

Hazardous Substances Series

**Assessment of Contracting Parties'
Implementation Reports on PARCOM
Decision 92/3 on the Phasing Out of PCBs
and Hazardous PCB Substitutes**



**OSPAR Commission
(2002)**

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Community and Spain.

La Convention pour la protection du milieu marin de l'Atlantique du nord-est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. La Convention a été ratifiée par l'Allemagne, la Belgique, le Danemark, la Finlande, la France, l'Irlande, l'Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d'Irlande du Nord, la Suède et la Suisse et approuvée par la Communauté européenne et l'Espagne.

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Assessment of Contracting Parties' Implementation Reports on PARCOM Decision 92/3 on the Phasing Out of PCBs and Hazardous PCB Substitutes

Background

1. Germany, as lead country for PARCOM Decision 92/3 on the Phasing Out of PCBs and Hazardous PCB Substitutes, has prepared an assessment of implementation of this measure based on implementation reports submitted by Belgium, Denmark, Finland, France, Germany, Netherlands, Norway, Spain, Sweden and the UK. These reports are attached (appendices 1-10). Iceland has reported that PARCOM Decision 92/3 is implemented by legislation in Iceland and Switzerland has reported that this measure is implemented by legislation and by administrative action, but these two Contracting Parties have not submitted an implementation report on the effectiveness of this measure. Reports were not received from Ireland, Luxembourg, Portugal. OSPAR 2002 agreed that where no report has been submitted, the assessment should include the following note: "No evidence supplied that this measure has been implemented". No Contracting Party has a reservation on PARCOM Decision 92/3.
2. Germany prepared and circulated for comment a draft implementation report format in December 1999. Although no comments were received on this draft implementation report format, some reactions in the actual implementation reporting suggest that Contracting Parties may have had difficulties with the reporting format.
3. It should also be noted, that the previous implementation round on PARCOM Decision 92/3 in 1997 remained incomplete due to lack of response from Contracting Parties. The previous assessment, published in 1997, is available from the Secretariat on request.
4. Because reports from some Contracting Parties have been very general, it has been difficult to draw some overall conclusions.

Annex 1

A short description of implementation reports on PARCOM Decision 92/3 on the Phasing Out of PCBs and Hazardous PCB Substitutes so far received

In accordance with the guidelines for preparing implementation reports, a draft implementation report format was developed which consisted of a model for an implementation report on compliance (Part A) as appended to the Standard Implementation Reporting and Assessment Procedure (reference number: 2001-22) and a part for the assessment of effectiveness of the measures (Part B).

PART A: Report on Compliance

The following table combines information from

- the attached 10 implementation reports (*bold italic*);
- the 1997 assessment (DIFF 97/12/3)
- the status of Decision PARCOM 92/3 as indicated in PRAM 00/6/1 (i.e., no reservations);
- a footnote by France concerning the applicability of this Decision in France;
- information from Iceland at the meeting of the working group on point and diffuse sources (PDS 2001) that PARCOM Decision 92/3 has been legally implemented in Iceland.

The Council Directive 96/59/EC (recital No (6)) refers to the PARCOM Decision in saying: "Whereas such measures should be taken as soon as possible without prejudice to the Member States' international obligations, in particular those contained in PARCOM Decision 92/3 ...")

Table 1: Overview of Means of Implementation

Contracting Party	applicable	by legislation	administrative action	negotiated agreement
<i>Belgium</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>
<i>Denmark</i>	<i>yes</i>	<i>yes</i>	<i>no</i>	<i>No</i>
<i>Finland</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>no</i>
<i>France</i>	<i>yes</i>	<i>yes</i>	<i>no</i>	<i>no</i>
<i>Germany</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>---</i>
<i>Iceland¹</i>		<i>yes</i>	<i>no</i>	<i>no</i>
Ireland		No evidence supplied that this measure has been implemented		
<i>Netherlands</i>	<i>yes</i>	<i>yes</i>	<i>Yes</i>	<i>yes</i>
<i>Norway</i>	<i>yes</i>	<i>yes</i>	<i>Yes</i>	<i>yes</i>
Portugal		No evidence supplied that this measure has been implemented		
<i>Spain</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>Yes</i>
<i>Sweden</i>	<i>yes</i>	<i>yes</i>	<i>Yes/no</i>	<i>Yes/no</i>
<i>United Kingdom</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>Yes</i>
EC	There is parallel EC legislation (Council Directive 96/59/EC) which refers to PARCOM Decision 92/3			
Luxembourg		No evidence supplied that this measure has been implemented		
<i>Switzerland¹</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>no</i>

From the information provided it can be concluded that in Finland, the Netherlands, and Belgium intensified administrative action concerning safe disposal of e.g. small capacitors has been taken place since the assessment in 1997. In Spain, legislative efforts have been introduced to manage and eliminate PCBs and PCTs. Iceland informed that PARCOM Decision 92/3 is legally implemented in Iceland (PDS 2001).

Part B: Report on effectiveness

An overall quantification of PCBs still to be safely disposed of could be carried out as some reactions to the actual implementation reporting suggest that Contracting Parties may have experienced difficulties with the reporting format.

Closed Applications

With regard to question 1 on “**closed application**”, it was expected that detailed information would be available in view of EC Directive 96/59/EC on the disposal of PCBs and PCTs that prescribes the establishing of national inventories by 2000 by the EU member states. Up to now, ten countries submitted information with regard to PARCOM Decision 92/3.

- In Finland, 1 t of “closed” PCB-quantities were in use in 1999. Uses in small capacitors in 1983 amounted to 300 t.
- For Germany, only information on tonnages of PCB containing equipment is available. Information on

¹ No report on effectiveness of this measure has been submitted.

the associated PCB quantities is not available. PCB quantities in closed appliances were estimated based on the figures for 1998. In order to comply with the provisions of Directive 96/59/EC a new questionnaire has been sent to the 'Länder' administrations to establish a more detailed inventory of PCB/PCT containing material. The number of PCB containing equipment (> 5 litres) still to be disposed of is about 380 appliances with about 395 tonnes of liquid PCB.

- For the Netherlands, quite detailed figures on the number of pieces of PCB containing appliances were reported. Based on these figures, it may be possible to estimate the PCBs quantities to be disposed of. Figures on small capacitors have not been provided.
- In Norway, 400 t of PCB containing appliances were destroyed by 1995. In small capacitors a quantity of 100 t PCBs is still in use.
- The UK informed that summaries of inventories were submitted to the European Commission, but no specific information was provided in the report.
- Belgium reported a total of approx. 33 000 pieces of equipment. PCB from approx. 4800 pieces of equipment had been destroyed by the end of 1999.
- In Denmark, 3.3 tonnes of PCBs originating from 23 firms were destroyed.
- Sweden reported PCB quantities in a total of 2000 tonnes that have been destroyed in 2001. It reported further that appliances in safe temporary storage are < 50 tonnes.
- In Spain, the maximum total quantity of PCB is 210 000 tonnes. A first revision of the PCB inventory will be finished in March 2002. Due to lack of own PCB incineration facilities, PCB destruction will take place in other countries, mainly France. Spain has authorised 7 enterprises to deal with the PCB decontamination process. . The actual and annual capacity for that is around 9000 tonnes of PCBs.
- France reported that the quantity of destroyed liquid PCB has been estimated to 10 000 tonnes in 2000.

Open Application

With regard to question 2 on "**open application**", Finland reported approx. 40 t PCB used in 1969. In Germany around 2400 t were estimated to be still in use in open applications in 1998. Figures on the tonnage disposed of are not available. The Netherlands reported that open uses are banned since 1979 without quantifying the PCB quantities involved. Norway submitted detailed figures of an investigation in 1997: of 350 t PCBs used in sealants, 150 t had been disposed of in landfills; of 250 t PCBs used in grouting and as additives to concrete, 130 t had been disposed of. PCBs on ships were estimated to amount to 75 tonnes of which 15 t remain to be disposed of. United Kingdom made reference to question 1 and to information that has been passed to the European Commission but no data are submitted via its national report. Denmark reported that the use of PCB in "open applications" like uses in paints, sealants, carbonless paper etc. has been banned since 1977. No quantities used or destroyed could be provided. Based on construction techniques used in that period, Sweden estimated that between 70 and 500 tonnes of PCB in sealants may have been used in the period 1956 – 1973. Extrapolation of later data seems to indicate that about 100 tonnes may be the most likely quantity. Belgium submitted detailed figures on open applications to different years of investigation: up to 1969 40 tonnes of PCBs used in grouting (cement, mastic, etc), up to 1982 3470 tonnes of PCBs used in paints, and up to 1973 63 tonnes of PCBs used in Thiokol. Most of these quantities had been destroyed/ landfilled by the end of 1999. No (detailed) information was provided by the United Kingdom, Spain, and France.

Inventories of and Measures on Hazardous PCB Substitutes

Concerning question 3 on **inventories of hazardous PCB substitutes**, no Contracting Party submitted the information asked for since relevant data is not available or too unspecific. In addition, Denmark mentioned that three specific PCB substitutes have been banned at the same time as the PCBs. Sweden mentioned PCT as the only substitute, which was banned. The United Kingdom stated that a quantity of polychlorinated naphthalenes has been disposed of. France informed that substitutes were dealt with under the PCB inventory.

Question 4 on **measures on hazardous PCB substitutes** was answered mainly by relating to the 1997

implementation reporting or with reference to information given in question 1. One country (Belgium) mentioned the difficulty in identifying the substitutes used. France and Norway reported that dangerous PCB-substitutes were replaced by mineral oils or by dry transformers.

Emissions of PCBs and PCB Substitutes

Question 5 on **emissions of PCBs or hazardous PCB substitutes** was voluntary. Germany provided information on PCBs only for the years 1994/1995. Finland reported an estimate about an overall release from industry to amount to 550 kg PCB. Sweden, Belgium and France could not provide any data. Belgium pointed out, that estimates will be provided in the near future. No answers were given by Denmark and Spain. Norway reported that no emission estimates on PCB and PCB-substitutes are done. The Netherlands assumed that most uses of PCBs and hazardous PCB substitutes have been phased out and emission inventories have been established, however the information provided was less specific than requested in the table. United Kingdom reported an estimate of approx. 3250 kg of PCB emissions mainly from cars and household appliances reported for the years 1970 – 1997.

Belgium implementation Report Format on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes

PART A: REPORT ON COMPLIANCE

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, please state why:

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	Yes (<i>regional regulations</i>)	Yes (<i>regional waste management plans, environmental permits</i>)	Yes

Please provide information on:

- a. specific measures taken to give effect to this measure;
- b. any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- c. the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- d. if appropriate, progress towards being able to lift the reservation¹.
 - a 1) The Regions have drawn up disposal plans based on the age of the appliances ; all appliances should have been removed by **31 December 2005**. However, a number of derogations have been provided for, in which case the ultimate year of disposal is 2010.
 - a 2) At the regional level, environmental permits may be granted or renewed only if appliances containing PCBs (as defined in Directive 96/59/EC) have been removed from all economic activities.
 - b) The most common technical difficulty encountered is the updating of the inventory, particularly in closed down or disused buildings or in blocks of flats where persons in charge often do not have the (technical and regulatory) skills to respond adequately.

PART B: REPORT ON EFFECTIVENESS

Country:

BELGIUM

I. *Phasing out and Destruction of PCBs and PCB contaminated Appliances*

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

It is forbidden to dispose in underground facilities any appliances that contain PCBs, are contaminated with PCBs or have been decontaminated. Only collection centres are allowed where appliances are momentarily stored before final transfer in a destruction plant.

Closed applications	Year of the Inventory	Destruction/ Landfill by 31.12.1999	Appliances in safe disposal
1. PCB-quantities involved Appliances: 2. Askarel transformers 3. Transformers contaminated with PCBs 4. Large capacitors 5. Small capacitors (e.g. strip light fittings) 6. Heat exchange systems 7. Hydraulic systems Other appliances: 8.	32189 equipment	4742 equipment (of which 1715 were already destroyed before the end of 1992.) ²	0

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then?

Please provide figures/estimates in the table below.

This is an estimate based on statistical data of the marketed products associated with a level of PCB contamination for each type of representative appliance, either measured or reported in the literature, and subsequently extrapolated to the overall sales figures.

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

² these data give a result of 14.7% of destruction. But, considering there were only 30474 equipment remaining at the time the PARCOM Decision 92/3 came into force (by the end of 1992) and considering that 3027 equipment were destroyed under this "regime", another way to assess the implementation in particular of PARCOM Decision 92/3 gives a result of 9.9 % before the end of 1999.

Note that for 2000, 811 supplementary equipment have been destroyed. This has to be compared with the average destruction rate of 432 equipment per year for the period 1992-1999.

Open applications	Year of the Inventory (199...)	Destruction/ Landfill by 31.12.1999
Building products: sealant	No data	No data
Building products: grouting (cement, mastic, etc)	Year: up to 1969 40 t	37.16 t
Plasticisers,		
Paints	Year: up to 1982 3470 t	3446 t
Thiokol	Year : up to 1973 63 t	57.54 t

Remarks :

Other open applications : in 1983, the EPA made a list of potentially PCB-containing products, based on a theoretical study of 200 chemical processes that can generate PCB as a by-product. The processes were ordered according to their potential for PCB creation; the substances produced by processes with a high potential were put on the EPA list. It is expected that these substances contain 25 – 50 ppm PCBs.

No analysis data on the PCB content is available for any of these products, because the European industry is not obliged to analyse PCB products.

Example of substances :

1,1,1 trichloroethane (methyl chloroform); Tetrachloroethylene; tetrachloromethane; 1,2 dichlorobenzene; Pentachloronitrobenzene (quintozene);

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

The establishment of an inventory of (hazardous) substitutes + the identification of the trade names (identification of appliances) is being considered and may produce a methodology that would define the structure of this inventory as well as its implementation.

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

The current thinking aimed at the adoption of effective measures is running into the difficulty of identifying the PCB substitutes used. To adequately implement measures, it would be wise not only to list all the hazardous PCB substitutes but also to set up a core set of information allowing their identification. This would make it possible to define plans for both the public authorities and the industries involved with this equipment.

This remark also applies to the small PCB containing applications that are not labelled as such and, therefore, any measures with regard to these applications remain difficult to plan.

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

The storage estimates are not yet available but will be transmitted shortly ;

Substance	Quantities emitted from				Time period Covered 1999
	closed applications	open applications	thermal processes	disposal sites or landfills	
	> 50 ppm > 5 dm ³	< 5 dm ³			
1. PCBs	5.2 t ³	3.156 t	2.37 t	No data	No data

³ Indirect value from EMEP obtained on the basis of emissions for other countries than Belgium

The format for implementation reports concerning PARCOM Decision 92/3 on the Phasing Out of PCBs and Hazardous PCB Substitutes as set out below should be used to the extent possible.

Part A: Implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, please state why:.

.....

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	yes	No	No

Please provide information on:

- a. specific measures taken to give effect to this measure;
- b. any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- c. the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- d. if appropriate, progress towards being able to lift the reservation¹.

Implementation by legislation: Statutory Order no. 925 of 13th December 1998 regarding PCB, PCT and their substitutes. This Order puts a ban on the sale and import of PCB and equipment containing PCB (since 1986). It as well bans the use of equipment containing PCB bigger than 1 kg or with an effect more than 2 kVAr (since 1995). The use of 3 specific PCB substitutes has as well been banned. With regard to the disposal and decontamination of transformers specific deadlines has been made. The banned by use equipment should be disposed of before January 1st 2001.

Part B: Implementation Report on Effectiveness

Country:

Denmark

I. Phasing out and Destruction of PCBs and PCB contaminated Appliances

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

I 1998-99 in total 1,310 questionnaires have been given to enterprises of the power distributing network, harbours, waste treatment plants, institutions and industrial enterprises. About 92% have answered the inquiry. In total 23 consumers of electricity answered that they were holders of PCB-containing equipment or equipment that may hold PCB. All 23 have subsequent to the inventory disposed of the equipment to Kommunekemi (incineration). The total PCB volume identified by the inventory is 3.3 tonnes. Of these a single enterprise holding both PCB-containing transformers and capacitors accounted for 2.5 tonnes.

Closed applications	Year of the Inventory (199...)	Destruction/ Landfill by 31.12.1999	Appliances in safe disposal
2. PCB-quantities involved Appliances: 8. Askarel transformers 9. Transformers contaminated with PCBs 10. Large capacitors 11. Small capacitors (e.g. strip light fittings) 12. Heat exchange systems 13. Hydraulic systems Other appliances: 9.			-/-

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then? Please provide figures/estimates in the table below.

Since 1977, the use of PCB in so called open applications has been banned; that is use in paints, sealant, carbonless paper etc. It has not been possible to identify the quantities used or destroyed.

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

Open applications	Year of the Inventory (199...)	Destruction/ Landfill by 31.12.1999
Building products: Sealant Grouting Plasticisers, paints /.....		

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

The use of 3 specific PCB substitutes (monomethyltetrachlorodiphenylmethan, monomethyldichlorodiphenylmethan, monomethyldibromodiphenylmethan has been banned from the same time as the PCBs. No data exists for possible use or destruction.

Hazardous PCB substitutes	Application [open, close,..]	Quantity	Destruction/ Landfill by 31.12.1999
1.			
2.			

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

See under question 1 for determination of the use and stock of PCB.

The Danish EPA are continuously investigating illegal uses of all chemical substances including PCB and the 3 forbidden alternatives.

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

Substance	Quantities emitted from				Time period covered
	closed applications	open applications	thermal processes	disposal sites or landfills	
2. PCBs					
3.					
4.					
5.					

(Draft) Implementation Report Format on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes**PART A: REPORT ON COMPLIANCE PART A REPORT ON COMPLIANCE PART A REPORT ON COMPLIANCE****Country:**

Finland

Is measure applicable in your country?

Yes

If not applicable, please state why:.

Means of Implementation:

by legislation	by administrative action	by negotiated agreement
Yes	Yes	No

Please provide information on:

- a. specific measures taken to give effect to this measure;
- b. any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- c. the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- d. if appropriate, progress towards being able to lift the reservation¹.

Government decisions in 1989 (No 1071/1989 restricting import and use of PVB and PCT), 1993 (No 846/1993 banning the use of some substitutes for PCB) and 1998 (No 711/1998 concerning removal of devices containing PCB).

An administrative program to intensify the collection and treatment of waste from devices containing PCB was decided on by the Ministry of Environment in 1999 implementing the Government decision No 711/1998.

Publications: 1) Fact sheet on PCB, its properties uses and fate; published in 1997. 2) Brochure on treatment of waste from devices containing PCB; published in 1999. 3) Recommendations concerning PCB in open applications included in investigation partly published by the Ministry of the Environment on internet.

¹ According to OSPAR 99/15/1, Annex 11, No 39, there are no reservations on PARCOM Decision 92/3

² Delete whichever is not appropriate

PART B: REPORT ON EFFECTIVENESS

Country:

Finland

I. Phasing out and Destruction of PCBs and PCB contaminated Appliances

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

In 1999 an inventory of equipment with PCB volumes of more than 5 dm³ was done according to the Commission decision 96/59/EC.

Closed applications	Year of the Inventory (1999)	Destruction/ Landfill by 31.12.1999	Appliances in safe disposal
1. PCB-quantities involved	1 t		-/-
Appliances:			
2. Askarel transformers	< 5 pieces	All	none
3. Transformers contaminated with PCBs	0		
4. Large capacitors	< 120 pieces	About 95 %	none
5. Small capacitors (e.g. strip light fittings)	(in 1983: 300 t)	?	
6. Heat exchange systems			
7. Hydraulic systems			
Other appliances:			
8.			

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then?

Please provide figures/estimates in the table below.

An estimation was made in 1969 of the amounts of PCB used in open applications during the 1960's. The use in open applications was mainly ceased by the mid 1970's and totally ended by the end of that decade.

Open applications	Year of the Inventory (1969)	Destruction/ Landfill by 31.12.1999
Building products: Sealant	5 t	?
Grouting	-	
Plasticisers, paints	30 t	
Glues	1,5 t	
Self-coping papers	0,013 t	

*Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

Hazardous PCB substitutes	Application [open, close,..]	Quantity	Destruction/ Landfill by 31.12.1999
1.			
2.			
...			

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

In 1993 the use and marketing of monomethyl-dichloride-diphenyl-methane and monomethyl-dibromo-diphenyl-methane and compounds, devices and products containing these substitutes was banned.

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

No recent investigations of the emission sources, although the total fallout has been calculated for the area of Finland in 1999. In 1995 the release into the environment from industrial activities was estimated to 550 kg.

Substance	Quantities emitted from				Time period covered
	closed applications	open applications	thermal processes	disposal sites or landfills	
1. PCBs					
2.....					
3.....					
4.....					

French implementation Report Format on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes

Partie A: Compte rendu de mise en conformité

Pays:

Une réserve s'applique?

La mesure est applicable dans votre pays?

Moyens de mise en œuvre:	Législation	Mesure administrative	Accord négocié
	oui	non	non

Bien vouloir donner les renseignements suivants :

- mesures prises spécifiquement afin de rendre la présente mesure effective;
- difficultés particulières qui se sont présentées, telles que problèmes pratiques ou juridiques, dans la mise en œuvre de la présente mesure;
- les raisons pour lesquelles la présente mesure n'a pas été pleinement appliquée doivent être clairement indiquées, de même que ce qui est prévu pour la mettre pleinement en œuvre;
- si opportun, les progrès accomplis dans le sens de la levée de la réserve¹.

- *Décret du 2 février 1987, modifié le 18 janvier 2001, relatif à la mise sur le marché, à l'utilisation et à l'élimination des PCB.*

- *Arrêté ministériel du 13 février 2001 relatif à la déclaration des PCB et des appareils contaminés au PCB*

Partie B: Compte rendu de mise en œuvre et d'efficacité

Pays:

I. Mise hors service et destruction des appareils aux PCB et des appareils contaminés par des PCB

Question 1: Applications en circuit fermé

Dans votre pays, a-t-on fait l'inventaire des quantités de PCB à l'état liquide et des appareils qui en contiennent ou qui en contenaient ? Quelle quantité de PCB et combien d'appareils ont-ils été détruits depuis lors ? Combien d'appareils contaminés ont-ils été éliminés dans des dépôts souterrains sûrs ? Bien vouloir donner des chiffres/estimations au tableau ci-dessous.

Inventaire en cours

En 2000, la quantité de PCB liquide détruite est estimée à 10000 tonnes

Applications en circuit fermé	Année de l'inventaire (199...)	Destruction/ mise en décharges 31.12.1999	Appareils éliminés sans danger
3. PCB-quantités en cause Appareils: 14. Transformateurs à l'Askarel 15. Transformateurs contaminés par des PCB 16. Gros condensateurs 17. Petits condensateurs (p.ex. barres au néon) 18. Circuits d'échange de chaleur 19. Circuits hydrauliques Autres appareils: 10.....			-/-

Question 2: Applications en milieu ouvert

Dans votre pays, a-t-on fait l'inventaire des quantités de PCB et des matières/produits contenant des PCB dans les applications en circuit ouvert ? Combien de PCB (quantité) ou de matières/produits contaminés par des PCB en cause ont-ils été détruits depuis lors ?

Bien vouloir donner des chiffres/estimations au tableau ci-dessous.

Non

Applications en milieu ouvert	Année de l'inventaire (199...)	Destruction/ mise en décharges au 31.12.1999
Produits de bâtiment: Produits d'étanchéité Produits de jointoiment Plastifiants, peintures		

II. Mise hors service et destruction des succédanés dangereux des PCB et des appareils contaminés par ces succédanés

Question 3:

Dans votre pays, a-t-on dressé un inventaire des succédanés dangereux des PCB (voir Appendice 1)? Quelle quantité ou combien de ces succédanés des PCB ont-ils été détruits depuis lors ?

Bien vouloir donner des chiffres/estimations au tableau ci-dessous.

Les substituts dangereux des PCB sont inclus dans l'inventaire, au même titre que les PCB

Succédanés dangereux des PCB	Application [milieu ouvert, fermé,..]	Quantité	Destruction/ mise en décharges au 31.12.1999
1.			
2.			

III. Mesures régissant l'utilisation des succédanés dangereux des PCB dans les condensateurs et les transformateurs

Question 4:

Quelles mesures ont-elles été prises dans votre pays pour empêcher ou réglementer rigoureusement l'utilisation des succédanés dangereux des PCB dans les condensateurs et les transformateurs ? A quel point des mesures ont-elles été efficaces ? Y a-t-il de quelconques succédanés dangereux des PCB visés à la question 3 qui aient été remplacés par des substances moins dangereuses, voire inoffensives ?

L'usage des substituts dangereux des PCB est interdit en France depuis 1987.

Par exemple, les substituts dangereux des PCB sont remplacés par des huiles minérales ou par des transformateurs secs.

IV. Renseignements facultatifs sur les émissions environnementales de PCB ou de succédanés dangereux des PCB

Question 5:

Disposez-vous de renseignements sur les émissions de PCB ou de succédanés dangereux des PCB dans l'environnement ? Dans l'affirmative, bien vouloir en donner les estimations au tableau ci-dessous. **NO**

Substance	Quantités émises par				Période couverte
	Applications en circuit fermé	Applications en milieu ouvert	Procédés thermiques	Sites d'élimination ou décharges	
6. PCB					
7.					
8.					
9.					

Implementation Report Format on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes

PART A: REPORT ON COMPLIANCE

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, please state why:.

.....

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	yes	yes	---

Please provide information on:

- a. specific measures taken to give effect to this measure;
- b. any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- c. the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- d. if appropriate, progress towards being able to lift the reservation¹.

An Executive Order implementing the EC Directive 96/95 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls has been adopted (Executive Order of 26 June 2000, published BGBl part I). A stricter cut off value of 1 litre instead of 5 litre with regard to liquid PCB waste has been set.

PART B: REPORT ON EFFECTIVENESS

Country:

I. Phasing out and Destruction of PCBs and PCB contaminated Appliances

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

Closed applications	Year of the Inventory (1998)	Destruction/ Landfill by 31.12.1999	Appliances in safe disposal
1. PCB-quantities involved	1600 t		-/-
Appliances:			
2. Askarel transformers	approx. 500 t ¹⁾	disposed	*
3. Transformers contaminated with PCBs	approx. 100 t ²⁾	disposed	*
4. Large capacitors	10 t ³⁾	disposed	*
5. Small capacitors (e.g. strip light fittings)	950 t ⁴⁾		
6. Heat exchange systems	0 t		
7. Hydraulic systems	0 t		
Other appliances:			
8. Equipment for mail and telecommunications	0 t		
9. Railway installations	approx. 10 t	disposed	*
10. Military equipment (2: 19 t; 3: 1 t; 4: 3t; 5: 10 t)	33 t		

1) estimated: 2,000 t transformers with 600 t askarel with 800,000 mg PCBs/kg

2) estimated: 10,000 t transformers with 33,000 t contaminated oil with 3000 mg PCBs / kg (0 - 10,000 mg PCB/kg)

3) estimated: 100 t capacitors with 10 t Clophen or Orophen (estimated PCB content: 100,000 mg/kg)

4) estimated: 2,500 t small capacitors with 950 t Clophen (estimated PCB content: 380,000 mg/kg)

* According to the Hazardous Substances Ordinance, these applications should not be in use anymore in Germany by the year 2000. No requests for exemptional continuation of the use of this equipment/material have been received by the 'Länder' administrations and also in a query to important users, no PCB containing equipment in use has been found (UBA, 1999*).

Due to the classification as special waste it can be assumed that at least the PCBs in public and commercial institutions are disposed of properly. This applies particularly for PCB transformers because there is a labelling obligation for these in connection with the Hazardous Substances Ordinance. This is why the disposal of transformers and large capacitors probably does not represent a significant source of PCB emissions in Germany.

In a study (UBA 1999*) it has been shown that approx. 274 000 t of PCB containing equipment (former West Germany, 1998: up to 286 000 t; former GDR, 1991: up to 23 000 t) have been disposed of by 1998. By extrapolating the quantity disposed by 1998, it was estimated that by the end of 2000, additional 15,000 t of PCB material will have been disposed of. This means that approximately 20,000 t of PCB containing material and equipment are still in use in Germany. It is however not possible to distinguish between the different uses and therefore no PCB quantities can be estimated based on these figures. From the available figures it is assumed that this amounts to about 16,000 pieces of PCB containing equipment. For this, sufficient disposal capacities are available in Germany.

In order to comply with the provisions of Directive 96/59/EC a new questionnaire has been sent out to the 'Länder' administrations to establish an inventory of PCB/PCT containing material. Responses are expected by the end of 2000. Also waste handling programmes and action plans with regard to PCB/PCT are to be reported in this questionnaire.

* UBA (1999): Bestandsaufnahme PCB-enthaltender Geräte in Deutschland - Aktualisierung der Studien von 1990 und 1993. Hartmann, J., Klug, Susanne, Moschke, Hans Jürgen; GfBU - Gesellschaft für Betriebsberatung, Sicherheits- und Umweltfragen, Report Number: 29935331

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then?

Please provide figures/estimates in the table below.

Until the use in open applications was banned in the early 1970s, approximately 25 000 t PCBs went into these applications in Germany.

Open applications	Year of the Inventory (1998)	Destruction/ Landfill by 31.12.1999
Building products: Sealant Grouting	} approx. 2,250 t ¹⁾	*
Plasticisers, paints	approx. 100	*

1) estimated: 15,000 t with 30,000 - 450,000 mg Clophen or Araclor / kg with an estimated PCB content of 150,000 mg/kg.

** With a service life of the relevant products of 15- 25 years, most of these open applications would already have been forwarded to waste treatment by the year 1994.*

It can be assumed though that certain applications, for example in construction materials, were designed for longer periods of use (40 years for some paints and sealing materials). Consequently, sealing materials probably represent the most important still relevant source of emissions from open applications during the 90's.

According to the German Federal Health Office, the total quantity of sealing material containing PCBs used in the construction sector was approx. 20 000 tons. In this context, sealants produced on the basis of polysulphide polymer (trade name Thiokol) are particularly relevant. In measurements conducted by the German Federal Environmental Agency at the beginning of the 90's PCB concentrations of 5 - 210 g/kg were found in 12 of 34 sealing materials examined. The 12 samples showed an average PCB content of 110 g/kg.

Another source of relevant emissions to the hydrosphere was the use of PCBs in the production of carbonless copy paper. This use is even responsible for the fact that elevated PCB values were still measured in recycled paper for a long time after discontinuation in 1972. In the first half of the 80's values of > 10 ppm and at the start of the 90's up to 4 ppm were found in Germany. The use of such recycled paper in toilet paper presumably led to a considerable contribution into the hydrosphere. However, no exact quantitative data can be supplied.

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

No figures/ estimates with regard to an inventory of hazardous PCB substitutes can be reported.

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

As reported already in the last Implementation report of 1995, a catalogue of PCB substitutes was developed and published (UBA Text 57/93: Substitutes for polychlorinated biphenyls used in capacitors, transformers and as hydraulic fluids in underground mining). Three of the PCB substitutes listed in the catalogue are now

covered by EC Directive 91/339/EEC: DBBT and Ugilec C21 may neither be brought into circulation nor applied. With some exceptional regulations, the same applies to Ugilec 141.

A new technical standard on substitutes, substitute processes and restriction for the use of polychlorinated biphenyls was published in 1994 (TRGS 616 - Technische Regeln für Gefahrstoffe: Ersatzstoffe, Ersatzverfahren und Verwendungsbeschränkungen für Polychlorierte Biphenyle (PCB). Bundesarbeitsblatt, Heft 5 (1994) 43 - 49).

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

For Germany, the following table shows a PCB emission inventory estimated for the period 94/95 by Ifeu (1998*).

Table: PCB emission inventory Germany (period 1994/95)

Source	PCB [kg]
open applications*	max. 16 000
Closed applications	max. 10 989
Diffuse land fill gas release	max. 5,9
Landfill gas incineration	0,02
Domestic waste incineration	0,32
Transport -diesel powered vehicles	0,26
sinter plants	92
Secondary steel production	206
fire places	789
Source: Ifeu estimates (Ifeu, 1998)*	
* only for PCB containing sealants	

For PCBs, the following table can be filled out accordingly:

Substance	Quantities emitted from				Time period covered
	closed applications	open applications	thermal processes	disposal sites or landfills	
1. PCBs [kg]	max. 10900	max. 16000	max. 1100	max. 6	1994/1995

* Ifeu (1998) Investigation of emissions and abatement measures for persistent organic pollutants in the Federal Republic of Germany. UBA Text 75/98

Netherlands' Implementation Report on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes

October 2000

PART A: REPORT ON COMPLIANCE

Country:

Reservation applies

Is measure applicable in your country?

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	yes	yes	yes

Please provide information on:

- specific measures taken to give effect to this measure;
- any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- if appropriate, progress towards being able to lift the reservation.

On the 19th of August 1998, the Ministerial Decision on the disposal of PCBs and PCTs entered into force. The decision serves the implementation of both Directive 96/59/EC on the disposal of PCBs and PCTs and PARCOM Decision 92/3 on the phasing out of PCBs and hazardous PCB substitutes. However, after the entry into force of the Ministerial Decision, the results of an inventory carried out in cooperation with the concerned industrial sector showed that transformers are more often contaminated with PCBs than originally assumed. Consequently, also after the 1st of January 2000 it still requires efforts to achieve a complete disposal of PCBs and PCTs. To that end, a plan for the enforcement of the Ministerial Decision has been drawn up. In addition to this, the Environment Inspectorate has indicated to the concerned sector (by letter of the 27th of January 2000), that all equipment contaminated with more than 5 mg/kg congener (corresponds with 50 mg/kg PCBs), has to be cleaned or removed by the end of 2001 at the latest.

The Ministerial Decision contains a provision that all appliances/equipment containing more than 5 dm³ PCBs has to be reported to the Environment Inspectorate. Reports were received on transformers that might be contaminated with PCBs. No reports have been received on PCB contaminated capacitors or other equipment.

To stimulate the termination of PCB applications in existing equipment, the destruction of PCBs in big transformers and capacitors was subsidised in the period 1984-1989. It is assumed that at that time all capacitors containing PCBs and all transformers originally filled with PCBs has been removed. To our knowledge, capacitors nowadays do not contain liquids that might be contaminated with PCBs, as capacitors only concern closed systems and the liquids are not contaminated with PCBs before filling (for transformers this is different and therefore the above indicated problem exists). However, also due to the closed system it is difficult to check in practice the absence of PCB contamination in a specific capacitor.

Small capacitors (in refrigerators etc.) are collected via a special collection system or the collection system for small hazardous waste. Due to the fact that it is often impossible to determine whether (small) capacitors

are contaminated with PCBs, they are always treated as PCB contaminated capacitors and as a consequence destroyed in an appropriate chemical waste incinerator.

PART B: REPORT ON EFFECTIVENESS

Country:

The Netherlands

I. Phasing out and Destruction of PCBs and PCB contaminated Appliances

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

In The Netherlands, about 100.000 distribution transformers are found. According to estimates made in 1980, about 880 transformers containing PCBs have been sold, which corresponds with a total of 400 tons of PCBs. It probably only concerns equipment, originally filled with PCBs; such equipment is, as far as known, all removed or cleaned.

After the entry into force of the Ministerial Decision, an inventory was made (in cooperation with the concerned industrial sector) on the content/presence of PCBs in coolants of transformers that have been put out of operation (the inventory was already indicated in part A of the implementation report). Based on this inventory, it is estimated that about 7325 transformers can be considered as contaminated with PCBs (this corresponds with 7% of the total number of transformers present).

The following subdivision can be made to describe the extent of the contamination:

- 400 transformers: PCB content >500mg/kg
- 1675 transformers: PCB content 50-500 mg/kg
- 5250 transformers: PCB content 5-50 mg/kg

(in the Dutch Ministerial Decision on PCBs, the last category is also considered as containing PCBs).

Based on the information obtained by the inventory, an indication has been derived of the chance for having a contaminated product and the extent of this contamination. The following products might be contaminated: ACEC, Asgen, Ateliers, IEO, Lahmeijer, Transformateur, Lepper, Marelli, Merlin Gerling, Pauwels, Savoisiennne, Schors, Siemens, Smit, SSW and Unelec.

To our knowledge, all big capacitors have been removed..

No information is available on other closed systems.

Removal of transformers is done by putting these out of operation, dismantling them and destroy the released PCBs by incineration. As already indicated, small capacitors are all considered to be contaminated with PCBs (in order to avoid high costs for chemical analysis) and are consequently destroyed in a plant for chemical waste incineration. It is not permitted to dispose PCB containing waste at a dump site.

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then?

Please provide figures/estimates in the table below.

Open applications of PCBs, e.g. sealants, synthetic resins, hot melt glues, paints, printing inks, paper and textiles, NCR copying paper and plastics were discontinued at the beginning of the 1970s with the voluntary agreement of producers. Legislation prohibiting open use has been in effect since 1979.

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

Information on various hazardous PCB substitutes has been presented in the 1995 implementation report on PARCOM Decision 1995.

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

According to the Ministerial Decision mentioned in part A of the implementation report, also hazardous PCB substitutes have to be disposed in 2000.

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

It is assumed that most applications of PCBs and hazardous PCB substitutes have been phased out. PCBs and some substitutes are part of the annual general emission inventory; however, the obtained figures are not so specific as asked for in the table.

(Draft) Implementation Report Format on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes**PART A: REPORT ON COMPLIANCE**Country: Reservation applies Is measure applicable in your country?

If not applicable, please state why:.

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	Yes	No	No

Please provide information on:

- Specific measures taken to give effect to this measure;
The use of PCB in big capacitors and transformers was prohibited by legislation from 1 January 1995.
- Any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
None

PART B: REPORT ON EFFECTIVENESSCountry: ***I. Phasing out and Destruction of PCBs and PCB contaminated Appliances*****Question 1: Closed Applications**

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

Answer to question 1:

Inventories for big capacitors and transformers were made in the period 1990-1995 before destruction of these devices. The devices have been destructed mostly in British and Finnish hazardous waste incineration plants, and none in underground deposits. The transformer oil, however, was destructed in a Norwegian cementory kiln. The original amount of PCBs in the capacitors and transformers that is the same as the amount destructed, was about 400 metric tonnes.

For small capacitors estimations has been done both on the original amount and on the remaining amount of PCB. In addition sites where the remaining PCB-containing capacitors are to be found are identified. The investigation shows that 90 % of the PCB-containing small capacitors are used in fluorescent light fixtures in road and other outdoor illumination and in large buildings in industry, official buildings like schools and hospitals. About 10 % of the PCB in small capacitors is to be found in other electrical equipment like old

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

radios and washing machines etc. Except for the year of production we did not find any possible way to make any lists describing PCB-containing capacitors by manufacture firm.

From an original amount of about 200 metric tonnes of PCB in small capacitors, 100 tonnes are still in use in remaining capacitors. Small capacitors have so far to a very small degree been delivered to the hazardous waste system and very little has so far been safely disposed of.

Closed applications *	Year of the Inventory (199...)	Landfill by 31.12.1999	Appliances in safe disposal
1. PCB-quantities involved			
Appliances:			
2. Askarel transformers	1990-95	None	2,3 and 4; 400 metric tonnes destroyed by incineration
3. Transformers contaminated with PCBs	1990-95	None	
4. Large capacitors	1990-95	None	
5. Small capacitors (e.g. strip light fittings)	1997 (see text)	Probably 100 tonnes disposed of by landfill/metal industry	Legislation made to collect the remaining 100 tonnes for safe disposal
6. Heat exchange systems	1995	Landfill 5 tonnes	None left
7. Hydraulic systems	1995	Landfill	None left
Other appliances:			
8. Electrical bushings	1997	Unknown	Legislation made to collect the remaining less than 5 tonnes PCB in a safe way
9. Other applications	1996	Landfill 30 tonnes	

* I find it difficult to understand how I am supposed to fill in the table above

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved has been destroyed since then?

Please provide figures/estimates in the table below.

Answer to question 2:

The original and remaining amount and use specifications of PCB-containing grouting, sealants, concrete, plasticisers, paint, insulating glue etc. was investigated in 1997. By use specification is meant sites of use for the PCB-containing building materials (type of building, whether outside or inside, around doors, windows, between stone/concrete elements etc).

Original/remaining amount of PCB in insulating glue in window frames is estimated to about 350/200 metric tonnes of PCB. Original/remaining amount of PCB in grouting and concrete additives in Norwegian buildings are about 250/130 metric tonnes of PCB. Original/remaining amount of PCB in paint on ships is estimated to 75/15 metric tonnes of PCB. PCB in paints on buildings is not estimated.

Open applications *	Year of the Inventory (199...)	Destruction/ Landfill by 31.12.1999
Building products: Sealant on Windows	1997 (see text)	Landfill** 150 metric tonnes of PCB
Grouting and concrete	1997 (see text)	Landfill** 120 metric tonnes PCB
Plasticisers, paints /.....	1997 (see text)	Landfill** and direct to the sea about 60 metric tonnes of PCB

* I find it difficult to understand how I am supposed to fill in the table above

** Actions are now being taken to collect PCB-containing building materials for safe disposal

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

Answer to question 3;

No exact inventory on the substitutes for PCB according to appendix 1 has been carried out in Norway. There has been only one producer of transformers in Norway and this producer has been using mineral oils. Transformers are no longer produced in Norway.

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non-hazardous substance?

Answer to question 4;

Norwegian regulations of hazardous substances are usually done for general use and not for specific use areas. Norwegian regulation of hazardous substances is done according to EU. Confer also the answer to question 3

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Have you got any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

Answer to question 5;

No particular information exists on hazardous substances used as PCB-substitutes.

Implementation Report Format on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes

PART A: IMPLEMENTATION REPORT ON COMPLIANCE

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, please state why:.

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	Yes	Yes	Yes

Please provide information on:

- specific measures taken to give effect to this measure;
- any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- if appropriate, progress towards being able to lift the reservation¹.

Legislation:

- Royal-Decree 1378/1999 of measures on the management and elimination of PCBs.
- Resolution that establishes a 2001-2010 Plan for the management and total elimination of PCBs and PCTs.

This Plan includes a general PCBs inventory as a first milestone to start the Plan. The inventory shows that the maximum total quantity of PCBs in Spain is 210.000 Tm.

The PCBs inventory is now in its first revision. It will be updated with the new available data which is being collected now in each Spanish autonomous region and it is foreseeable that the total quantity of PCBs will be around 10 % less than the initial.

The first revision of the inventory will be finished in March 2002 and there will be annual revisions to assure that the Plan forecast is being fulfilled or, if necessary, to amend and adapt it.

Spain does not have PCBs incinerator facilities and for this reason we have to send to other countries, mainly France. On the other hand, Spain has authorised 7 enterprises that can undertake the process of decontamination of PCBs. The actual and annual capacity for that is around 9000 Tm of PCBs.

The Plan establishes:

- The elimination or decontamination of transformers and other appliances containing more than 5 l and in excess of 500 ppm in weight of PCBs. The first inventory reflects that the total quantity included in this case is 116.000 Tm.
- It will be able to use the rest of dielectric oils and appliances contaminated by 50 to 500 ppm of PCBs during their life-span and, after that, they will have to be eliminated or decontaminated.

C) It will be necessary to collect all the appliances containing 1 to 5 l contaminated by PCBs and, after that, will have to eliminate or decontaminate them. When it is possible, the same will be done with respect to the appliances containing less than 1 l.

Other important points reflected in the Plan to reach its objective:

- Spain will have to get and provide, at least, an incineration capacity of 4000-5000 Tm per year.
- Most of appliances containing PCBs are in the largest electric or other industrial companies. A voluntary agreement is now being negotiated between these large companies and the Central and Autonomous governments to facilitate the aim of the Plan. The negotiations of this voluntary agreement will have to be finished before the end of the current year.

The format for implementation reports concerning PARCOM Decision 92/3 on the Phasing Out of PCBs and Hazardous PCB Substitutes as set out below should be used to the extent possible.

Part A: Implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, please state why:.

.....

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	Yes	Yes/no	yes/no

Please provide information on:

- a. specific measures taken to give effect to this measure;
- b. any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- c. the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- d. if appropriate, progress towards being able to lift the reservation.

Part B: Implementation Report on Effectiveness

Country:

I. Phasing out and Destruction of PCBs and PCB contaminated Appliances

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

As a consequence of a fire in a PCB capacitor battery in a steel works in the early eighties inquiries were carried out in both power production/distribution and industrial electric power consumption. The target was heavy electrical PCB equipment: oil filled transformers and power capacitors for a larger reactive electric power rating than 2 kVA. The result was summarised as about 200 PCB transformers and 100 000 PCB power capacitors containing in total about 2000 tonnes of PCBs. A limited use of PCB fluids as hydraulic fluid and heat exchange fluids was banned already in the early seventies.

Small PCB capacitors in fluorescent lamp fittings etc. has had a limited use in Sweden (the component small PCB capacitor and the products fluorescent lamp fittings and oil burners with PCB capacitor were forbidden in 1973). The new legislation on waste from electric and electronic products in force 1st July 2001

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

is intended to catch dangerous substances like mercury, polybrominated flame-retardants and PCBs in components by dismantling and detoxifying the discarded products.

All the PCB waste has been incinerated in high temperature incinerators with the exception of a few emptied transformers (~40 pieces) and a comparable number of large sized capacitor that require dismantling before incineration because of their size. The treatment of these is going on.

Closed applications	Year of the Inventory (1984)	Destruction/ by 01.10.2001	Appliances in safe temporary storage
4. PCB-quantities involved Appliances:	~2000 tonnes	~2000 tonnes	<50 tonnes
20. Askarel transformers	~200 pieces	~160 pieces	~40 pieces
21. Transformers contaminated with PCBs	~100 000 pieces	~100 000 pieces	~50 pieces
22. Large capacitors	No data		
23. Small capacitors (e.g. strip light fittings)	0		
24. Heat exchange systems	0		
25. Hydraulic systems			
Other appliances:			
11.....			

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then?

Please provide figures/estimates in the table below.

An inventory of PCB plasticised polysulphide sealants is going on presently. Based on data on construction technique from the period 1956 – 1973 a wide range of 70 –500 tonnes of PCBs in sealants has been estimated. Extrapolation of later data from inventories in the Stockholm area seems to indicate that about 100 tonnes may be a probable quantity. The work with the inventory will continue until all buildings from the period with prefabricated concrete facade elements have been examined for PCBs.

Open applications	Comments	Destruction/ Landfill by 31.12.1999
Building products: Sealant	70-500 tonnes PCB	
Grouting	Not any known use in Sweden	
Insulating glazing units Plasticisers, paints	Not permitted for use since 1972	

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

The only substitute included in the EU directive on the disposal of PCB/PCT that has had any known use in Sweden is PCT and the estimated total amount is 60 tonnes. The importer was informed that according to the existing legislation and by analogy PCT was forbidden like PCB.

Hazardous PCB substitutes	Application [open, close,..]	Quantity	Destruction/ Landfill by 31.12.1999
1.			
2.			
...			

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

In the beginning of the seventies when the use PCB was regulated alternative techniques were used like fire cells and locating transformers outdoor for fire protection. For power capacitors only chlorine free synthetic liquids were used in power capacitors produced in Sweden. For small capacitors full plastic (non-impregnated) types were used after a transition period when PCN was used as a substitute. It is difficult to find data on the possible hazards of PCNs in spite of the chemical resemblance to PCBs. The American manufacturer seems to have responded to requests by the USEPA for better data by stopping the production.

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

No.

Substance	Quantities emitted from				Time period covered
	closed applications	open applications	thermal processes	disposal sites or landfills	
10. PCBs					
11.					
12.					

United Kingdom's Implementation Report on PARCOM Decision 92/3 on the Phasing out of PCBs and Hazardous PCB Substitutes

PART A: REPORT ON COMPLIANCE

Country:

Reservation applies

Is measure applicable in your country?

Means of Implementation:	by legislation	by administrative action	by negotiated agreement
	Yes (national regulations)	Yes (national waste management plans, an action plan and awareness raising)	Yes (EC Directive 96/59)

Please provide information on:

- specific measures taken to give effect to this measure;
- any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
- the reasons for not having fully implemented this measure should be spelt out clearly and plans for full implementation should be reported;
- if appropriate, progress towards being able to lift the reservation.

Measures taken: the PARCOM decision has been given effect in the UK through national regulations transposing EC Directive 96/59, which set out detailed requirements for the phasing out and disposal of PCBs. The use patterns of PCBs in British industry and business entailed extensive consultation, reflecting concern about limiting the disruption to services. This led to some delays in transposition of the Directive.

PART B: REPORT ON EFFECTIVENESS

Country:

I. Phasing out and Destruction of PCBs and PCB contaminated Appliances

Question 1: Closed Applications

Has an inventory been established in your country of the liquid PCB-quantities and of appliances that contain/contained PCBs?* How much or how many of the quantities/appliances have been destroyed since then? How many contaminated appliances have been disposed of in a safe underground deposit? Please provide figures/estimates in the table below.

In line with the EC Directive, which requires the drawing up of inventories for equipment with PCB volumes of more than 5dm³, the national regulations for the UK referred to above require the competent authorities under the regulations to draw up inventories of contaminated equipment and submit

* Please note that the PARCOM Dec. 92/3 is applicable to all identifiable PCBs.

summaries to UK Ministers. Those inventories include reference to the dates and types of treatment or replacement carried out or envisaged. Summaries of the inventories have been passed to the European Commission in line with the Directive. The national regulations provide for the regular updating of the inventories.

Question 2: Open Applications

Has an inventory been established in your country of the PCB quantities and of the PCB-containing materials/products involved in open applications? How much or how many of the PCB quantities or contaminated materials/products involved have been destroyed since then?

Please provide figures/estimates in the table below.

See the answer to the previous question. As specified, the inventory requirements under the EC Directive and consequent national regulations are by reference to the volume quantity of PCBs in equipment.

II. Phasing out and Destruction of Hazardous PCB-Substitutes and Appliances contaminated with such Substitutes

Question 3:

Has an inventory been established in your country of hazardous PCB substitutes (see Appendix 1)? How much or how many of these PCB substitutes have been destroyed since then?

Please provide figures/estimates in the table below.

The national regulations referred to above, along with the inventory requirements, are by reference to PCBs as defined at Article 2 of the EC Directive. For the purpose of the Directive and the national regulations, 'PCBs' are defined as meaning polychlorinated biphenyls, polychlorinated terphenyls, monomethyl-tetrachlorodiphenyl methane, mono-methyl-dichloro-diphenyl methane, monomethyl-dibromo-diphenyl methane. We understand that a quantity of polychlorinated naphthalenes (a substance also covered by the PARCOM decision, but not specified in the EC Directive) which was previously discovered in the UK telecommunications sector has now been disposed of.

III. Measures to Control the use of Hazardous PCB-Substitutes in Capacitors and Transformers

Question 4:

Which measures have been taken by your country in order to prevent or strictly control the use of hazardous PCB substitutes in capacitors and transformers? How effective have these measures been? Has any of the hazardous PCB substitutes identified under question 3 been replaced by a less or even non hazardous substance?

As stated in response to the preceding question, the national regulations, in line with the EC Directive, provide for the phasing out and destruction of PCBs as defined in the Directive, and which includes hazardous PCB substitutes. The substitution of PCBs by non-hazardous substances is a matter for individual businesses and has been occurring for some years.

IV. Voluntary Information on Emissions of PCBs or Hazardous PCB Substitutes to the Environment

Question 5:

Do you have any information on emissions of PCBs or hazardous PCB substitutes to the environment? If yes, please indicate estimates in the table below.

In the report "UK Emissions of Air Pollutants 1970 - 1997, an estimate of 3247 kilogrammes is given for PCB emissions in the UK. It is estimated that around 80% of these emissions arise from old PCB-containing appliances (mainly cars and household appliances).