

**Assessment of Implementation Reports in connection with
PARCOM Recommendation 89/3 on Programmes and Measures for
Reducing Mercury Discharges from Various Sources**

Background

1. Implementation reports on PARCOM Recommendation 89/3 were submitted by Belgium, Finland, France, Germany, Iceland, the Netherlands, Norway, Spain, Sweden and the UK. An overview report on implementation which consolidates the various responses has been prepared and is attached at **Annex 1**. The individual implementation reports are attached at **Annex 2**.
2. No implementation reports have been received from Denmark, Ireland, Luxembourg, Portugal or Switzerland and for these Contracting Parties the following note has been added in Table 1 of the report in accordance with the agreement reached at OSPAR 2002: "No evidence supplied that this measure has been implemented".
3. A previous assessment of implementation of PARCOM Recommendation 89/3 was published in 1997 and this is available from the Secretariat on request.

Status of Implementation

4. The assessment of the implementation reports concludes that:
 - a. all the CPs who reported are actively taking steps to implement PARCOM Recommendation 89/3. Implementation is generally either completed, or well advanced, although progress on some issues varies from country to country;
 - b. a number of the existing uses of mercury covered in the measure have been significantly restricted or phased out, and reductions in the discharges of mercury from diffuse sources are decreasing. It appears that PARCOM Recommendation 89/3 has played a positive role in achieving these reductions.

Assessment of Implementation Reports in connection with PARCOM Recommendation 89/3 on Programmes and Measures for Reducing Mercury Discharges from Various Sources

1. Introduction

This assessment gives an overview of the implementation of PARCOM Recommendation 89/3, which covers programmes and measures for reducing mercury discharges from a number of sources, which are described below. It is based on implementation reports supplied via the OSPAR Secretariat to the UK by a number of Contracting Parties (CPs).

The following Contracting Parties had submitted an implementation report on this measure: **Belgium, Finland, France, Germany, Spain, Iceland, the Netherlands, Norway, Sweden and the UK**. It therefore only represents a partial picture of implementation in the Convention Area. An overview of implementation, including those countries for which no evidence has been supplied that this measure has been implemented, is given in **table 1**.

2. Agricultural products

All of the countries, which provided information for this overview, have prohibited the use of mercury-containing pesticides (EC Member States have been obliged to implement Directive 79/117/EEC on phasing out the marketing and use of pesticides containing mercury compounds or certain other substances).

It would appear that mercury-containing pesticides are not permitted to be used in the Convention area and that with respect to agricultural products, the recommendation has been fully implemented.

3. Electrical Equipment Control Instruments

Action on recycling: Most CPs reporting have put in place regulations or schemes in which devices containing mercury must be collected and dealt with separately to other wastes. In some cases, recycling is required (for example fluorescent lamps) and in some cases, the products are treated as hazardous waste. Norway is developing voluntary agreements with companies to take back certain products for recycling.

Encouragement to use alternatives: CPs report that a number of mercury-free alternatives are available. (eg for thermometers, medical devices, mercury switches). In some cases, these are encouraged by regulations. It is reported that mercury thermometers are decreasing in use as alternatives become available, and several CPs actively promote the use of alternatives and some are considering the phase out of these devices. It is also clear that the Waste Electrical and Electronic Equipment Directive, requiring the producer to bear disposal costs, and the Directive on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment which is currently under development will both play an important role in promoting the use of alternative devices and instruments.

4. Dentistry

Actions to use alternatives to dental amalgam: Most CPs report that the use of amalgam is decreasing and that a number of substitutes are being used (gold, ceramics, and plastics). Some CPs are actively encouraging the use of alternatives for health reasons. However, several CPs point out that mercury amalgam is regarded as having the best technical properties for major fillings and is the cheapest option.

Actions to trap old or surplus amalgam: All the CPs reporting either have regulations of administrative actions in train which require that amalgam separators are installed in dental premises that trap old and surplus amalgam and prevent it from entering the sewer. The measures generally also specify how the waste amalgam should be dealt with. The adoption of the ISO Standard on "The Dental Unit" (ISO 7494 1990) requiring separators to be fitted is quoted by several CPs as being a significant driver in this process.

5. Laboratories

Action to use and promote alternatives to mercury: Several CPs report that substitutes have been developed to replace mercury-containing reagents in the determination of Chemical Oxygen Demand, and that several other mercury-containing reagents have been substituted.

Recycling and recovery of mercury: No specific activities reported

Treatment of laboratory Effluents containing mercury Some CPs report that laboratories are covered by BAT and that discharges are subject to permits, and that wastes from laboratories are covered by regulations.

6. Emissions to Air

Reductions in mercury emissions to the atmosphere: CPs generally report that regulations require that BAT is applied to point sources and incinerators which emit significant amounts of mercury and that scrubbers and dust separators are necessary. Permits for plants specify limit values for mercury in some sectors. Secondary steel and ferromanganese production have been recently identified by Norway as significant emitters, leading to the installation of gas cleaning equipment. Germany has identified the re-cycling of glass recovered from mercury lamps as a source of mercury and has developed appropriate control measures to minimise Hg emissions.

7. Decontamination

Decontamination of sites polluted with mercury: Several CPs report that they have developed national plans for dealing with contaminated soil (including the setting of limit values for mercury), and some have already carried out surveys of key industries to identify the sites which need special treatment and have identified relevant clean-up plans. Germany gives an example of an old chemical factory given where 56,000 tonnes of soil and building rubble were treated and decontaminated at a cost of DM 150 million.

8. Research

Research on treatment of effluents from dental practices and analytical methods for mercury emissions to air: Several CPs have reported that they have conducted projects on projects on the treatment of dental effluents, including the testing of amalgam separator efficiency. Research on analytical methods for mercury emissions to the air appears to have received little attention recently.

9. General conclusions

It would appear that all the reporting CPs are actively taking steps to implement PARCOM Recommendation 89/3. Implementation is generally either completed, or well advanced although progress on some issues has varied from country to country.

It is evident from the reports that a number of the existing uses of mercury covered in the measure have been significantly restricted or phased out, and that discharges of mercury from diffuse sources are decreasing. It appears that PARCOM Recommendation 89/3 has played a positive role in achieving these reductions.

Table 1: Overview of Implementation on PARCOM Recommendation 89/3 on Programmes and Measures for Reducing Mercury Discharges from Various Sources

Note: for those countries highlighted, and marked with an asterisk, no implementation report has been received. OSPAR 2002 agreed that where no report was submitted, the following note should be added to the assessment: "No evidence supplied that this measure has been implemented".

Contracting Party	Reservation	Report sent	MEANS OF IMPLEMENTATION		
			By legislation	Administrative action	Voluntary agreement
Belgium		x	x	x	
Denmark*					
Finland		x	x	x	
France		x	x	x	
Germany		x	x	x	
Iceland		x	x	x	
Ireland*					
Netherlands		x	x	x	x
Norway		x	x	x	
Portugal*					
Spain		x	x		x
Sweden		x	x	x	x
United Kingdom		x	x	x	
EC ¹					
Luxembourg*					
Switzerland*					

* No evidence supplied that this measure has been implemented.

¹The EC is not expected to provide an implementation report for this measure.

Belgian implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, then state why not (e.g. no relevant plant)

.....

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

Please provide information on:

- specific measures taken to give effect to this measure (using the sections in the Implementation Report on Effectiveness) given below;
- 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.

II. Implementation Report on Effectiveness**a) Agricultural Products**

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

No mercury-containing pesticides are allowed

b) Electrical Equipment and Control Instruments

- What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

All regions have organised a separate collection system for these appliances

- What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

It is recommended that Mercury free alternatives should be taken whenever available in a scientifically and economically sound way

* Delete whichever is not appropriate

c) Dentistry

- i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

None, but mercury free amalgam are ever increasing in quality, and are invisible, so gaining popularity.....

- ii) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

The PARCOM Recommendation 93/2 is legally implemented

d) Laboratories

What action has been taken to:

- i) use alternatives to mercury when possible?

Mercury is still in use in laboratories for the analysis of DOC (other tests seem not enough stable).....

- ii) conduct research into procedures to avoid unnecessary use of mercury?

- iii) collect, recycle or recover mercury wherever practicable?

Trial projects are running to recover polluted sites (soil).....

Labs should take every precaution in order to prevent used Hg to spread into the environment, and collected waste should be treated by authorised processing plants only

- iv) treat aqueous effluents containing mercury where appropriate?

The 1997 reporting is still valid.....

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

The application of commonly agreed techniques and thresholds have resulted so far to a reduction of air emissions from Mercury, between 1985 and 2000, of about 88 %

f) Decontamination

What consideration has been given to the decontamination of sites, which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

Finnish Implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, then state why not (e.g. no relevant plant)

.....

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

Please provide information on:

- specific measures taken to give effect to this measure (using the sections in the Implementation Report on Effectiveness) given below;
- 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.

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

Agricultural pesticides containing mercury are not approved for use and thus import, production and putting on the market is not allowed. (Council of State Decisions 1224/1992 and 1361/1996)

b) Electrical Equipment and Control Instruments

i) What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

Electrical and other equipment containing mercury have to be collected and treated at a treatment plant for hazardous waste. One of the three plants treating lamps containing mercury recovers the mercury while the other two transforms it into insoluble form before disposal on special landfills. Other electrical equipment containing mercury has already to a great extent been replaced by mercury free equipment and actions on recycling are not assessed necessary.

ii) What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

A brochure on batteries for consumer use has been distributed highlighting the availability of substitutes.

* Delete whichever is not appropriate

c) Dentistry

i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

The health authorities have published recommendations on alternative materials.

iii) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

A Council of State Decision (112/1997) is given prescribing treatment (filtering) of all waste waters from places handling amalgam.

d) Laboratories

What action has been taken to:

i) use alternatives to mercury when possible?

- Nothing

ii) conduct research into procedures to avoid unnecessary use of mercury?

No specific investigations have been done on this issue. (Only some general investigations on possibilities to reduce the use of hazardous substances.)

iii) collect, recycle or recover mercury wherever practicable?

According to regulations on collection, treatment and disposal of waste the generation of waste shall be minimised and as a second step waste material must be recovered. Waste containing Hg is classified as hazardous waste. The municipalities shall arrange the collection of waste and hazardous wastes from consumers. Companies shall arrange their own collection and treatment of waste and hazardous waste.

iv) treat aqueous effluents containing mercury where appropriate?

According to Council of State Decision 363/1994 discharge limit values are given for several types of activities and for all other discharges into waters a permit from the Water Court is needed. See also answer c ii) which partly applies also to this question.

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Mercury and other heavy metal emissions are taken into account in the procedure for giving permissions to plants with significant emissions. In an inventory made for the purpose of ECE LRTAP it was concluded that no further legislative measures for the reduction of heavy metals (including Hg) are needed. Emission limits are given in the Council of State Decisions 626/1994 and 842/1997. The total concentration of some heavy metals including mercury in packages is regulated by a separate decision: 962/1997.

f) Decontamination

What consideration has been given to the decontamination of sites, which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

There are threshold limit values for mercury set in the guidelines for contaminated soils. If the concentration of mercury in the soil is between 0,2 and 5 mg/kg a risk assessment of the site has to be done and if assessed necessary a programme for the decontamination is drawn up. As a rule, if the concentration exceeds 5 mg/kg the site has to be decontaminated. The decontamination of such sites requires an environmental permit in which provisions on the measures to be taken and how to avoid the pollution are set.

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

No specific investigations have been done concerning mercury. (Measurement of mercury emissions is however considered in the framework of normal supervision of treatment plants for hazardous waste.)

French Implementation Report on Compliance

I. Compte rendu de mise en conformité

Pays:

France

Une réserve s'applique

Non

La mesure est-elle applicable dans votre pays?

Oui

Moyens de mise en oeuvre:

Législation	Mesure administrative	Accord négocié
oui	oui	non

Bien vouloir donner les renseignements suivants:

- mesures prises spécifiquement afin de rendre la présente mesure effective (utiliser le compte rendu de mise en oeuvre et d'efficacité ci-dessous);
- difficultés particulières qui se sont présentées, telles que problèmes pratiques ou juridiques, dans la mise en oeuvre 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 oeuvre;
- si opportun, les progrès accomplis dans le sens de la levée de la réserve.

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.....
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II. Compte rendu de mise en oeuvre et d'efficacité

a) Produits agricoles

Quelles mesures ont-elles été prises pour remplacer les pesticides au mercure lorsqu'il existe des alternatives adéquates ?

Les pesticides contenant du mercure sont interdits en France, en application de la Directive 79/117/CEE, transposée en droit français.

Il n'y a plus de produits de ce type sur le marché national.

b) Matériel électrique et instruments de contrôle

- i) Quelles mesures ont-elles été prises pour recycler le mercure présent dans le matériel électrique et dans les instruments de contrôle, lorsqu'un tel recyclage est possible ?
- ii) Quelles mesures ont-elles été prises pour inciter à l'utilisation de matériels exempts de mercure lorsqu'il existe d'autres matériels adéquats à des coûts comparables ?

- Thermomètres médicaux à mercure :

Interdits d'utilisation par arrêté du 24/12/1998, ils peuvent être éliminés avec les déchets médicaux spéciaux dans le cas d'un usage professionnel (déchets hospitaliers ou déchets des professionnels médicaux ou paramédicaux). Dans le cas de l'usage par les particuliers, ils peuvent être éliminés sur des installations spéciales destinées aux déchets spéciaux des ménages (déchets toxiques en quantité dispersée), quand celles-ci existent, ce qui n'est pas le cas dans toutes les régions, mais il n'y a pas d'obligation réglementaire. Les particuliers sont aussi incités à porter leur thermomètres usagés tout comme leur médicaments dans les pharmacies afin qu'ils soient éliminés dans une filière appropriée. Une campagne de sensibilisation par la presse avait été faite dans ce sens à la sortie de l'arrêté. Dans tous les cas, il n'y a pas d'obligation réglementaire pour la récupération et l'élimination, celle-ci se fait sur une base volontaire.

- Lampes à décharge (tubes fluorescents et lampes fluocompactes) :

Les tubes fluorescents ont presque totalement disparu des foyers et sont utilisés principalement dans l'industrie (12 millions de tubes), les bureaux (10 millions), les hôpitaux (5 millions), l'éclairage d'hypermarchés (1,3 millions), les équipements publics (700 000 tubes). En tout, 47 millions de tubes (dont 95% à usage professionnel) sont mis au rebut chaque année, ce qui représente 1 000 tonnes de lampes dont 2 à 3 tonnes de mercure.

Les lampes fluocompactes sont à usage mixte domestique ou professionnel et représentent un secteur en croissance (12 millions de lampes).

La teneur en mercure dans les lampes à décharge n'a cessé de diminuer depuis 20 ans. En 1980, les tubes contenaient environ 1 gramme de mercure contre 5 mg dans les nouvelles générations de tubes. Les lampes fluocompactes en contiennent 3 à 5 mg.

L'importance des rejets mercuriels diminue avec la réduction du poids unitaire de mercure dans chaque lampe, mais les tubes rejetés aujourd'hui sont des lampes plus anciennes qui contiennent par conséquent plus de mercure. Avec les nouvelles générations de tubes, les rejets mercuriels devraient être inférieurs à la tonne.

Avant 1997, les lampes étaient mises en décharge. Depuis l'entrée en vigueur de la directive 91/689 relative aux déchets dangereux (transposée en droit français par le décret 97-517 du 15 mai 1997), ceci n'est plus autorisé. La réglementation impose une collecte séparée et un traitement de ces déchets.

Cette réglementation est encore très imparfaitement respectée. On estime qu'actuellement entre 5 et 10 % des tubes usagés est collecté et retraité.

- Piles et accumulateurs :

Le décret du 12 mai 1999 relatif à la mise sur le marché des piles et accumulateurs et à leur élimination, prévoit la collecte sélective et l'élimination de l'ensemble des piles et accumulateurs, quelle que soit leur composition chimique (dont piles à mercure).

L'arrêté du 26 juin 2001, relatif à la communication des informations concernant la mise sur le marché, la collecte, la valorisation et l'élimination des piles et accumulateurs permettra de calculer le taux de collecte de chaque type de piles et accumulateurs.

Le système de marquage des piles contenant du mercure comporte deux symboles. Le premier indique la présence de mercure (symbole chimique Hg). Le second, constitué d'un bac roulant barré d'une croix, indique qu'il s'agit de produits devant faire l'objet d'une collecte séparée.

Afin de réduire progressivement dans les ordures ménagères la quantité de piles et contenant du mercure, le décret n° 99-374 du 12 mai 1999 précise que les acteurs de la filière d'élimination des piles et accumulateurs usagés renseignent les pouvoirs publics sur les moyens mis en oeuvre pour informer les ménages des dangers résultant du mélange des piles et accumulateurs usagés avec d'autres déchets ménagers, d'une part, et obtenir leur concours, d'autre part.

Le décret n° 99-1171 du 29 décembre 1999, modifiant le décret n° 99-374, interdit, depuis le 1^{er} janvier 2000, la mise sur le marché des piles et accumulateurs contenant plus de 0,0005 % en poids de mercure, à l'exception des piles de type bouton ne contenant pas plus de 2 % en poids de mercure (ce texte transpose en droit français la directive 98/101/CE du 22 décembre 1998, portant adaptation au progrès technique de la directive 91/157/CEE, relative aux piles et accumulateurs contenant certaines matières dangereuses). Les piles contenant du mercure ont été progressivement remplacées par des produits de substitution comme les piles zinc-air et les piles à l'oxyde d'argent.

Enfin, dans le cadre de la commission « déchets et propreté », qui rassemble les professionnels de l'élimination des déchets, des représentants des pouvoirs publics, etc., un groupe de travail « déchets mercuriels » a traité des problèmes que posent la collecte et l'élimination des déchets contenant du mercure, notamment les piles.

c) Art dentaire

- i) Quelles mesures ont-elles été prises pour utiliser lorsqu'il y a lieu des matières pouvant remplacer les amalgames dentaires, et lorsque le coût n'est pas prohibitif ?

La décision du 14 décembre 2000 de l'Agence Française de Sécurité Sanitaire et des Produits de Santé (AFSSAPS), impose l'utilisation d'amalgames conditionnés sous forme de capsules pré-dosées. Pour le moment, aucune interdiction totale des amalgames au mercure n'a été imposée. Les matériaux composites servant à remplacer les amalgames présentent encore des inconvénients (tenue, durée de vie), et ne peuvent pas être utilisés dans tous les cas.

- ii) Quelles mesures ont-elles été prises pour piéger efficacement les excédents ou les vieux amalgames, et pour les expédier afin que le mercure qu'ils contiennent soit récupéré ?

L'arrêté du 30 mars 1998 a imposé l'utilisation d'un séparateur d'amalgame pour empêcher les rejets dans les eaux usées des particules provenant des interventions dentaires. Ce système coûteux se met progressivement en place (un délai de trois ans était fixé par l'arrêté) et actuellement, seulement 50% des fauteuils des cabinets dentaires sont équipés de séparateurs.

Le circuit de traitement des déchets d'amalgames ainsi récupérés fait intervenir plusieurs opérateurs : le dentiste, le collecteur, le séparateur ou régénérateur, qui assure la récupération et la valorisation du déchet de mercure. Le dentiste peut remettre la cassette, avec les autres déchets, à un organisme spécialisé. Il existe

plusieurs petits collecteurs, dispersés sur le territoire national, mais assez peu de contrats de collecte de mercure. La collecte est en réalité assez faible et inférieure aux prévisions.

La collecte peut prendre plusieurs formes : soit elle est spécifique aux déchets mercuriels, soit regroupée avec les autres déchets de soins.

Tous les collecteurs travaillent avec les séparateurs ou retraiteurs, destinataires finals. Le dentiste paye le service de récupération. Le collecteur (pour ceux qui sont aussi fournisseur de matériel) récupère les métaux et rémunère le dentiste sous forme d'un bon d'achat pour ses propres produits.

Deux sociétés françaises pratiquent le retraitement de déchets mercuriels, l'une est à Septime les Vallons dans les Bouches du Rhône, l'autre au Mans, dans la Sarthe.

d) Laboratoires

Quelles mesures ont-elles été prises pour:

- i) utiliser lorsque possible des alternatives au mercure ?
- ii) rechercher des méthodes permettant d'éviter d'utiliser inutilement du mercure ?
- iii) recueillir, recycler ou récupérer le mercure lorsque faisable ?
- iv) lorsqu'il y a lieu, traiter les effluents aqueux contenant du mercure ?

e) Emissions atmosphériques

Quelle attention a-t-on accordé par ailleurs à la nécessité et aux avantages d'une réduction de la teneur en mercure dans les émissions atmosphériques de gaz ?

Valeurs limites de mercure dans l'air ambiant :

La directive « fille » dérivée de la directive 96/62 est en préparation. Elle imposera une obligation de surveillance des teneurs en mercure dans l'air ambiant. La fixation de valeurs limites n'est pas prévue pour l'instant pour le mercure.

Un programme de surveillance des métaux lourds dans l'air ambiant a été mis en place en France. Des campagnes de mesure du mercure dans l'air ambiant ont été réalisées sur plusieurs sites dont : un site urbain, un site rural et des sites sous influence d'activité (métallurgiques, de production de chlore, d'incinération d'ordures ménagères et de cimenterie).

Valeurs limites d'exposition professionnelle :

Des valeurs limites d'exposition ou valeur moyenne d'exposition ont été données pour tous les métaux lourds, avec des seuils variables selon la forme chimique.

Industrie du chlore alcalin :

Des engagements volontaires ont été pris avec la profession. Les émissions de mercure dans l'air, liées à la production de chlore ont chuté de 70% en 15 ans.

Crémation et rejet de mercure liés aux amalgames dentaires :

Aucune valeur limite de rejet n'est fixée à ce jour en France pour les fumées émises des crématoriums. Suite à des études menées sur ce type d'installation, il s'avèrerait que les plus fortes teneurs se trouvent à l'intérieur des installations et que les personnes les plus exposées sont les employés dans des crématoriums. Ainsi il a été recommandé en France d'améliorer le suivi des personnels travaillant dans des crématoriums et de rendre systématiques les mesures d'exposition au mercure (par prélèvement de cheveux).

D'autre part, si les taux de crémation continuent de progresser et si l'amalgame continue à être massivement utilisé, des mesures de limitation des rejets de mercure semblent recommandées.

f) Décontamination

Quelle attention a-t-on accordé à la décontamination des sites qui ont été contaminés par du mercure par le passé, ainsi qu'à la démonstration du fait que la décontamination ne conduit pas à une pollution ?

Sur ce sujet, le Ministère de l'environnement a lancé une étude qui permettra :

D'identifier et de caractériser les sources potentielles de pollution,

D'apprécier la vulnérabilité de l'environnement au droit des zones polluées,

De proposer des mesures de protection de niveaux différents

De mettre à disposition des procédures de résorption de la pollution par le mercure et des schémas de réhabilitation des sites ainsi pollués.

g) Recherche

Quelles recherches ont-elles été faites pour trouver un traitement efficace des rejets d'effluents aqueux des cabinets dentaires ainsi que des méthodes d'analyse des émissions atmosphériques de gaz ?

German Implementation Report on Compliance

Country:

Germany

Reservation applies

yes/no*

Is measure applicable in your country?

yes/no*

If not applicable, then state why not (e.g. no relevant plant)

Means of Implementation:

by legislation	by administrative action	by negotiated agreement
yes/no*	yes/no*	yes/no*

Please provide information on:

- specific measures taken to give effect to this measure (using the sections in the Implementation Report on Effectiveness) given below;
- 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.

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

Since 1980, the use of plant protection products consisting of or containing mercury compounds is prohibited in Germany (Pflanzenschutz-Anwendungsverordnung: Ordinance Governing the Use of Plant Protection Products). The import of seeds, plants and soil treated with plant protection products consisting of or containing mercury compounds is prohibited.

b) Electrical Equipment and Control Instruments

- What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

A ban on the production and marketing of fever thermometers, especially for private households, is under discussion. Mercury-free medical thermometers are classified as products with the environmental label (blue angel).

- What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

Measures at European level are required. A proposal for two Directives of the European Parliament and of the Council

I. on waste electrical and electronic equipment and

II. on the restriction of the use of certain hazardous substances in electrical and electronic equipment is being developed by the European Commission and the EU Member States.

* Delete whichever is not appropriate

The first Draft Directive includes provisions for the producer to bear the disposal costs. This is considered to contribute to an environmentally safe disposal which will also stimulate the producer to use less and recyclable hazardous substances and to construct long lasting electronic equipment.

The aim of the second Draft Directive is to restrict the use of hazardous substances in electrical and electronic equipment and to contribute to the environmentally sound recovery and disposal of waste electrical and electronic equipment. In article 4 it is proposed, to substitute the use of mercury and 5 other substances in electrical and electronic equipment as from 1 January 2008. For mercury there are exemptions in the Annex proposed for

- *Mercury in compact fluorescent lamps not exceeding 5 mg per lamp*
- *Mercury in straight fluorescent lamps not exceeding 10 mg per lamp*
- *Mercury in lamps not specifically mentioned in this Annex*
- *Mercury in laboratory equipment*

With regard to electrical components (mainly electrical switches), the use of mercury decreased from 21.9 tonnes in 1971 to 5 tonnes in 1976. With the bimetal fuse a substitution product for mercury switches has been found. Especially the use of mercury containing switches in private households and in small appliances was reduced substantially. During the period 1980 - 1990, approximately 300 kg of mercury was used in such products 50 % of which were exported. Since 1993, use of mercury in electrical switches ceased completely.

In this context it has to be stressed that disused electrical components containing mercury are to be handled safely and disposed of in compliance with the 1996 Waste Avoidance, Recycling and Disposal Act (Kreislaufwirtschafts- und Abfallgesetz).

It is also aimed for that, for example, glass contaminated with mercury may not be recycled into products unless, by designation, these products will again contain mercury.

The Waste Avoidance, Recycling and Disposal Act is a law of the Federal Government. It is complemented by provisions of the Federal States. As a consequence, the Federal States conduct State-specific information campaigns concerning the proper disposal of mercury containing equipment.

c) Dentistry

i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

Alternatives to dental amalgam are used, where appropriate. The question whether there is need for a general substitution of amalgam in dentistry is under discussion under health aspects. Substitute materials are plastic, ceramics or gold-alloys. However, as yet there is no overall alternative to amalgam available matching its durability, advantages in manufacturing and low costs.

ii) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

Annex 50 to the Waste Water Ordinance (Abwasserverordnung) covers waste water resulting from dentistry. It prescribes a 95% reduction of the amalgam load from dentistry before the waste water from dentistry is discharged into the sewerage system. The reduction is deemed to be achieved if a type-approved amalgam collector has been installed.

d) Laboratories

What action has been taken to:

- i) use alternatives to mercury when possible?
- ii) conduct research into procedures to avoid unnecessary use of mercury?
- iii) collect, recycle or recover mercury wherever practicable?
- iv) treat aqueous effluents containing mercury where appropriate?

Standards procedures for the collection and disposal of mercury are applicable (e.g. Giftmonographie - 50. Erg. Lfg. 6/92; TRGS: Technische Richtlinien für Gefahrstoffe; etc.).

Reductions of mercury emissions from laboratories are also achieved by substituting COD (chemical oxygen demand) tests by TOC (total organic carbon) tests. Whilst the former require Hg containing reagents, the latter are conducted Hg-free.

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Emissions of mercury to air are controlled by various regulations for point sources. These include limit values for mercury emissions from iron and steel plants, non-ferrous metal plants, cement and glass industry, chlor-alkali electrolysis and waste incineration. Furthermore, the application of dust precipitators and in particular of scrubbers as means to meet emission limit values for dust, SO₂ and other compounds in installations such as fossil fuel power plants take effect also with regard to the reduction of mercury emissions. It was estimated that, as a consequence of all these measures, mercury emissions to air from point sources declined by 77% between 1985 (137 t/a) and 1995 (31 t/a).

In Germany the incineration of municipal solid waste, hazardous waste, clinical waste and sewage sludge is regulated by the 17th Ordinance implementing the Federal Immission Control Act (17. Bundesimmissionsschutzverordnung- BImSchV).

Since April 1999 the emissions of mercury in the flue gas of waste incineration must be measured continuously. The emission limits for mercury are set at a daily average value of 0,03 mg/m³ and a half hour average value of 0,05 mg/m³ normalised to 11 % O₂. By the use of continuous monitoring the risk of uncontrolled mercury emissions can be reduced substantially.

EU legislation for the incineration of waste requires only a discontinuous monitoring/measurement for mercury emissions (at least two measurements per year). An emission limit value of 0,05 mg/m³ normalised to 11 % O₂ is set for the flue gas from waste incineration. For discharges of wastewater from the cleaning of exhaust gas from waste incineration the emission limit value for mercury is 0,03 mg/l. These emission limit values for mercury are also set for plants, which incinerate waste together with other fuels (waste co-incineration). The new EU Directive on the incineration of waste will be published by the end of 2000.

Another aspect is emissions to air originating from discharge lamps containing relatively high amounts of mercury in the glass matrix. Recycled glass may consequently contain between 2 to- 8 mg Hg/kg. If this glass is treated in thermic processes, Hg emissions occur. Such emissions are controlled by the requirements laid down in the Technical Guidelines on Air Quality ("Technische Anleitung zur Reinhaltung der Luft").

f) Decontamination

What consideration has been given to the decontamination of sites, which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

There is a national approach towards the issues of risk assessment and management as well as to the issue of liability and cleanup of contaminated sites. Sites that are suspected of being contaminated with mercury are registered by the Länder. The Federal Soil Protection Act (Bundesbodenschutzgesetz) came into force in 1999. The purpose of this Act is to ensure or rehabilitate the functions of the soil permanently. The Act requires harmful changes to the soil to be averted, contaminated sites and associated pollution to water bodies be cleaned up and precaution to be taken if otherwise adverse impact to the soil is to be expected. The Federal Soil Protection Act is complemented by specific provisions of the Federal States concerning matters such as funding mechanisms and cleanup policies.

Case Study (a special example of a historical site):

Continuous emissions of mercury occurring at the Marktredwitz chemicals factory resulted in considerable contamination of the soil since 1788. The factory was the most important case of a decontamination site in Bavaria.

In this factory, which is considered one of the oldest German chemical factories, mercury was used for the formulation of pesticides and other mercury containing products for over 200 years. This long period of manufacturing mercury-containing products under quite historical security conditions resulted in a very high mercury contamination in the surroundings. On the surface of the masonry, the load was between 400 to 5000 mg/kg Hg. In the soil between 1000 and 2000 mg/kg Hg were found. Furthermore, the groundwater

was polluted. By the mid eighties, the factory represented an acute environmental hazard, which resulted in its closure and subsequent remedial action.

Brief description of the decontamination procedure: For the cleaning of soil and building rubble, a two-step treatment device was developed. In a first step the soluble Hg was extracted and the remaining Hg contamination was enriched in a fine sludge fraction. In a second step the heavily contaminated sludge was dried and the remaining Hg extracted by high temperature vacuum distillation (at 350 - 450°C and 150hPa; Hg recovery by re-condensation).

Results of the decontamination: A concentration of 50 mg/kg Hg for the polluted material was aimed for. Despite the high initial concentrations between 500 and 2000 mg/kg and the high variability in the composition of the material, this aim was achieved. Output concentrations averaged between 20 to 25 mg/kg, corresponding to a 99 % purification efficiency.

This two-step device was operated from 1993 to 1996. Altogether 56 000 tonnes of material were decontaminated. The project costs were about 150 Mio. DM.

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

Concerning effective and efficient treatment of discharges of aqueous effluents from dental practice see information given under c).

Concerning analytical methods for gaseous discharges to the atmosphere see also information given under e).

A research project was commissioned by the Federal Environmental Agency (report 106 01 047) on the "Load of Lead, Cadmium and Mercury to the Environment: Balances of Use and Occurrence, Vol. 2 Mercury." "Rauhut, A. of the Landesgewerbeanstalt Bayern, 1996 (only available in German).

Additional Information

The following additional information is provided outside but otherwise related to the categories of PARCOM Recommendation 89/3:

Sewage Sludge

The spreading of sewage sludge is prohibited on soil that is used for agricultural or horticultural production if the average mercury content of the soil exceeds 1 mg/kg air-dry soil. The spreading of sewage sludge on soil that is used for agricultural or horticultural production is equally prohibited if the average mercury content of the sewage sludge exceeds 8 mg/kg on a dry weight basis (Klärschlammverordnung: Sewage Sludge Ordinance of 15 April 1992).

Icelandic Implementation Report on Compliance

Country:

Iceland

Reservation applies

~~yes~~/no*

Is measure applicable in your country?

yes/~~no~~*

If not applicable, then state why not (e.g. no relevant plant)

.....

Means of Implementation:

by legislation	by administrative action	by negotiated agreement
yes/ no *	yes/ no *	yes /no*

Please provide information on:

- specific measures taken to give effect to this measure (using the sections in the Implementation Report on Effectiveness) given below;
- 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.

.....

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

Biocides of all kind containing mercury are not approved for production, import, sale or use in Iceland. (Latest updated regulation no. 857/1999)

b) Electrical Equipment and Control Instruments

- What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

All mercury containing product have to be collected and treated as hazardous waste according to regulation no. 806 and 810/1999. A special program is underway to sort newer electric and electronic waste partially with regard to mercury.

- What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

None

* Delete whichever is not appropriate

c) Dentistry

- i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

The health authorities have published information on alternative materials.

- iv) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

Regulation 79/1996 as amended by regulation 175/1998 requires treatment of all waste water containing amalgam and the recovery of the amalgam.

d) Laboratories

What action has been taken to:

- i) use alternatives to mercury when possible?

No formal action has been taken

- ii) conduct research into procedures to avoid unnecessary use of mercury?

No specific research has been conducted in relation to this issue.

- iii) collect, recycle or recover mercury wherever practicable?

According to regulations on collection, treatment and disposal of waste, the generation of waste shall be minimised and waste material must be sent for appropriate treatment. Waste containing mercury is classified as hazardous waste. The municipalities shall arrange for the reception of hazardous wastes. The company licensed to handle hazardous waste shall guarantee appropriate treatment for the waste.

- iv) treat aqueous effluents containing mercury where appropriate?

According to regulations 785/1999 on operating license for polluting industry and regulations 796, 800 and 801/1999 on prevention water pollution and mercury discharges, discharge limit values are given for several types of activities and for all other discharges into waters a permit from the relevant authority is required.

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Mercury and other heavy metal emissions are taken into account in the procedure for granting operating license to industry with significant emissions in accordance with regulation 785/1999.

f) Decontamination

What consideration has been given to the decontamination of sites, which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

There are limit values for mercury set in the guidelines for contaminated soils and the decontamination of the site is considered after risk assessment for the site and the decontamination procedure.

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

No specific investigations have been done concerning mercury except for the measurement of mercury in waste water in accordance with the operating license for relevant operation.

Netherlands' Implementation 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	no

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

In The Netherlands the use of mercury-containing pesticides is forbidden. This is regulated by law (cf. Directive 79/117/EEC, according to which all pesticides containing mercury are forbidden in EEC-countries. The last exceptions were prohibited in 1990). Suitable alternatives exist for replacing all mercury-containing pesticides.

b) Electrical Equipment and Control Instruments

i) What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

From 1991, in The Netherlands certain dismissed objects containing mercury must be dealt with separately from other waste and be removed only by authorised firms. The items involved include clinical thermometers, batteries and fluorescent tubes.

ii) What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

A Dutch Decree on products containing mercury came into force in 2000. Import and production of products containing mercury has been forbidden. Trade will be phased out in 2002.

c) Dentistry

i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

The use of amalgam decreases and a steady increase of the use of alternatives such as composites is observed.

ii) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

In the dentistry, surplus and amalgam is trapped and separated, then sent for recovery of the mercury content. This has been regulated by law in general rules (in order to implement both PARCOM Recommendation 89/3 and PARCOM Recommendation 93/2). This regulation has been in force in The Netherlands since 24 November 1994. At that time, the general rules were under the frame of the Surface Water Pollution Act; in 1998, the rules were extended and brought under the frame of the General environmental protection act. In 1995, over 90% of the dentists had installed the appropriate equipment to separate water and amalgam.

d) Laboratories

What action has been taken to:

i) use alternatives to mercury when possible?

ii) conduct research into procedures to avoid unnecessary use of mercury?

- iii) collect, recycle or recover mercury wherever practicable?
- iv) treat aqueous effluents containing mercury where appropriate?

The Dutch Decree referred to in paragraph b)ii is also valid for laboratory products containing mercury. In the past, government advice has been distributed to laboratories which handle mercury. As a consequence, the mercury amount used has been reduced substantially. The Netherlands require best available techniques to be used when mercury or other black list substances are present in laboratory waste water. Governmental recommendations (mainly aimed at non-oxygen-consuming and toxic substances) have been drawn up with the aim of reducing discharges and of unifying the permit regulations for laboratories,

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

In 1992 the Netherlands' Emission Regulations (NER) came into force. In 1993 the Waste Incineration Decree for non hazardous waste and in 1998 the Decree on the Incineration of hazardous waste came into force. NER and the two decrees regulate the maximum standards for air emissions. Mercury standards have been set for waste incineration, chlor-alkali plants, crematories and other plants.

f) Decontamination

What consideration has been given to the decontamination of sites which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

In The Netherlands when soil or land is decontaminated, the associated contaminated groundwater must be treated to a discharge standard of 4 microgram Hg/litter before discharge to sewer or to a surface water. The requirements for discharging groundwater extracted during soil clean up operations have been included in a governmental recommendation.

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

Last years, no research has been carried out on these issues.

Norwegian Implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, then state why not (e.g. no relevant plant)

.....

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 (using the sections in the Implementation Report on Effectiveness) given below;
 - 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.
-

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

Mercury-containing pesticides have been phased out since 1991

b) Electrical Equipment and Control Instruments

- i) What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

Norway has a national regulation 'Scrapped Electric and Electronic Products' that states producers responsibility and requirement of a general collection of these types of wastes. In addition there are voluntary agreements with industry to establish take-back companies to increase the rate of recovery of dangerous substances used in products. Administrative action is also taken to instruct operators to remove mercury switchers from car wrecks and other parts with mercury. There is also ongoing work with a possible new regulation on waste from construction and demolition where special attention is paid to mercury.

.....

- ii) What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

The Substitution principle is laid down in national regulation on chemicals to encourage substitution of hazardous to less hazardous and preferably not hazardous substances.

The Norwegian environmental authorities have highlighted the need for phasing out the use of mercury in products etc as being a priority hazardous substance.

c) Dentistry

- i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

Alternative materials are increasingly taking over from the use of amalgam. Also the action mentioned in c) ii) has focused the need for reducing the use of amalgam.....

- v) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

A regulation has been implemented ('Regulation relating to Waste Water Contaminated with Amalgam and Amalgam-contaminated Waste from Dental Clinics and Dental Surgeries). Dental clinics shall install and use amalgam separators fulfilling a standard for separating mercury set by SFT.

Waste containing amalgam and sludge from the separators shall be handled as hazardous waste according to regulations, and this is also valid for waste from the cleansing of drainage pipes.....

d) Laboratories

What action has been taken to:

- i) use alternatives to mercury when possible?

See b) general action. No specific action has been taken with laboratories.

- ii) conduct research into procedures to avoid unnecessary use of mercury?

No specific action has been taken from authorities concerning procedures for research. However, the required handling of mercury has probably triggered avoidance in use.....

- iii) collect, recycle or recover mercury wherever practicable?

See the general collection system mentioned in b).

A collection system has been established to take care of mercury thermometers which have been phased out from most uses.....

- iv) treat aqueous effluents containing mercury where appropriate?

This has not been considered appropriate from Norwegian laboratories due to the relative small scale.

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Mercury discharges to air has been identified as being of concern for certain sectors: FeMn plants, Secondary steel, cement production and crematoria due to the use of dental amalgam.

A monitoring programme was carried out in 1999 –2000 to map the discharges of metal contaminants to air also for sectors which had previous not been given attention with respect to mercury. The programme pinpointed some branches and processes (mentioned above). The environmental authorities are requesting action from the actual companies to reduce these emissions as much as possible without exceeding excessive costs.

In the secondary steel industry, mercury is introduced through iron scrap. The Norwegian steel industry has been enforced to reduce the content of mercury in waste gas by installing gas cleaning equipment. Expected reduction of emissions within 2nd half of 2002, will be at least 70 % compared to present level.

The environmental authorities have enforced installation of waste gas cleaning equipment for Norwegian producers of ferromanganese and silicomanganese, before they are allowed to use manganese ore which is contaminated by mercury. Gas cleaning will allow the producers to change the composition of ores without having to increase the emissions.

The results from the monitoring in Norway substantiate that attention should be paid to the mercury pollution from these sectors also in other countries. It will be preferable to establish data on the real/true emissions before carrying out the necessary steps (e.g. installation of cleaning equipment) to achieve reduced emissions of e.g. mercury.

Removal of parts containing mercury and other hazardous substances from iron scrap is essential to minimise the input in secondary steel processes. The responsibility for reducing mercury pollution from electroscrap needs to be shared in the whole product chain and should not only be focused in the waste handling. In Norway it was experienced a need to improve the overview of appearance and the system for quality control of procedures to sort out hazardous substances in articles/products.

In one cement plant mercury has been found in the raw material and appropriate measures are under consideration.

A proposal for a new regulation for crematoria is being worked out and it is aiming at reducing i.e. the mercury emissions from crematoria (above a certain activity rate).

f) Decontamination

What consideration has been given to the decontamination of sites which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

In Norway mercury contamination has been found to be especially connected to closed chloroalkali plants and to some degree also to pulp and paper plants where mercury was used as biocide in previous years. To a large degree these sites are now the responsibility of companies which are faced with the authorities request for cleaning up or reducing the risk for future spread of pollution. In addition, mercury contamination is also registered in connection with historical activities related to non-ferrous, silver mining and flour mills.

A large national programme on investigations to map and consider the need for abatement measures to avoid further spreading of pollution, has been carried out to map, in principle, all contaminated sites. A follow-up programme is ongoing for carrying out the necessary abatement measures. This work has been a priority issue for environmental authorities for some years.

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

Prior to the establishment of the national regulation on installation of amalgam separators in dental practices, there was carried out research and testing of separators giving the best possible efficiency in treatment of the effluents. The separators required from authorities gives 98 – 99 % reduction when operated as intended.

There has not been carried out any special research on analytical methods for gaseous discharges of mercury.

Spanish Implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, then state why not (e.g. no relevant plant)

.....

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

Please provide information on:

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- any special difficulties encountered, such as practical or legal problems, in the implementation of this measure;
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- if appropriate, progress towards being able to lift the reservation.

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

The use of mercury containing pesticides was prohibited in Spain to implement Directive 79/117/EEC. We have several Ministerial Orders in our legal system to implement that Directive:.....
 (O.M. 28-2-86, O.M. 7-9-89, O.M. 1-2-91/BOE 12-2-91)

b) Electrical Equipment and Control Instruments

i) What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

The Waste Law 10/1998, and the National Hazardous Waste Plan (approved by the Council of Ministers on February 17, 1995) contains measures to increase recycling in different sectors including electric sector..

ii) What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

Royal Decree 45/1996 contains measures to reduce hazardous substances content in electrical equipment.

c) Dentistry

- i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

Dentistry Professional Associations have been recommending since the beginning of the nineties the use of dental amalgams without or with low content of Mercury, in accordance with ISO 7494. Their use has gone increasing and now they are the mainly used.

- vi) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

Equipment to enable the collection of amalgam wastes are now the mainly used; on the other hand there is the legal obligation to send these wastes to an authorised company for the management of this kind of wastes.

d) Laboratories

What action has been taken to:

- i) use alternatives to mercury when possible?
ii) conduct research into procedures to avoid unnecessary use of mercury?
iii) collect, recycle or recover mercury wherever practicable?
iv) treat aqueous effluents containing mercury where appropriate?

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Substantial reduction of emissions to air from the Chlor-Alkali Industry by a formal voluntary agreement.

f) Decontamination

What consideration has been given to the decontamination of sites which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

Spain has "The National Plan for the Remediation of Contaminated Soils".

From all sites studied and characterised, those sites contaminated by heavy metals (arsenic, mercury...) and POPs have been considered "high priority" due to the serious effect they have on groundwater.....

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

Progressive implementation of IPPC Directive from different Sectors. For instance, Iron-Steel Industry, Non-ferrous metal Industry, and Chlor-Alkali Industry .

Swedish Implementation Report on Compliance

Country:

Reservation applies

Is measure applicable in your country?

If not applicable, then state why not (e.g. no relevant plant)

.....

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

Please provide information on:

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- 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.

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

Use of mercury is banned

b) Electrical Equipment and Control Instruments

- What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

The mercury is collected and safely stored awaiting treatment and terminal storage

- What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

All use of mercury is banned in products with limited exemptions where no alternatives are available

c) Dentistry

- What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?

Voluntary action to reduce amalgam fillings. In addition, dental care compensation ceased to be paid for amalgam fillings in 1999

vii) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?

A voluntary agreement since 1979 which requires that all dental clinics are equipped with amalgam separators.....

d) Laboratories

What action has been taken to:

i) use alternatives to mercury when possible?

Use of mercury is banned with limited exemptions where no alternatives are available or where analytical standards (ISO) require it.

ii) conduct research into procedures to avoid unnecessary use of mercury?

Yes.....

iii) collect, recycle or recover mercury wherever practicable?

Yes, and also where not practicable

iv) treat aqueous effluents containing mercury where appropriate?

Yes.....

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Mercury emissions are strictly regulated and controlled by, for example, permit conditions for point sources

f) Decontamination

What consideration has been given to the decontamination of sites which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

Contaminated sites have been investigated and catalogued. Some sites have been decontaminated and work is continuing

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

Several projects have been carried out to investigate the efficiency of dental amalgam separators. Methods and systems have been developed for continuous measurements of mercury emissions to the air.....

UK Implementation 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	no

II. Implementation Report on Effectiveness

a) Agricultural Products

What actions have been taken to replace mercury-containing pesticides where suitable alternatives are available?

The use of mercury-containing pesticides is not authorised in the UK in accordance with EC Directive 79/117/EEC. The UK has implemented EC Directive 79/117/EEC on phasing out the marketing and use of pesticides containing mercury compounds or certain other substances through national regulations [(the Control of Pesticides Regulations 1986)]. Measures applicable to various pesticides containing mercury came into force on 31 March 1992.

Suitable alternatives are available.

b) Electrical Equipment and Control Instruments

i) What action has been taken to recycle mercury used in electrical equipment and control instruments where this is practicable?

ii) What action has been taken to encourage the use of equipment not containing mercury whenever suitable replacements are available at comparable cost?

Recycling systems for fluorescent lighting tubes and discharge lamps, which offer complete recovery of mercury are available in the UK. Collection systems (some nationwide) are operated by the private sector and participation is currently voluntary. Official advice has been issued on the precautions to be taken in the fragmentation of lamps and on their safe disposal. The aqueous effluent that arises from lamp crushing has to be discharged in accordance with effluent control requirements. Disposal of such products may also be prohibited from landfills at local level.

Other examples of electrical equipment containing mercury are batteries, switches, rectifiers, relays and certain electrodes). Alkaline manganese batteries which contain above certain levels of mercury are prohibited from being marketed by Regulations which implement Directive 91/157/EEC (the Batteries and Accumulators Containing Certain Dangerous Substances Directive). Other requirements of the Directive, such as research into alternative technologies, gradual reduction in household waste and separate collection systems (for safe disposal or recycling) are being implemented through a voluntary programme drawn up with industry. The level of mercury in the most commonly used battery types has been steadily reduced in recent years and most are now essentially mercury-free. Regulations to prohibit the marketing of those which are not are due to come into force on 18 December 2000. Mercuric oxide button cells (for hearing aids etc) are progressively being replaced by zinc-air and lithium varieties and the coming Regulations will prohibit their sale.

With respect to control instruments such as mercury thermometers, manometers and barometers, mercury-free substitutes are available for most uses but are generally considerably more expensive and in some cases may not have matching technical performance. Due to the marketing and use issues that would be involved in any ban or phase out of such instruments, the UK is contributing to the process of achieving relevant restrictions at the EU level following an assessment of the costs and benefits and the adequacy of proposed alternatives.

c) Dentistry

- i) What action has been taken to use alternative materials to dental amalgams where appropriate and where excessive cost can be avoided?
- ii) What action has been taken to efficiently trap surplus or old amalgam and to send it for recovery of the mercury content?
- i) *Alternatives to mercury amalgam are becoming more widely used in the UK, particularly for cosmetic reasons, but in many cases, dental amalgam is regarded by dentists as having the best technical properties for major fillings.*
- ii) *An "International Standard entitled the "Dental Unit" (ISO 7494, 1990) has been agreed and published. The Standard includes a requirement to have a solids collector with a capability of filtering out and retaining particles 2 mm or larger on their lesser diameter. It also includes a general requirement that the waste system of the unit shall be capable of accommodating an amalgam separator. A significant number of Dental Units in the UK have solids collectors which meet the ISO standard; recycling schemes for the recovery of metals from surplus unused dental amalgam and old dental amalgam fillings are available. A code of practice on the use of best available technology in dentistry is currently being agreed with relevant stakeholders*

d) Laboratories

What action has been taken to:

- i) use alternatives to mercury when possible?
- ii) conduct research into procedures to avoid unnecessary use of mercury?
- iii) collect, recycle or recover mercury wherever practicable?
- iii) treat aqueous effluents containing mercury where appropriate?

Government advice has been widely distributed to laboratories which handle and utilise mercury and its compounds. This emphasises the need to minimise the use of mercury and gives advice on safe disposal and how to deal with spillages etc. The UK has developed mercury-free methods for COD determinations which are widely used in the water and other industries.

e) Emissions to Air

What further consideration has been given to the need for and the benefit of reductions in mercury in gaseous discharges to the atmosphere?

Gaseous emissions containing mercury from point sources into the atmosphere are subject to control by prior authorisations in the UK. Mercury and its compounds are prescribed substances and their release (which is subject to Integrated Pollution Control) has to be prevented, minimised or rendered harmless.

f) Decontamination

What consideration has been given to the decontamination of sites which have been historically contaminated with mercury, and to demonstrate that such decontamination does not lead to pollution?

Section 57 of the Environment Act 1995 inserts a new Part IIA into the Environmental Protection Act 1990 to establish a modern, specific contaminated land power. For the first time in UK law, there will be a specific definition of contaminated land and a regime for securing remediation when such land is identified.

A series of Industry Profiles have been published which examine the potential of over fifty industries to have caused the pollution of soil by mercury and other substances.

In the UK threshold and action trigger values for selected contaminants including mercury have been used to help assess whether land is contaminated. Trigger concentrations for mercury will shortly be replaced by guideline values for that metal produced by a specially designed computer model called CLEA (Contaminated Land Exposure Assessment) for determining exposures that might lead to direct risks to human health from specific site uses.

Agencies working on behalf of central government in the UK make available a range of financial incentives to assist developers and others to carry out the regeneration of contaminated land. Funds are also available to local authorities to tackle problems of contaminated land."

g) Research

What research has been carried out into the effective and efficient treatment of discharges of aqueous effluents from dental practices and on analytical methods for gaseous discharges to the atmosphere?

In recent years, the UK Department of the Environment (DOE) gave substantial grant support through its Environmental Technology Innovation Scheme to a recently concluded £0.75 million project to develop chemical treatment and advanced separation techniques for the removal of toxic heavy metals (focusing on mercury and cadmium) from industrial waste waters. Trials have shown that stringent removal targets can be consistently met and that the costs of application on an industrial scale will be consistent with Best Available Technology concept. The DOE has also commissioned major studies designed to show the extent of sources and emissions of mercury in the UK, along with an independent assessment of the scope for risk minimisation and the associated costs and benefits.