal from the Commission. In the meantime, Member States will apply national limit values in accordance with Annex I, heading A, point 3.

F³Heading quality objectives

B (59):

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Heading reference method measurement
C (59):

1. The reference method of measurement to be used for determining the presence of 1,2-dichloroethane in effluents and the water environment is gas chromatography with electron capture (SIC! electron-capture) detection after extraction by means of an appropriate solvent or gas chromatography following isolation by means of the 'purge and trap' process and trapping by using a cryogenically cooled capillary trap. The limit of determination is 10 µg/litre for effluents and 1 µg/litre for the water environment.
2. The accuracy and precision of the method must be plus or minus 50 % at a concentration which represents twice the value of the limit of determination.
3. Member States may determine concentrations of EDC by reference to the quantity of AOX, EOX or VOX, provided that the Commission is first satisfied that these methods give equivalent results and until the general solvent Directive is adopted.

The Member States concerned will establish regularly the relationship in concentration between EDC and the parameter used.

IX. Specific provisions relating to trichloroethylene (TRI) (No 121)⁽³²⁾
CAS 79.01.6

Heading limit values for emission standards⁽³³⁾
A (121):

Type of industrial plants ^a	Type of average value	Limit values expressed as		To be complied with as from
		weight (g/tonne) ^b	concentration (mg/litre) ^c	
a) Trichloroethylene (TRI) and perchloroethylene (PER) production	Monthly	10	2	1. 1. 1993
		2,5	0,5	1. 1. 1995
	Daily	20	4	1. 1. 1993
		5	1	1. 1. 1995
b) Use of TRI for degreasing metals ^d	Monthly		0,1	1. 1. 1993
	Daily		0,2	1. 1. 1993

a A simplified monitoring procedure may be introduced where annual discharges do not exceed 30 kg/year.

b For sector (a), limit values for TRI discharges to overall TRI + PER production capacity. For existing plant using dehydrochlorination of tetrachloroethane, the capacity of production is equivalent to the capacity of TRI-PER production, the ratio of TRI-PER production taken at one third. Production or processing capacity is the capacity authorized by the administration or, failing that, the highest annual quantity produced or processed over the four years prior to the granting or review of the authorization. The capacity authorized by the administration should not differ greatly from actual production.

c Without prejudice to the provisions of heading A (4) in Annex I, TRI limit concentrations relate to the following reference values:

— sector (a), 5 m³/tonne of TRI + PER production.

d These limit values apply only to industrial plants the annual discharges from which exceed 30 kg/year.

^{F3}Heading quality objectives

B (121):

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Heading reference method of measurement

C (121):

1. The reference method of measurement to be used for determining the presence of trichloroethylene (TRI) in effluents and the water environment is gas chromatography with electron-capture detection after extraction by means of an appropriate solvent.

The limit of determination for TRI is 10 µg/litre for the effluents and 0,1 µg/litre for the water environment.

2. The accuracy and precision of the method must be plus or minus 50 % at a concentration which represents twice the value of the limit of determination.
3. Member States may determine concentrations of TRI by reference to the quantity of AOX, EOX or VOX provided that the Commission is first satisfied that these methods give equivalent results and until the general solvent Directive is adopted.

X. Specific provisions relating to perchloroethylene (PER) (No 111)⁽³⁴⁾

CAS-127-18-4

Heading limit values for emission standards⁽³⁵⁾

A (111):

Type of industrial plant ^a	Type of average value	Limit values expressed as		To be complied with as from
		weight (g/tonne) ^b	concentration (mg/litre) ^c	
a) Trichloroethylene (TRI) and perchloroethylene (PER) production (TRI-PER processes)	Monthly	10	2	1. 1. 1993
		2,5	0,5	1. 1. 1995
	Daily	20	4	1. 1. 1993
		5	1	1. 1. 1995
b) Carbon tetrachloride and perchloroethylene production (TETRA-PER processes)	Monthly	10	5	1. 1. 1993
		2,5	1,25	1. 1. 1995
	Daily	20	10	1. 1. 1993
		5	2,5	1. 1. 1995
c) Use of PER for	Monthly	—	0,1	1. 1. 1993
	Daily	—	0,2	1. 1. 1993

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	degreasing metals ^d				
d)	Chlorofluorocarbon production	Monthly Daily	— —	— —	— —
a	A simplified monitoring procedure may be introduced where annual discharges do not exceed 30 kg/year.				
b	For sectors (a) and (b) the limit values for PER discharges relate either to overall TRI + PER production capacity or to overall TETRA + PER capacity. Production or processing capacity is the capacity authorized by the administration or, failing that, the highest annual quantity produced or processed over the four years prior to the granting or review of the authorization. The capacity authorized by the administration should not differ greatly from actual production.				
c	Without prejudice to the provisions of heading A (4) in Annex I, PER limit concentrations relate to the following reference volumes: — (a), 5 m ³ /tonne of TRI + PER production, — (b), 2 m ³ /tonne of TETRA + PER production.				
d	These limit values apply only to industrial plants the annual discharges from which exceed 30 kg/year.				
e	It is not possible at present to adopt limit values for this sector. The Council shall adopt them at a later stage, acting on a proposal from the Commission. In the meantime, Member States will apply national emission standards in accordance with Annex I, heading A, point 3.				

F³Heading quality objectives

B (111):

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Heading reference method of measurement

C (111):

1. The reference method of measurement to be used for determining the presence of perchloroethylene (PER) in effluents and the water environment is gas chromatography with electron capture detection after extraction by means of an appropriate solvent.

The limit of determination for PER is 10 µg/litre for effluents and 0,1 µg/litre for the water environment.

2. The accuracy and precision of the method must be plus or minus 50 % at a concentration which represents twice the value of the limit of determination.
3. Member States may determine concentration of PER by reference to the quantity of AOX, EOX or VOX, provided that the Commission is first satisfied that these methods give equivalent results and until the general solvent Directive is adopted.

The Member States concerned will establish regularly the relationship in concentration between PER and the parameter used.

- XI. Specific provisions relating to trichlorobenzene⁽³⁶⁾ (TCB) (117, 118)⁽³⁷⁾

Heading limit values for emission standards

A (117,

118):

Standstill:

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There must be no significant direct or indirect increase over time in pollution arising from discharges of TCB and affecting concentrations in sediments and/or molluscs and/or shellfish and/or fish.

Type of industrial plant	Type of average value	Limit values expressed as		To be complied with as from
		weight (g/tonne) ^a	concentration (mg/litre) ^b	
a) Production of TCB via dehydrochlorination of HCH and/or processing TCB	Monthly	25	2,5	1. 1. 1993
		10	1	1. 1. 1995
	Daily	50	5	1. 1. 1993
		20	2	1. 1. 1995
b) Production and/or processing of chlorobenzene via chlorination of benzene ^c	Monthly	5	0,5	1. 1. 1993
		0,5	0,05	1. 1. 1995
	Daily	10	1	1. 1. 1993
		1	0,1	1. 1. 1995

a The limit values for discharges of TCB (sum of the three isomers) are given:
— for sector (a): in relation to the total TCB production capacity,
— for sector (b): in relation to the total production or processing capacity for mono- and dichlorobenzenes.
Production or processing capacity is the capacity authorized by the administration or, failing that, the highest annual quantity produced or processed over the four years prior to the granting or review of the authorization. The capacity authorized by the administration should not differ greatly from actual production.

b Without prejudice to the provisions of heading A (4) in Annex I, limit concentrations relate to the following reference volumes:
— sector (a): 10 m³/tonne of TCB produced or processed,
— sector (b): 10 m³/tonne of mono- and dichlorobenzene produced or processed.

c For the existing plants discharging less than 50 kg/year by 1 January 1995, the limit values which are to be complied with at this date are equal to half of the limit values which are to be complied with as from 1 January 1993.

^{F3}Heading B (117, 118):quality objectives

Heading reference method of measurement

C (117, 118):

1. The reference method of measurement to be used for determining the presence of trichlorobenzene (TCB) in effluents and the water environment is gas chromatography with electron capture (SIC! electron-capture) detection after extraction by means of an appropriate solvent. The limit of determination for each isomer separately is 1 µg/litre for effluents and 10 ng/litre for the water environment.

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2. The reference method to be used for determining TCB in sediments and organisms is gas chromatography with electron capture detection after appropriate preparation of the sample. The limit of determination for each isomer separately is 1 µg/kg of dry matter.
3. Member States may determine concentrations of TCB by reference to the quantity of AOX or EOX, provided that the Commission is first satisfied that these methods give equivalent results and until the general solvent Directive is adopted.

The Member States concerned will establish regularly the relationship in concentration between TCB and the parameter used.
4. The accuracy and precision of the method must be plus or minus 50 % at a concentration which represents twice the value of the limit of determination.]

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- (1) OJ No L 271, 29.10.1979, p. 44.
- (2) OJ No C 176, 14.7.1982, p. 3.
- (3) Article 5 applies in particular to use of carbon tetrachloride in industrial laundries.
- (4) CAS (Chemical Abstract Service) number.
- (5) The 'determination limit'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (6) The 'determination limit'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (7) The 'determination limit'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (8) [The sum of the isomers 1,1,1-trichloro-2,2 bis (*p*-chlorophenyl) ethane; 1,1,1-trichloro-2 (*o*-chlorophenyl)-2-(*p*-chlorophenyl) ethane; 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethylene; and 1,1-dichloro-2,2 bis (*p*-chlorophenyl) ethane.]
- (9) Article 5 applies to DDT if sources other than those mentioned in this Annex are identified.
- (10) CAS (Chemical Abstract Service) number.
- (11) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (12) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (13) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (14) The chemical compound 2,3,4,5,6-Pentachloro-1-hydroxybenzene and its salts.
- (15) Article 5 applies to pentachlorophenol, and particularly to its use for treating wood.
- (16) CAS (Chemical Abstract Service) number.
- (17) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (18) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (19) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (20) [^{F1}The limit values indicated in this heading shall apply to the total discharge of aldrin, dieldrin and endrin.
If the effluent resulting from the production or use of aldrin, dieldrin and/or endrin (including formulation of these substances) also contains isodrin, the limit values laid down above shall apply to the total discharges of aldrin, dieldrin, endrin and isodrin.
- (21) The 'limit of determination'^xg of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.

- (22) The 'limit of determination'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (23) The 'limit of determination'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (24) The 'limit of determination'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (25) The 'limit of determination'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (26) The 'limit of determination'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (27) The 'limit of determination'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.
- (28) In the case of chloroform, Article 3 of Directive 76/464/EEC shall apply to discharges from industrial processes which may in themselves contribute significantly to the level of chloroform in the aqueous effluent; in particular it shall apply to those mentioned under Heading A of this Annex. Article 5 of this Directive applies if sources other than those listed in this Annex are identified.
- (29) The 'determination limit'^x g of a given substance is the smallest quantity, quantitatively determinable in a sample on the basis of a given working method, which can still be distinguished from zero.]
- (30) [^{F2}Article 5 of Directive 86/280/EEC applies in particular to EDC used as a solvent away from production or processing site if annual discharges amount to less than 30 kg/year. Such small discharges may be exempted from requirements of Article 3 of Directive 76/464/EEC. Notwithstanding Article 5 (3) of Directive 86/280/EEC, Member States must implement their specific programmes no later than 1 January 1993. They must communicate them to the Commission at the same time.
- (31) In view of the volatility of EDC and in order to ensure compliance with Article 3 (6) of Directive 86/280/EEC, where the process used involves open-air agitation containing EDC, Member States must require compliance with the limit values upstream of the plants concerned; they must ensure that all waters likely to be polluted are properly taken into account.
- (32) Article 5 of Directive 86/280/EEC applies in particular to TRI used as solvent for dry-cleaning for the extraction of grease or odours and for degreasing metals where annual discharges amount to less than 30 kg/year. Such small discharges may be exempted from the requirements of Article 3 of Directive 76/464/EEC. Notwithstanding Article 5 (3) of Directive 86/280/EEC, Member States must implement their specific programmes no later than 1 January 1993. They must communicate them to the Commission at the same time.
- (33) In view of the volatility of trichloroethylene and in order to ensure compliance with Article 3 (6) of Directive 86/280/EEC, where the process used involves open-air agitation of the effluents containing trichloroethylene, Member States must require compliance with the limit values upstream of the plants concerned; they must ensure that all waters likely to be polluted are properly taken into account.
- (34) Article 5 of Directive 86/280/EEC applies in particular to PER used as solvent for dry-cleaning for the extraction of grease or odours and for degreasing metals where annual discharges amount to less than 30 kg/year. Such small discharges may be exempted from the requirements of Article 3 of Directive 76/464/EEC. Notwithstanding Article 5 (3) of Directive 86/280/EEC, Member States must implement their specific programmes no later than 1 January 1993. They must communicate them to the Commission at the same time.
- (35) In view of the volatility of perchloroethylene and in order to ensure compliance with Article 3 (6) of Directive 86/280/EEC, where the process used involves open-air agitation of the effluents

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containing perchloroethylene, the Member States must require compliance with the limit values upstream of the plants concerned; they must ensure that all waters likely to be polluted are properly taken into account.

(36) Article 5 of Directive 86/280/EEC applies in particular to TCB used as a solvent or colouring support in the textile industry, or as component of the oils used in transformers until such time as there is specific Community legislation on this subject. Notwithstanding Article 5 (3), Member States must implement their specific programmes no later than 1 January 1993. They must communicate them to the Commission at the same time.

(37) TCB may occur as one of the following three isomers:

- 1, 2, 3-TCB — CAS 87/61-6;
- 1, 2, 4-TCB — CAS 120-82-1 (No 118 of the EEC list);
- 1, 3, 5-TCB — CAS 180-70-3.

Technical TCB (No 117 of EEC list) is a mixture of these three isomers, with a preponderance of 1,2,4-TCB, and may also contain small quantities of di-and-tetrachlorobenzene.

In any case, these provisions apply to the total TCB (the sum of the three isomers).]

Textual Amendments

F1 Inserted by [Council Directive of 16 June 1988 \(88/347/EEC\)](#).

F2 Inserted by [Council Directive of 27 July 1990 \(90/415/EEC\)](#).