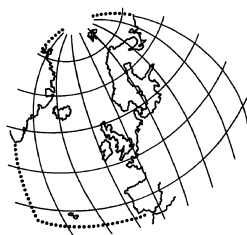


Overview assessment

Implementation of OSPAR Recommendations on Best Available Techniques and Discharge limits for Aluminium Electrolysis and Anode Plants

**Recommendations 92/1, 96/1, 98/2 and
2002/1**



**OSPAR Commission
2008**

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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Executive Summary

This document provides an overview and assessment of the implementation of PARCOM Recommendations 92/1 and 96/1 and OSPAR Recommendations 98/2 and 2002/1 concerning Best Available Techniques and Best Environmental Practice and emission and discharge limit values for aluminium electrolysis and anode plants in the OSPAR Convention area. It is based on national implementation reports received from 14 of the 15 Contracting Parties which had been requested to submit, in the 2007/2008 meeting cycle, reports on the national measures taken and their effectiveness, to give effect to the provisions of the Recommendations in their territories.

Although information submitted by Contracting Parties is not complete, it can be concluded that the relevant plants in the OSPAR Convention area are mostly complying with the requirements of the Recommendations. In cases with deviation, improvement programmes are being carried out.

Even if no quantification can be made, it is considered, based on the available information, that a major environmental improvement has been achieved in the last years in the aluminium sector. One main reason for this is the closure of a number of Söderberg plants and the change in existing plants from Söderberg to prebake techniques. The prebake technique eliminates emissions and discharges of PAH and achieve low emissions of dust and fluorides. It is expected that the few remaining Söderberg plants in the OSPAR Convention area will either be closed, converted to prebake plants or upgraded within the next few years. The PARCOM and OSPAR Recommendations for the primary aluminium industry have been very important instruments to achieve these changes and improvements.

The aluminium sector in all OSPAR Contracting Parties also have to comply with the IPPC Directive. The installations and operations of the aluminium sector are covered by the IPPC Directive and the Best Available Technique (BAT) described in the IPPC BREF document for the non-ferrous metal industry.

OSPAR 2008 agreed that implementation reporting should cease for all Contracting Parties that had reported or were still to report on implementation because the commitments of those measures were covered by the IPPC Directive and associated BAT description in the BREF document whose implementation ensured that the OSPAR requirements were met.

Récapitulatif

Le présent document représente une évaluation récapitulative de la mise en oeuvre des Recommandations PARCOM 92/1 et 96/1 et des Recommandations OSPAR 98/2 et 2002/1 relatives aux meilleures techniques disponibles et à la meilleure pratique environnementale et aux plafonds d'émission et de rejet applicables aux installations d'anodisation et de fabrication de l'aluminium par électrolyse dans la zone de la Convention OSPAR. Cette évaluation se fonde sur les rapports nationaux de mise en œuvre communiqués par quatorze des quinze Parties contractantes qui doivent soumettre, lors du cycle de réunions 2007/2008, des rapports sur les mesures nationales prises et sur leur efficacité, afin de donner effet aux dispositions de ces Recommandations dans leurs territoires.

On peut conclure que les installations pertinentes dans la zone de la Convention OSPAR se conforment dans l'ensemble aux exigences des Recommandations, bien que les informations communiquées par les Parties contractantes soient incomplètes. Des programmes d'amélioration sont mis en place en cas d'écarts.

Même si aucune quantification n'est possible, on considère à partir des informations disponibles que ces dernières années on est parvenu à une amélioration importante de l'environnement dans le secteur de l'aluminium. L'une des raisons principales est la fermeture d'un certain nombre d'installations Söderberg et le fait que les installations existantes soient passées de la technique Söderberg à des techniques de précuison. La technique de précuison élimine les émissions et rejets de HAP et permet des émissions faibles de poussière et de fluorures. On s'attend à ce que les quelques installations Söderberg restantes dans la zone de la Convention OSPAR soient fermées, converties en installations à précuison ou modernisées au cours des prochaines années. Les Recommandations PARCOM et OSPAR à l'intention de l'industrie de l'aluminium primaire représentent des instruments importants permettant de parvenir à ces modifications et ces améliorations.

Le secteur de l'aluminium dans toutes les Parties contractantes OSPAR doit également se conformer à la Directive IPPC. Les installations et le fonctionnement du secteur de l'aluminium sont couverts par la

Directive IPPC et la meilleure technique disponible (BAT) définie dans le document BREF de l'IPPC pour l'industrie des métaux non ferreux.

OSPAR 2008 est convenue que la notification de la mise en oeuvre cesserait pour toutes les Parties contractantes qui notifiaient ou qui notifient encore la mise en oeuvre car les engagements de ces mesures sont couverts par la Directive IPPC et la description correspondante de la BAT dans le document BREF dont la mise en œuvre garantit que les exigences d'OSPAR sont respectées.

1. Introduction

1.1 OSPAR measures to reduce and control pollution from primary aluminium production

Aluminium is produced through electrolytic processes involving cathodes and carbon anodes. The main environmental impacts associated with primary aluminium production are greenhouse gases from refining and smelting. They result from the electrical consumption of smelters and byproducts of processing. Gase emissions include perfluorocarbond (PFC), polycyclic aromatic hydrocarbons (PAH), fluoride, sulphur dioxide (SO₂) and carbon dioxide. The environmental issues for the production of anodes for electrolysis installations are emissions of PAHs, tar, dust, fluoride and SO₂ from furnaces as a result of the baking process. For OSPAR emissions and discharges of PAHs are of particular concern as PAHs are toxic, persistent and bioaccumulative substances which can reach the marine environment and have been selected by OSPAR for priority action (cf OSPAR List of Chemicals for Priority Action). Other environmental issues for the primary aluminium industry include the handling and storage of raw material, waste streams and energy consumption.

1.1.1 OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants

The Recommendation covers discharges to water from existing aluminium electrolysis plants and does not apply to anode-baking operations. It establishes standards for discharges of PAHs to water and amends and complements OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants. Recommendation 2002/1 is relevant only for Søderberg plants and not for prebake plants.

1.1.2 PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations for the Primary Aluminium Industry

The Recommendation defines Best Available Technology (BAT). BAT in new electrolysis plants should be based on the use of pre-baked anodes. The same applies for new furnaces at expansion of existing electrolysis plants.

The Recommendation also defines BAT for plants producing anodes for the primary aluminium industry and sets limit values for emissions to air from anode production.

The Recommendation is relevant for all anode producing plants.

1.1.3 PARCOM Recommendation 96/1 on Best Available Techniques and Best Available Practise for Existing Aluminium Electrolysis Plants

The Recommendation specifies Best Available Techniques and Best Available Practise for existing aluminium plants. The long-term objective with regard to emission values from all plants should be to achieve the values for new prebake plants as outlined in PARCOM Recommendation 94/1. A time schedule for achieving the long-term objective should be developed before the year 2000.

1.2 Implementation reporting

1.2.1 General reporting requirements

Under Article 22 of the OSPAR Convention, Contracting Parties shall report to the Commission at regular intervals on the national measures (legal, regulatory, or other) taken by them to implement the provisions of the decisions and recommendations adopted under the OSPAR Convention and on the effectiveness of these national measures. This implementation reporting forms the basis for OSPAR to assess the compliance by Contracting Parties with the Convention and ultimately to evaluate the effectiveness of programmes and measures under the Convention.

Detailed provisions on implementation reporting and related assessments by OSPAR are laid down in OSPAR's Standard Implementation Reporting and Assessment Procedure (reference number 2003-23, update 2005). Unless stated otherwise in the OSPAR instrument concerned, the practice has been in general that an implementation report should be submitted to the appropriate OSPAR subsidiary body in the intersessional period four years after the adoption of a measure and every four years thereafter until fully implemented.

Implementation reporting does not apply to Contracting Parties with reservations (or non-acceptance) on an OSPAR measure unless and until the reservation (or non-acceptance) is lifted.

1.2.2 Reporting requirements under Recommendations 92/1, 96/1 and 2002/1

This is the first implementation reporting by Contracting Parties on the OSPAR measures concerning primary aluminium industry. OSPAR 2005 adopted Recommendation 2005/1 amending and joining the reporting formats for Recommendations 94/1, 96/1, 98/2 and 2002/1 on the aluminium industry and that for reporting on the implementation and effectiveness of Recommendation 98/1 on other non-ferrous metal producing industries (zinc, copper, lead and nickel). All Contracting Parties were invited to report under the new format and to report for the year 2006 on the implementation of all those Recommendations and the effectiveness of measures in the 2007/2008 meeting cycle. A separate overview assessment has been prepared on the implementation for Recommendation 98/1 (OSPAR publication 348/2008).

This overview assessment of the implementation of Recommendations 92/1, 96/1 and 2002/1 has been prepared by Norway as the lead country for the primary aluminium industry. The assessment is based on national reports submitted by Contracting Parties in the 2007/2008 meeting cycle, and has been examined by the Hazardous Substances Committee in 2008. Reporting on the implementation of Recommendation 2002/1 includes the reporting on OSPAR Recommendation 98/2.

1.3 EC legislation

Under Council Directive 96/61/EC on Integrated Pollution Prevention and Control (the "IPPC Directive"), which also applies in the European Economic Area (EEA), operating permits must be issued for installations for the primary production and processing of non-ferrous metals, including aluminium plants. These must contain conditions based on best available techniques (BAT) as defined in Article 2 (11) of the IPPC Directive to achieve a high level of protection of the environment as a whole. Under Article 16 (2), the European Commission has organised an exchange of information on BAT and associated monitoring. The results of this exchange of information are presented as BAT Reference documents (BREFs), produced by the European IPPC Bureau. EC/EEA Member States are required to take these into account when determining BAT generally or in specific cases. The requirements of the IPPC Directive apply to new or substantially changed installations with effect from October 1999 and to existing installations no later than October 2007.

A BREF for non-ferrous metal processes was adopted in December 2001. In the process of its development, OSPAR reviewed the draft BREF in the light of Recommendations 92/1, 94/1, 96/1 and 98/2 on aluminium electrolysis and anode plants and the commitments under the OSPAR Hazardous Substances Strategy. The BREF is currently under review.

The IPPC Directive also requires EU and EEA Member States to report emissions of pollutants to air and water to the European Pollutant Emission Register (EPER) database every 3 years. The non-ferrous metal industry is covered by this requirement. Only those facilities need to report which exceed specified emission thresholds which have been set at a level that aims to cover about 90% of the emissions from facilities covered by the IPPC Directive.

2. Overview of compliance

2.1 General

The assessment is based on national implementation reports from Germany, Iceland, the Netherlands, Norway, Sweden and United Kingdom. The original information reported by Contracting Parties on Recommendations 92/1, 96/1, 98/2 and 2002/1 has been extracted from their reporting formats and compiled in Annex 1. Table 2.1 gives an overview of the reports received, the applicability of the Recommendations in OSPAR Contracting Parties and the means by which Contracting Parties implemented them at national level.

Belgium, Denmark, Finland and Switzerland confirmed that they are not affected by these measures, as they have no relevant plants. Switzerland reported that they closed their last aluminium plant in 2006.

No report was received from Luxembourg, and Ireland and Portugal did not submit formal reports but informed OSPAR that they had no relevant plants in their territory covered by the Recommendations. France reported by letter and gives no technical information (see below).

France and The European Commission have commented on the obvious overlap between the OSPAR/PARCOM Recommendations and the IPPC BREFs. In their view, the role of the OSPAR/PARCOM Recommendations is gradually replaced by IPPC/BREFs in this industrial sector.

Based on the national reports received, Norway as lead country for the primary aluminium industry in OSPAR has prepared the following overview and assessment of the implementation of the Recommendations in the OSPAR Convention area.

Table 2.1 Overview of the implementation and associated reporting on OSPAR Recommendations 92/1, 96/1, 98/2 and 2002/1 concerning the primary aluminium industry

Contracting Party	Report available	Reservation	Applicability	Means of Implementation		
				By legislation	Administrative action	Negotiated agreement
Belgium	Yes	No	No plants			
Denmark	Yes	No	No plants			
Finland	Yes		No plants			
France	Yes*)		Yes			
Germany	Yes	No	Yes	x		
Iceland	Yes	No	Yes	x	x	
Ireland	Yes*)	No	No plants			
Luxembourg	No					
The Netherlands	Yes	No	Yes	x		x
Norway	Yes	No	Yes	x	x	
Portugal	Yes*)	No	No plants			
Spain	Yes	No	Yes	x	x	
Sweden	Yes	No	Yes	x	x	
Switzerland	Yes	No	No plants			
United Kingdom	Yes	No	Yes	x	x	

*) These Contracting Parties did not submit a formal report. They informed OSPAR by letter or e-mail.

2.2 Technical information

Contracting Parties reported the following technical information on plants and the implementation of the Recommendations:

Germany reported that:

- all Recommendations are fully implemented.
- there is no new electrolysis plant.
- there is no Søderberg plant in operation.

Iceland reported that:

- all Recommendations are implemented, but one potline need some upgrading.
- there is one new electrolysis plant under construction.
- there is no Søderberg plant installed.

The Netherlands reported that:

- all Recommendations are fully implemented.
- there is no new electrolysis plant.
- there is no Søderberg plant in operation.

Norway reported that:

- all Recommendations are implemented, except for one prebake plant where the F_{tot} limit value is temporarily exceeded. Improvement programme is carried out.
- there is no new electrolysis plants, but two combined Søderberg and prebake plants have been converted to prebake plants.
- there are two Søderberg plants in operation. One of them has been upgraded to meet the requirements in OSPAR Recommendation 98/2. Operation of Søderberg pots at the other plant is planned to be ceased at the end of 2009.

Overview assessment of Implementation of OSPAR Recommendations on Best Available Techniques and Discharge limits for Aluminium Electrolysis and Anode Plants

- for PARCOM Recommendation 92/1, limit values and reporting data for PAH to air is based on PAH 16 and not B(a)P.

Spain reported that:

- PAH data is expressed as BaP kg/t anode, including compounds M.Sorlie. Single sampling monitoring in 2002;
- HF gas data expressed as kgF/t anode. 2007 annual average of monthly sampling monitoring.

Sweden reported that:

- there is one combined Söderberg and prebake plant. It is not commented whether the Recommendations are fully implemented.

The United Kingdom reported that:

- the Recommendations have been implemented, and emission and discharge limits are achieved at most plants. In cases where the values are not achieved, improvements programmes required under the IPPC Directive are in progress.
- there is one Söderberg plant in operation.
- production capacity has increased due to increased market demand.

2.3 Non-technical information

Contracting Parties reported additional non-technical information as follows :

France reported that their Department of Industrial Environment has chosen to focus on the application of BREF BAT for non-ferrous industries and not on OSPAR BAT. The report gives no information of plant performance.

The European Commission commented on the duplication of obligations because all aluminium plants in EU Member States also have to comply with the requirements of the IPPC Directive and therefore need to be reviewed on a BAT basis. (This also applies in the context of the European Economic Area for Norwegian and Icelandic plants.) The original IPPC BREF on the non-ferrous metal sector covered all of the points in the OSPAR Recommendations. The BREF was due for revision, and this work has been started. The European Commission would also in the near future come with wider proposals on the review of the IPPC Directive as a whole.

3. Overview of effectiveness

Based on the reporting format of OSPAR Recommendation 2005/1, six Contracting Parties reported quantitative information on the number of aluminium and anode baking plants, their capacity and their emissions and discharges of PAHs the effectiveness of measures taken to reduce pollution from primary aluminium and anode production plants. Contracting Parties were invited to report this information for the year 2001. The information received is compiled in Table 3.1.

Table 3.1 Overview of number of plants, their capacity, and their emissions and discharges as reported by Contracting Parties for different reference years

ALUMINIUM PLANTS							
	DE	ES	IS	NL	NO	SE	UK
Plant capacity PB	646.000 t	226.578 t	270.000 t	NI	1.136.000 t	25.000 t	NI
Plant capacity SB	0	NI	0	0	220.000 t	80.000 t	41.000 t
Number of plants	5 PB	1 PB 2 SB	2 PB	3 PB	1 SB 5 PB 1 C	1 C	The report comprises 1 SB
Emissions to air (kg/t Aluminium)							
PAH ₁₆ (SB only)	n.a.		n.a.	n.a.	0,17	0,026 (as BAP)	NI
Dust	1,07	1,2	0,85-0,9	132.000 kg/y	1,66	4,4	NI
HF Gaseous	0,4	0,57	0,45-0,62	73.000 kg/y	0,42	0,3	0,42
Discharge to water (kg/t Aluminium)							
PAH (SB only) Borneff ₆	n.a.	0	n.a.	n.a.	0,0096	0,26	NI

ANODE BAKING PLANTS							
Total Plant Capacity	152.000 t/y 2 plants	120.765 t/y	No plant	313.000 t/y	480.000 t/y 2 plants	NI	313.000 t/y
Emissions to air (kg/ t anode)							
PAH 16				5,35 kg/y	0,018		0,007
PAH as BAP	0,0001	0,002				0,00001	
HF (Gaseous)	0,002	0,062			0,001		0,001

SB: Soderberg Plant PB: Prebake plant C: Combined SB and PB plant NI: no information n.a.: not applicable

4. Assessment

Even if reports are missing from some Contracting Parties, and even if some of the reports are incomplete, it can be generally concluded that the plants are mostly complying with the requirements of the Recommendations. In cases with deviation, improvement programmes are carried out. This applies for the electrolysis plants as well as the anode plants.

Even if no quantification has been made, it is considered that there has been a major environmental improvement in the aluminium sectors during the last years.

A main reason for this is the closure of a number of Soderberg plants. There is no generation of PAH in prebake plants, and closure of Soderberg plants therefore means that emission and discharge of PAH is eliminated. It is also easier to achieve low emissions of dust and fluorides from a prebake plant than from a Soderberg plant.

Due to environmental problems as well as high cost of electricity it is expected that the few remaining Soderberg plants in OSPAR Contracting Parties will either be closed, converted to prebake plants or upgraded within the next few years.

Upgrading of a Soderberg plant in Norway has demonstrated that it is possible to comply with the emission limit values valid from 1 January 2007 in OSPAR Recommendation 98/2.

The PARCOM and OSPAR Recommendations for the primary aluminium industry have been very important instruments for the achievement of the results described above.

Nevertheless, future reporting on the Recommendations for the aluminium industry is not warranted and should cease. The main arguments are:

- The aluminium industry in OSPAR Contracting Parties has achieved a good environmental performance, mainly due to the closure of Soderberg plants, and because the requirements of the Recommendations have either been fulfilled or are expected to be fulfilled in the near future.
- The aluminium sector in all OSPAR Contracting Parties also have to comply with the IPPC Directive. The installations and operations should be based on Best Available Technique (BAT) as described in the IPPC BREF document for the non-ferrous metal industry. The BREF document also describes the emission levels that can be achieved by using BAT, and this is an important guidance for the national environmental authorities when setting emission limit values. The IPPC Directive also requires reporting of emission data to the national authorities. These data will be published through the E-PRTR register.
- The quality of the reports from the OSPAR Contracting Parties indicates that the parties do not consider the reporting to be of high importance. The report from France is supporting this viewpoint.

Based on this OSPAR 2008 agreed that implementation reporting should cease for all Contracting Parties that had reported or were still to report on implementation because the commitments of those measures were covered by the IPPC Directive and associated BAT description in the BREF document whose implementation ensured that the OSPAR requirements were met.

Annex 1. Compilation of extracts from national implementation reports

Country: Belgium

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	No, no relevant plants		
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	No, no relevant plants		
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	No, no relevant plants		
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No, no relevant plant		
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No, no relevant plant		

Country: Denmark

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	No (No relevant plants in DK)		
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	No (No relevant plants in DK)		
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	No (No relevant plants in DK)		
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No (No relevant plants in DK)	-	-
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No (No relevant plants in DK)		

Contracting Party: European Community

The original IPPC BREFs on the non-ferrous metal sectors covered all of the points in the OSPAR Recommendations. The techniques mentioned in them are all included, according to the expert in the JRC J.2 European IPPC Bureau expert which reviewed this recently.

The BREF for the Non-Ferrous Metal industries is due for revision with a kick-off meeting on 24 - 26 September 2007 in Seville (Spain). The BREF review will revise any emission levels and add to the techniques and the EC would be very pleased to receive any additional information that is available including the implementation reports from OSPAR Contracting Parties.

As far as emissions from Soderberg processes are concerned, they are included in Current Emission and Consumption Data at the levels indicated in the Measures. There are however no Associated Emissions in the BAT conclusions for this process because the Soderberg process is concluded not to be BAT.

EU Member States obligations under the IPPC Directive includes that for existing installations permits need to be reviewed on BAT basis by October 2007.

The European Commission will also come in the near future with wider proposals on the review of the IPPC Directive as a whole.

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No		See text above.	2: BREF
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No			2: BREF
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No			2: BREF
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No			2: BREF
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No			2: BREF

Country: Finland

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry		No		
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants		No		
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants		No		
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants		No		
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants		No		

Country: Germany

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	Yes	Yes Germany has made use of some of the mentioned measures or of more advanced alternative measures to prevent pollutants as far as possible, thus going beyond the requirements of Recommendation 92/1.	1.
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	No No new plant	N/A	N/A
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	Yes	Yes	1.
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	Yes	1.
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No No Söderberg plant	N/A	N/A

Country: Iceland

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	Yes	Yes	1./2.
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	Yes	Yes	1./2.
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	Yes	No, The oldest potline of one smelter has not yet been upgraded	1./2.
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	No, The oldest potline of one smelter has not yet been upgraded	1./2.
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No No Soderberg		1./2.

Country: Netherlands

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	Yes	Yes	1 + 3
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	No new plants		
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	Yes		1 + 3
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	Yes	1 + 3
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No relevant plants		

Country: Norway

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	Yes	Yes	1 and 2
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	Yes	No	1 and 2
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	Yes	No	1 and 2
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	Yes	1 and 2
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	Yes	1 and 2

Note (1)

If not state why not (e.g. no relevant plant):

Note (2)

If not state why and indicate when the measure is expected to be implemented:

PARCOM Rec 92/1: Measures for BAT are achieved. Limit value for HF is achieved. Limit value for condensed tar is no longer relevant. Reporting of tar is replaced by PAH₁₆.

PARCOM Rec 94/1: The measures are fully implemented and the emission limit values achieved, with exception of one plant where F_{tot} limit is exceeded. Improvement programme is carried out.

PARCOM Rec 96/1: The measures are fully implemented, with exception of one Sørderberg plant which will be closed at the end of 2009.

Country: Sweden

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry			Yes	1,2
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants		No		
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants		Yes		1,2,3
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants		Yes		1,2
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants		Yes		1,2

Note (1)

If not state why not (e.g. no relevant plant):

Production of anode pitch for Söderberg based production; No New Plant.

Country: Spain

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	NO	YES		1,2
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	NO	No new plants		
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	NO	YES		1,2
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	NO	YES		1,2
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	NO	YES		1,2

Country: Switzerland

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	No Last plant closed 2006	Yes	1. legislation
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	No No new plant	obsolete	No need
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	No Last plant closed 2006	Yes	1. legislation
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No Last plant closed 2006	Yes	1. legislation
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	No No soederberg plant	obsolete	No need

Note (1)

If not state why not (e.g. no relevant plant):

Primary Existing Aluminium Plant: Prebake: last plant in Steg/VS was closed in April 2006 > no relevant plant;

Soederberg: no soederberg plant since/before reporting started > no relevant plant;

Primary Non-Ferrous-Metall Industry: no plant since/before reporting started > no relevant plant.

Country: United Kingdom

I. Implementation

Measure	Reservation applies Yes/No	Is the measure applicable in your country? Yes/No ⁽¹⁾	Is the measure fully implemented? Yes/No ⁽²⁾	Means of implementation 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Recommendation 92/1 on Best Available Technology for Plants Producing Anodes and for New Electrolysis Installations in the Primary Aluminium Industry	No	Yes	Yes (no new plants in last 7 years)	1 and 2
PARCOM Recommendation 94/1 on Best Available Techniques for New Aluminium Electrolysis Plants	No	Yes	Yes (no new plants in last 7 years)	1 and 2
PARCOM Recommendation 96/1 on Best Available Techniques and Best Environmental Practice for Existing Aluminium Electrolysis Plants	No	Yes	Yes	1 and 2
OSPAR Recommendation 98/2 on Emission and Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	Yes (see note 2 below)	1 and 2
OSPAR Recommendation 2002/1 on Discharge Limit Values for Existing Aluminium Electrolysis Plants	No	Yes	Yes (see note 2 below)	1 and 2

Note (1)

If not state why not (e.g. no relevant plant):

Note (2)

If not state why and indicate when the measure is expected to be implemented:

Emission and discharge limits are achieved at most plants. Where the values are not achieved (e.g the target values) the general improvement programmes required under the IPPC Directive should achieve these in due course.