OSPAR COMMISSION

Overview of Implementation Reports on the OSPAR Recommendation 2006/1 on the Implementation and Effectiveness of OSPAR Measures Relating to the Vinyl Chloride Industry

Hazardous Substances Series

2009

OSPAR Convention

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.

Convention OSPAR

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.

Acknowledgement

This report was prepared by Ms Elizabeth Fadum and Mr Richard Moxon, for Norway and the United Kingdom, joint lead countries.

Executive Summary

Norway has, in cooperation with United Kingdom, assessed the reports from Contracting Parties on implementation and effectiveness of OSPAR measures relating to the Vinyl Chloride Industry as required under OSPAR Recommendation 2006/1.

In 2004 Norway made an assessment on implementation for VCM and PVC production for the PARCOM Recommendations 96/2 and 96/3 and OSPAR Decisions 98/4 and 98/5.

OSPAR Decisions 98/4 and 98/5 are amended by OSPAR Decision 2006/1 and reported on for the first time in the intersessional period 2008/2009 for new and existing plants. This Recommendation relates to the commitments of Contracting Parties to report on the implementation and effectiveness of the specified OSPAR measures in the vinyl chloride industry and to the reporting requirements under OSPAR Decisions 98/4 and 98/5.

The 2008 assessment shows that for those Contracting Parties which provided information, they have reported that the measures are fully implemented. The plants appear to be in compliance with the requirements of the Recommendations. Where the requirements are in 'concentrations', it is not possible to compare with reported 'specific loads'.

From the 2004 assessment, we noticed that these Recommendations are not relevant in all the countries.

The lead country suggests that future reporting on the OSPAR Recommendations from the VCM sector will not be necessary. The main reasons are the environmental level that has been achieved and the fact that the requirements of OSPAR recommendations have now been taken up by the IPPC Directive and the reporting requirements under EPER.

Récapitulatif

En collaboration avec le Royaume-Uni, la Norvège a évalué les rapports notifiés par les Parties contractantes sur la mise en œuvre et l'efficacité des mesures OSPAR relatifs à l'industrie de chlorure de vinyle, tel qu'exigé aux termes de la Recommandation OSPAR 2006/1.

En 2004 la Norvège a évalué la mise en œuvre de la production de VCM et de PVC dans le contexte des Recommandations PARCOM 96/2 et 96/3 et des Décisions OSPAR 98/4 et 98/5.

Les Décisions OSPAR 98/4 et 98/5 ont été amendées par la Décision OSPAR 2006/1 et la première notification de mise en œuvre s'est faite durant la période intersessionnelle 2008/2009 pour les installations nouvelles et existantes. La Recommandation porte sur l'engagement des Parties contractantes de notifier la mise en œuvre et l'efficacité des mesures OSPAR spécifiées pour l'industrie de chlorure de vinyle. Elle porte également sur les exigences de notification dans le contexte des Décisions OSPAR 98/4 et 98/5.

L'évaluation de 2008 indique que les mesures ont été pleinement mises en œuvre dans le cas de toutes les Parties contractantes ayant fourni des informations. Il semblerait que les installations sont en conformité avec les exigences des Recommandations. Cependant, il n'y a pas été possible de faire une comparaison avec les « charges spécifiques » notifiées lorsque les exigences sont notifiées en tant que « concentrations ».

L'évaluation de 2004 indique que les Recommandations ne sont pas pertinentes pour tous les pays.

Les pays pilotes suggèrent qu'à l'a venir la notification des Recom mandations OSPAR concernant le secteur du VCM ne sera pas nécessaire ; ceci en raison du fait que les niveaux environnementaux sont atteints et que les ex igences des recommandations OSPAR sont contenues dans la Directive IPPC et les exigences de notification dans le cadre de l'EPER.

1. Background

The purpose of Reco mmendation 2006/1 is to simplify and rationalize the existing repo rting commitments by replacin g the existing implement ation reporting formats in the specifie d OSPAR measures with one single reporting format an d aligning the reporting years set out in the following measures.

Through this implementation overview, Norway has prepared an assessment on implementation and effectiveness of the following OSPAR Decisions and Recommendations;

OSPAR Decision 98/4 on Emission a nd Discharge Limit Va lues for the Manu facture of Vinyl Chloride Monomer (VCM) including the Manufacture of 1,2-dichloroethane (EDC);

OSPAR Decision 98/5 on Emission and Discharge Limit Values for the Vinyl Chloride Sector, Applying to the Manufacture of Suspension-PVC (s-PVC) from Vinyl Chloride Monomer;

OSPAR Recommendation 99/1 on t he Best Ava ilable Techniques for the Manufacture of Emulsion PVC (e-PVC);

OSPAR Recommendation 2000/3 on Emission and Discharge Limit Values for the Manufacture of Emulsion PVC (e-PVC) from Vinyl Chloride Monomer;

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2. Overview Assessment of the Implementation of the Recommendations

The assessment is based on national implementation reports from Germany, Norway, Spain, Sweden, United Kingdom and The Netherlands. Denmark, Finland, Iceland, Ireland, Luxembourg, Portugal and Switzerland reported that they have no plants.

Belgium submitted Flemish data and was requested to forwa rd data from Wallonia[1]. Belgium later reported that Brussels Capital Industry does not have VCM-industries on its t erritory. No report was received from France, neither in 2004 nor in 2008. France reported that t hey had difficulties in identifying the relevant in dustries and in repo rting in the reque sted format be cause this inf ormation was not readily available but needed to be specifically collected from industry.

Even though the number of reports is limited, Norway has worked out an overview and assessment of the implementation.

The assessment shows that for t hose Contracting Parties which provided information, the plants appear to be in compliance with the requirements of the Recommendations.

[1] The data from Flanders was not assessed as data from Wallonia was not made available.

3. Next Steps

In the light of these findings, the lead country suggests that future reporting on the OSPAR Recommendations from the VCM sector will not be necessary. The main reasons for this are the environmental level that has been achieved and the fact that the role of OSPAR recommendations has now been taken up by the IPPC Directive and the reporting requirements under EPER.

Appendix 1: Implementation and effectiveness of OSPAR measures relating to the vinyl chloride sector

Countries: Germany, Norway, Spain, Sweden, The Netherlands and United Kingdom.

I. Implementation

Measure	Reservation applies Yes[(1)]/No	Is the measure applicable in your country? Yes/No[(2)]	Is the measure fully implemented? Yes/No[(3)]	Means of implementation [(4), (5)] 1. legislation 2. administrative action 3. negotiated agreement
PARCOM Decision 98/4 on Emission and Discharge Limit Values for the Manufacture of Vinyl Chloride Monomer (VCM) including the Manufacture of 1,2 dichloroethane (EDC)	No reservation for the reporting countries	Yes for all reporting countries.	Yes for all reporting countries.	Germany: 1 Netherlands: 1,2 Norway: 2 Spain: 1,2,3* Sweden: 2 United Kingdom: 1,2
PARCOM Decision 98/5 on Emission and Discharge Limit Values for the Vinyl Chloride Sector, Applying to the Manufacture of Suspension-PVC (s-PVC) from Vinyl Chlori de Monomer (VCM)	No reservation for the reporting countries	Yes for all reporting countries.	Yes for all reporting countries.	Germany: 1 Netherlands: 1,2 Norway: 2 Spain: 1,2,3* Sweden: 2 United Kingdom: 1,2
OSPAR Recommendation 99/1 on the B est Available Techniques for the Manufacture of Emul sion PVC (e-PVC)	No reservation for the reporting countries	Yes for 5 reporting countries. No for The Netherlands.	Yes for 5 reporting countries.	Germany: 1 Norway: 2 Spain: 1,2,3* Sweden: 2 United Kingdom: 1,2
OSPAR Recommendation 2000/3 on Emission and Discharge Limit Values for the Manufacture of Emul sion PVC (e-PVC) from Vi nyl Chloride Monomer	No reservation for the reporting countries	Yes for 5 reporting countries. No for The Netherlands	Yes for 5 reporting countries.	Germany: 1 Norway: 2 Spain: 1,2,3* Sweden: 2 United Kingdom: 1,2

* European voluntary agreement

Note (1)

Please report on any progress towards lifting the reservation:

No comments from any country.

Note (2)

If the measure concerned is not applicable please state why (e.g. no relevant plant):

Germany: Emission to water not applicable for Bavarian plants, because the waste water doesn't drain into the North-East-Atlantic.

The Netherlands: No plants are manufacturing e-PVC.

Note (3)

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

United Kingdom: Our understanding is that the measures have been fully implemented. However, this understanding is not based on a full audit, and is based on information supplied by the operators under the PPC framework.

Note (4)

Please specify the national measures taken to give effect to each of the measures:

Germany: 1st OSPAR Ordinance (Erste OSPAR-Verordnung, BGBl. 1999 II, p. 618) implementing OSPAR Decisions 98/4 and 98/5. Ordinance on Requirements for the Discharge of Waste Water into Waters -Waste Water Ordinance – AbwV- of 17 June 2004 (BGBl. 2004 I, p. 1108). Technical Instructions on Air Quality: Section 5.4.4.1h.1 Installations for the Production of Polyvinylchloride (GMBl. 2002, Heft 25 – 29, S. 511 – 605)

The Netherlands: By legislation: specified regulation under environmental law. Administrative action: related IPPC Brefs are disseminated to licensing authorities; this documentation also refers to the OSPAR measures and mentions the industrial plants concerned.

Norway: The requirements are included in the permits.

Sweden: Requirements considered when a new permit has been issued.

United Kingdom: Plants in the vinyl chloride sector are controlled under the Pollution Prevention and Control (PPC) regime for controlling pollution from certain industrial activities. From 6 April 2008 PPC it has been incorporated into the framework of the Environmental Permitting Regulations (EPR).

Note (5)

Please specify any special difficulties encountered, such as practical or legal problems, in the implementation of each of the measures: *No comments from any country.*

II. Effectiveness

Limit values for emissions and discharges

Please indicate the emissions and discharges of the substances and sum parameters listed in the tables for the following vinyl-chloride and PVC plants or installations.

Where plants are operated in an integrated manner (an “installation”), plant-by-plant reporting is not required and reporting should cover the installation. Where an installation produced VCM and/or e-PVC and/or s-PVC, the reporting table should be combined ensuring that all parameters set out in the tables below were covered. Please give representative figure for each pollutant and - if possible - the observed range of figures from all plants.

Reporting on VCM and EDC parameters is on a voluntary basis.

Please also indicate - in brackets behind the figures – whether emission or discharge values are estimated (E), measured (M) or calculated (C). If data could not be made available, please indicate in the appropriate “remarks” section (*e.g.* if monitoring of substance in question is not specified in the permit for the plant or installation, and estimations or calculations are not available).

“Specific loads” are the amounts of emissions or discharges for each unit (usually tonne) of production that is produced in the year in question. “Total loads” are the amounts of emissions or discharges from the plant or installation in the year in question.

2. Vinyl Chloride Monomer (VCM) plants including manufacture of 1,2-dichloroethane (EDC) covered by OSPAR Decision 98/4

a. Emissions to air

Substances	Specific load[1], In reporting year[2] *, kg/tonnes of VCM produced					Alternatively: Total load in reporting year kg/year (comparison with the base year) **	Alternatively: Concentration mg/m^3 ***
Contracting Parties	Germany 10 plants	Norway 1 plant	Spain 3 plants 1)	Sweden 1 plant	United Kingdom 1 plant	The Netherlands 1 plant	2) Germany, The Netherlands and Spain
Capacity	Total capacity 3 150 000 tonnes VCM/year	Total capacity 550 000 tonnes VCM/year	Total capacity 300 000 tonnes VCM/year	Total capacity 160 000 tonnes VCM/year	Total capacity 350 000 tonnes VCM/year	Total capacity 600 000 tonnes VCM/year	
VCM Limit value: 5 mg/Nm^3	Range: 0.0188 – 1.2E-10^{-4}	0.001	0.00025 (M)	0.020	0.0253	unknown	
EDC Limit value: 5 mg/Nm^3	Range: 0.155 – 1.5E-10^{-4}	0.02	0.00013 (M)	0.034	0.224	< 1 kg (estimated)	
Dioxins [a)] 0.1 ng (TEQ) /Nm^3	Range: 0.03 10^{-3} – 3.3 10^{-8} mg (TEQ)/t VCM	0.03 10^{-3} mg TEQ/t VCM produced [a)]	[a)]	0.006*10^{-3} [a)]	0.0000294 [a)]	< 1 mg (measured)	[a)]

* Please indicate under "remarks" how specific loads were calculated.

** If reporting total loads, please add a baseline load for (2001) and please indicate associated actual production of VCM and report under "remarks" when installed production capacities have changed.

*** Please indicate the associated volumetric flow-rate and whether fugitive emissions are included.

[a)] mg (TEQ)/tonne of VCM produced **or** mg (TEQ)/year **or** ng (TEQ)/Nm^3.

1) Three plants in Spain. Data for only one plant is available.

2) Germany, The Netherlands and Spain have in addition to the specific load also reported on the alternative: concentration mg/m^3, see the national reports.

b. Discharges to water

Substances	Specific load[2] In reporting year[3]* ([c]) 2007					Alternatively: Total load in reporting year ** kg/year ([c])	Alternatively: Concentration mg/m^3 ***
Contracting Parties	Germany	Norway	Spain	Sweden	United Kingdom	The Netherlands	1) Germany, The Netherlands and Spain
Chlorinated hydrocarbons [a] (g/tonne EDC purification capacity) Limit value: 0,7 g/t	Range: 1,2 – 0,03 (12/52/365)	0,0025	0,12 (M)	0,03	See remarks	Process water < 1 (estimated) cooling water 473 (direct discharge) (measured)	
Copper (total) [b] (g/tonne of oxy- chlorination capacity) Limit value: 0,5 g/t fixed bed 1,0 g/t fluidised bed	Range: 0,6 – 4,9 · 10^{-3} (52/260)	0,071	1,01 (M)	0,06	See remarks	300 (estimated)	
Dioxins [b] (µg TEQ/ tonne oxychlorination capacity) Limit value: 1 µg TEQ/t	Range: 1,65 – 0,0037 (4)	0,028	0,55 (M)	0,05 – 0,09	See remarks		

* Please indicate under "remarks" how specific loads were calculated.

** If reporting total loads, please add a baseline load for (2001) and please indicate associated actual production of VCM and report under "remarks" when installed production capacities have changed.

*** Please indicate the associated volumetric flow-rate.

[a] To be sampled after stripper, before secondary treatment. Chlorinated hydrocarbons may alternatively be calculated from AOX or EOX if a correlation, on a plant-by-plant basis, has been established. The application of those alternatives should be described in the implementation report.

[b] To be sampled after final treatment.

[c] In brackets: (Number of samples).

1) Germany, The Netherlands and Spain have in addition to the specific load also reported on the alternative: concentration mg/m^3, see the national reports.

[2] Wherever possible this parameter should be reported.

[3] The year for which data are to be reported in 2008/2009 is 2007.

c. Remarks: (i.e. explanation if change in production capacity in the country appeared, method to calculate specific loads)

Remarks from Germany:

Method to calculate specific loads: Sum of emissions from several point sources in kg/a divided by production/a of VCM.

a) Emissions to air: VCM: In one plant there are no defined emission point sources; all waste streams and residues are incinerated (HCl recovery); VCM was not detected in 3 EDC plants.

b) Discharges to water: Method to calculate specific loads: Sum of Cu-Emissions/a divided by Oxychlorination capacity/a. Dioxine: No data from 3 plants. The value of 1,65 µg TEQ/t h as been measured after stripping and before final treatment; data after final treatme nt are in some cas es not availa ble or not detected.

Copper: No data from 3 plants. Specific loads were calculated.

Remarks from The Netherlands: Based on 2004 EPER data. Annual report on environmental issues (mandatory) from the company concerned (Shin Etsu PVC B.V.), issued Sep 2008, reporting data from 2007. Actual production of VCM in 2007 was appr. 550.000 tonnes.

Remarks from Norway: Oxychlorination capacity = Max. VCM-production (550 kg/y) * MWEDC(=98,96)/MWVCM(=62,5) * ½ = 435,4 kg/y.

EDC purification capacity: Highest average feed rate to the EDC column over a period of 7 consecutive days = 4580 t/d = 1672 kt/y.

Remarks from Spain:

Trough analytical data by an external body (agreed by the administration), in case of air emissions, and through internal analytical data, in case of discharges to water. The specific load for air emissions includes fugitive emissions. These fugitive emissions have been calculated with the ECVM method (EPA 21).

Remarks from United Kingdom:

There is no direct discharge to controlled waters from the VCM production plant. All aqueous effluent is fed to an on-site Effluent Treatment Plant that collects and treats waste streams from several other manufacturing plants. For this reason it is not possible to quantify the individual environmental load from specific feeder plants for the purposes of this report.

Remarks from Sweden:

Specific loads under a. are point sou rces in VCM pl ant only. The loss in the harb our is ne gligible by co mparison, while the tan k storage a dds 0,016 kg EDC/tonnes VCM produced (some intermediates are shipped). Fugitives for VCM + PVC plants together were 8 tonnes VCM, 35 tonnes EDC

The capacity values are of questionable environmental relevance; EDC purification capacity taken to be permitted prod uction, oxychlorination capacity taken to be permitted VCM production (whereas actual production was about 90 % of this value). Dioxin range: lower value if values below detection limit are set to zero, the higher value if these values are instead set to the limit.

3. Suspension-PVC (s-PVC) covered by OSPAR Decision 98/5

a. Emissions to air

Substances	Specific load[4] In reporting year[5]* g/tonne of s-PVC produced					Alternatively: Total load in reporting year kg/year (comparison with the base year) **
Contracting Parties	Germany: 7 plants.	Norway: plant.	Spain: 3 plants 1)	Sweden: 1 plant. 2) + 3)	United Kingdom: 3 plants	The Netherlands: 1 plant
Capacity (tonnes s-PVC/year)	Total capacity 1 766 000	Total capacity: 170 000	Total capacity 275 000	Total capacity 260.000	Total capacity Plant 1: 120.000 Plant 2: 274.000 Plant 3: Not reported	Total capacity unknown
VCM (point sources) Limit value: 80 g/t	Range: 1.2 – 60	22	4.35 (C)	69	Plant 1:67.9 Plant 2: 4.5 (M) (2007) Plant 3: 15.5	{ total VCM emission 3.300 kg in 2007 (2004: 5.800)
VCM (fugitives) Limit value. 80 g/t	Range: 0.34 – 18	15	2.00 (C)		Plant 1: 5.97 Plant 2: 26 (E****) (2007) see also comments below Plant 3: 3.5	

* Please indicate under "remarks" how specific loads were calculated.
** If reporting total loads, please add a baseline load for (2001) and please indicate associated actual production of VCM and report under "remarks" when installed production capacities have changed.
*** Please indicate the associated volumetric flow-rate.
**** Measurements undertaken using agreed European methodology recommended by ECVM (European Council of Vinyl Manufacturers) -> UK comments

1) Three plants in Spain. Data for only one plant is available.
2) Sweden reports for s + e-PVC, see remarks.
3) Sweden has in addition to the specific load also reported on the alternative: total load, see the national report.

[4] Wherever possible this parameter should be reported.

[5] The year for which data are to be reported in 2008/2009 is 2007.

b. Discharges to water

Substances	Specific load[6] In reporting year[7]* g/tonne of s-PVC produced					Alternatively: Concentration mg/l ***
Contracting Parties	Germany	Norway	Spain 1)	Sweden	United Kingdom	The Netherlands
VCM [a), b)] Limit value: 5 g/t	Range: < 0.29 – 1.6	2.4	0.29 (M)	See 3 b	Plant 1: 0.214 Plant 2: 0.57 (M) (2007) Total Site Effluent Volume = 852.408 m^3 Plant 3: 0.3	Non detectable after on site biological treatment

* Please indicate under "remarks" how specific loads were calculated.

** If reporting total loads, please add a baseline load for (2001) and please indicate associated actual production of VCM and report under "remarks" when installed production capacities have changed.

*** Please indicate the associated volumetric flow-rate.

a) Please state correlation when VCM data are based on AOX or EOX measurements.

b) After effluent stripper, before secondary treatment.

1) Spain has in addition to the specific load also reported on the alternative: concentration mg/m^3, see the national report.

c. Remarks: (i.e. explanation if change in production capacity in the country appeared, method to calculate specific loads)

Remarks from Germany:

VCM (point sources): sum of

- Emissions from product (VCM in PVC suspension – VCM in final product) in (g/t); average from individual measurements for all products
- Emissions from tank venting; average from individual measurements (mg/m^3)· Volume of vent gas/a (m^3/a)
- Emissions from reactor openings: average from individual measurements/opening (g/opening)· number of openings (opening/a)

VCM (fugitives): Worst case assumption- Detection limit of GC-method for continuous control of ambient air (mg/m^3)· power of air fans (m^3/a)

6 Wherever possible this parameter should be reported.

7 The year for which data are to be reported in 2008/2009 is 2007.

Discharges to water: In two cases the VCM load is the result from the sum of E- und S-PVC production; so a value for the specific load in each case (E- and S-PVC) is not possible.

Remarks from Spain:

Specific loads were calculated through internal analytical data, in the case of discharges to water, and through a mass balance in the case of. air emissions.

For fugitive air emissions, EPA 21 method is used.

Remarks from Sweden:

Note that the specific loads are calculated for the s- and e-PVC plants together. The baseline load 2001 for fugitive VCM was 26 500 kg; the permitted production then was the same. The values show fugitive emission for the whole plant.

Remarks from United Kingdom:

In addition to the 26g/tonne in 2007 there was a controlled release of VCM from a “bursting” disk that equates to an estimated 25.5g/tonne. For comparison our 2006 figures were 6g/tonne (point source) and 31g/tonne (fugitive sources – estimated).

The mass discharge to controlled waters from the PVC production plant was calculated from the mean measured concentration of VCM in the effluent over the reporting period, comprising of 49 regulatory monitoring samples and the monthly mean measured volumetric flow rate of the outfall.

4. Emulsion-PVC Plants (e-PVC) covered by the OSPAR Recommendations 99/1 and 2000/3

a. Emissions to air:

Substances	Specific load[8] [a)] In reporting year[9]* g/tonne of e-PVC produced				
Contracting Parties	Germany: 5 plants. Total capacity: 476.000 tonnes e-PVC/year	Norway: 1 plant. Total capacity: 40.000 tonnes e-PVC/year	Spain: 2 plants Total capacity: tonnes e-PVC/year	Sweden: (see remarks) Total capacity: tonnes e-PVC/year	United Kingdom
VCM (point sources)	Range: 120 – 326 (>12 – 599)	865	No report	See 2	No plant
VCM (arising from PVC waste – all environmental routes)	Range: 0 – > 1	-	No report		No plant

* Please indicate under "remarks" how specific loads were calculated.

** If reporting total loads, please add a baseline load for (2001) and please indicate associated actual production of VCM and report under "remarks" when installed production capacities have changed.

*** Please indicate the associated volumetric flow-rate and whether fugitive emissions are included.

[8] Wherever possible this parameter should be reported.

[9] The year for which data are to be reported in 2008/2009 is 2007.

b. Discharges to water

Substances	Specific load[10] In reporting year[11]* g/tonne of PVC produced				
Contracting Parties	Germany	Norway	Spain	Sweden	United Kingdom
VCM (producing only e-PVC) [a), b)]	1,75	-	No report		No plant
VCM (producing e-PVC and s-PVC at the same site) [a), b)]	Range: 0,1 – 1,6	2,4	No report	0,23	No plant

* Please indicate under "remarks" how specific loads were calculated.
** If reporting total loads, please add a baseline load for (2001) and please indicate associated actual production of VCM and report under "remarks" when installed production capacities have changed.
*** Please indicate the associated volumetric flow-rate.

a) Please state correlation when VCM data are based on AOX or EOX measurements.
b) After effluent stripper, before secondary treatment.

c. Remarks: (i.e. explanation if change in production capacity in the country appeared, method to calculate specific loads)

Remarks from Germany:

Sum of VCM in E-PVC Latex and ambient air divided by E-PVC production/a.

VCM (Waste): No data from 2 plants. In one case there was no VCM detected in PVC-waste.

Remarks from Sweden:

Note that the specific loads are calculated for the s- and e-PVC plants together. The baseline load 2001 for fugitive VCM was 26 500 kg; the permitted production then was the same. The values show fugitive emission for the whole plant.

10 Wherever possible this parameter should be reported.

11 The year for which data are to be reported in 2008/2009 is 2007.

5. Assessment made by the Lead Country

The 2008 assessment shows that even if reports are missing from six countries, the general impression is that the plants are in compliance with the requirements of the Recommendations. Where the requirements are in 'concentrations', it is not possible to compare with reported 'specific loads'. The Contracting Parties have reported that the measures are fully implemented.

From the 2004 assessment, we noticed that these Recommendations are not relevant in all the countries.

The evidence on the implementation of the suite of recommendations and legally binding Decisions should be reported by each of the Contracting Parties before a decision can be taken about future implementation reporting.

The lead Country will, however, suggest that future reporting on the OSPAR Recommendations from the VCM sector will not be necessary. The main reasons are the environmental level that has been achieved and the fact that the role of OSPAR recommendations have now been taken up in the IPPC Directive and the reporting requirements under EPER.

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