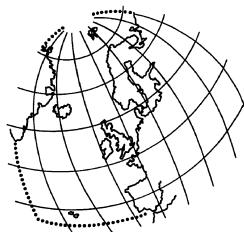


Methoxychlor¹



OSPAR Commission 2002 (2004 Update)

¹ Secretariat's note: A review statement on methoxychlor (Publication 352d/2008) was adopted in 2008, highlighting new developments since the adoption of the Background Document.

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

Methoxychlor is a chlorinated methoxyphenylethane used as an insecticide whose activity is due to either contact with or ingestion by the targeted pest. It is persistent, it bioaccumulates and is very toxic to aquatic organisms. It has potentially endocrine-disrupting properties and it was included in the List of Chemicals for Priority Action in 2000.

Methoxychlor could reach the environment through the use as a plant protection product, as a veterinary product and as a biocide. The use of methoxychlor stopped in most countries around 1999. In the United Kingdom the use was already prohibited in the 1970s. Germany and Belgium prohibited the use in 1995 and 2000. There is only a marginal use remaining in forestry in Spain.

Methoxychlor has been detected in surface water in Belgium in very low concentrations (6-14 ng/l). In France concentrations were found up to 0,01 µg/l (90 percentile) in surface water and groundwater. In the United Kingdom concentrations were between 0,1 and 0,5 µg/l in a limited number of samples of surface water.

The EC has not banned or restricted the use of methoxychlor. However, the chemical industry has agreed on a voluntary withdrawal of methoxychlor from the market and it is therefore expected that it will be phased out in July 2003 under Council Directive 91/414/EEC concerning the placing on the market of plant protection products. This does not exclude that methoxychlor could be used again under Council Regulation (EEC) 2377/90 laying down a Community procedure for the establishment of maximum residue limits of veterinary medicinal products in foodstuffs of animal origin.

The action proposed is: whilst noting the phase out of methoxychlor under Council Directive 91/414/EEC as an agricultural pesticide, non-EU/EEA Member States to pursue national measures to the same effect; to invite the European Agency for the Evaluation of Medicinal Products to inform OSPAR on any proposals for future use; to make national authorities for the approval of human and veterinary medicines aware of this background document; to invite the EC to consider a prohibition under Council Directives 76/769/EEC and 79/117/EEC; to insist on testing of methoxychlor in accordance with agreed guidelines for detecting the endocrine-disrupting potential of chemicals before any future approval; and to ask other relevant international forums to take account of this background document and consider coordinated efforts by Contracting Parties in UNECE-LRTAP and UNEP POPs Convention.

A monitoring strategy for methoxychlor is annexed to this background document.

RECAPITULATIF

Le méthoxychlore est un méthoxyphényléthane chloré, utilisé comme insecticide actif soit par contact, soit par ingestion par le parasite ciblé. Il est persistant, s'accumule biologiquement et est très toxique pour les organismes marins. Il possède peut-être des propriétés de perturbation du système endocrinien et a été inscrit en 2000 sur la Liste des produits chimiques devant faire l'objet de mesures prioritaires.

Le méthoxychlore peut aboutir dans l'environnement du fait qu'il est utilisé comme produit phytosanitaire, comme produit vétérinaire et comme biocide. Son emploi a cessé dans la plupart des pays en 1999. Au Royaume-Uni, il est interdit depuis les années 1970. L'Allemagne et la Belgique en ont interdit l'emploi en 1995 et en 2000. Il ne subsiste qu'une application marginale dans la sylviculture en Espagne.

Le méthoxychlore a été décelé dans les eaux de surface en Belgique à de très faibles teneurs (de 6 à 14 ng/l). En France, les teneurs constatées atteignaient 0,01 µg/l (90^{ème} percentile) dans les eaux de surface et dans la nappe phréatique. Au Royaume-Uni, les teneurs observées sur un petit nombre d'échantillons d'eau de surface se situaient entre 0,1 et 0,5 µg/l.

La CE n'a ni interdit ni restreint l'emploi du méthoxychlore. Cependant, l'industrie chimique a accepté de le retirer volontairement du marché, et il devrait donc être abandonné en juillet 2003, ceci en vertu de la Directive 91/414/CEE du Conseil, relative à la mise sur le marché des produits phytosanitaires. Ceci n'exclut pas que le méthoxychlore pourrait de nouveau être utilisé en conséquence du Règlement du Conseil (CEE) 2377/90 qui fait état d'une procédure communautaire de fixation des plafonds de résidus de produits de médecine vétérinaire dans les aliments d'origine animale.

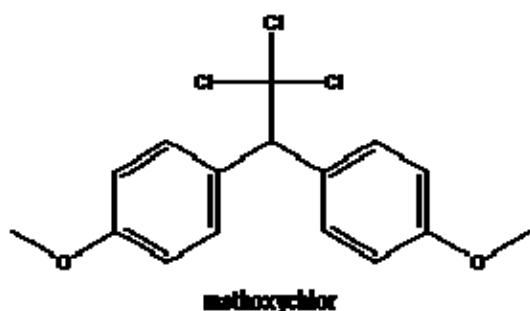
Les mesures préconisées sont les suivantes : tout en prenant acte de l'abandon du méthoxychlore en conséquence de la Directive 91/414/CEE du Conseil, ceci comme pesticide agricole, il convient que les Etats membres ne faisant pas partie de l'Union européenne ni de l'Agence européenne pour l'environnement prennent des mesures ayant le même effet au plan national ; inviter l'Agence européenne d'évaluation des produits médicaux à renseigner OSPAR sur toutes propositions d'utilisation dans l'avenir ; attirer l'attention des autorités nationales chargées d'autoriser les produits de la médecine humaine et de la médecine vétérinaire sur le présent document de fond ; inviter la CE à envisager une interdiction en vertu des Directives 76/769/CEE et 79/117/CEE du Conseil ; avant d'accorder une quelconque autorisation dans l'avenir, insister sur les tests du méthoxychlore, à effectuer conformément aux lignes directrices convenues pour déterminer le potentiel de perturbation du système endocrinien des produits chimiques ; demander aux autres instances internationales compétentes de prendre en considération le présent document de fond, et envisager des initiatives coordonnées par les Parties contractantes dans le cadre de la Convention LRTAP de la Commission économique des Nations Unies pour l'Europe et de la Convention du PNUE sur les POP.

Une stratégie de surveillance sur le méthoxychlore est annexée à ce document de fond.

1. IDENTIFICATION OF ALL SOURCES OF METHOXYCHLOR AND ITS PATHWAYS TO THE MARINE ENVIRONMENT

1.1 Substance

Methoxychlor (chemical name: 1,1,1 trichloro-2,2-di(methoxyphenyl)ethane; CAS No 72-43-5) was included as one of the substances on the OSPAR List of Chemicals Identified for Priority Action at the meeting of the OSPAR Commission held in Copenhagen, 26-30 June 2000. Methoxychlor was selected on the OSPAR 1998 List of Candidate Substances as a substance belonging to the OSPAR List of Potential Endocrine Disrupters. Methoxychlor is an insecticide whose activity is due to either contact with or ingestion by the targeted pest. It is persistent ($T_{1/2}$ 46 days in water), bioaccumulative (BCF 2870, Log K_{ow} 4.3) and very toxic to aquatic organisms (see fact sheet at Annex 1).



1.2. Identification of sources

Main sources of methoxychlor into the environment are:

- use as a plant protection product:
 - no current use in OSPAR countries;
- use as a veterinary product:
 - no current use as a veterinary medicine;
- use as a biocide:
 - no current use as a biocidal product (indoor use).

The use of methoxychlor as a pesticide/biocide ceased in most countries around 1990. In the United Kingdom the use was already prohibited in the 1970s. The final decisions with respect to prohibition were taken in 1995 in Germany and in 2000 in Belgium.

Methoxychlor is, however, identified by the European Chemical Bureau (ECB) as a biocidal active substance that has been on the European market before 13.5.2000 (the implementation of the Biocide Directive 98/8/EC). Based on this identification, the chemical industry has been able to notify before July 2002 its interest for future marketing of methoxychlor as a biocide.

Methoxychlor has a low vapour pressure and low solubility, and possibility of long-range transport can not be ruled out under some environmental conditions, though its photo-oxidation with hydroxyl radicals is fast.

2. QUANTIFICATION OF SOURCES AND ASSESSMENT OF THE EXTENT OF THE PROBLEMS AND EXISTING MONITORING DATA

2.1 Production and import of methoxychlor

The chemical industry has not provided any information on the production volumes of methoxychlor in Europe or anywhere else. Based on a report of WWF (2001), no producers or importers of methoxychlor do exist in Europe (IUCLID –database).

2.2 The use of methoxychlor as a pesticide / biocide

Finland has sent an inquiry on the use of methoxychlor to all OSPAR Contracting Parties and CEFIC. The following information was asked:

- the amounts of methoxychlor used and sold as a pesticide/biocide;
- other types of uses;
- possible restrictions on use;
- all existing monitoring data or any other relevant information.

All the OSPAR countries, except Luxembourg, responded to the inquiry. The results given below are based on the information obtained from the competent authorities from each country and they show that methoxychlor is not used anymore in other countries than Spain. In Spain this pesticide is used for some specific applications in forests, but the use will cease in 2003 under Council Directive 91/414/EEC concerning the placing on the market of plant protection products. There are no data on the current amounts used but this appears to be marginal.

Methoxychlor is not registered as a pesticide/biocide in the following OSPAR countries: Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, the Netherlands, Norway, Portugal, Sweden, Switzerland and in the United Kingdom. Methoxychlor has been monitored in Belgium, France and the United Kingdom in surface water and in groundwater.

2.3 The use of methoxychlor in veterinary medication

Finland has sent an inquiry on the use of methoxychlor in veterinary medicines to all OSPAR Contracting Parties and the European Agency for the Evaluation of Medicinal Products (EMA). The following information was asked:

- the possible use of the methoxychlor in veterinary drugs;
- the quantities of these drugs sold (content of methoxychlor);
- the diseases that the drugs control.

No veterinary drugs containing methoxychlor are licensed in Denmark, Finland, France, Germany, Iceland, Ireland, Norway, Sweden or the United Kingdom based on the information given by the competent authorities in these countries. According to EMA methoxychlor is not used in EU Member States. Since 1.1.1997 Council Regulation (EEC) 2377/90 (the “MRL Regulation”) requires that veterinary medical products intended for animals produced for human consumption have to be included in Annex I, II or III of the Regulation. No application of methoxychlor has been made under this Regulation.

2.4 Emissions

Based on the information obtained from OSPAR Contracting Parties, it is unlikely that there are any emissions in the OSPAR area from the production or use of methoxychlor as a pesticide biocide. There is no use of methoxychlor in veterinary medicines.

2.5 Monitoring data

Belgium, France and United Kingdom have monitored methoxychlor in the environment.

Belgium

The monitoring of pesticides is performed by the regional authorities. Methoxychlor has not been included in the monitoring programme in Wallonia, but in Flanders methoxychlor has been monitored in surface water and rainwater but not in groundwater. Surface water samples have been taken from more than 3000 locations and in 1999 methoxychlor has been detected in samples of 87 locations, in very low concentrations (between 6 and 14 ng/l). Methoxychlor has not been detected in rainwater in 1998 and 1999.

France

Methoxychlor has been monitored in surface water samples and in groundwater samples in 1998-1999. It has been detected in 414 surface water samples with a 90-percentile concentration of 0,01 µg/l and in 110 groundwater samples showing similar results.

United Kingdom

Methoxychlor has been monitored in surface water from 1993 to 1999. Only in 1999 methoxychlor has been found in quantities over 0,1 µg/l in 7 samples of a total of 90 samples (7,8 %). Two of the samples contained methoxychlor in concentrations higher than 0,5 µg/l. These 7 samples were taken from 7 different sites. Methoxychlor was not found in 2 groundwater samples taken in 1996 and in 4 marine water samples taken in 1999.

2.6 Fate, behaviour and ecotoxicity in the environment

Methoxychlor has a very low vapour pressure and also a very low water solubility (0,1 mg/l). Volatilisation from water may be significant but the half-life for photo-oxidation of methoxychlor with hydroxyl radicals is about 4 hours. This suggests a small risk for long-range atmospheric transport, though the atmospheric photolysis half-life in air may be 12,5-86,3 days (bases on scientific judgement by Howard et al., 1991). When released into the soil, methoxychlor is not mobile. The aerobic degradation rate is slow, possibly negligible, but the anaerobic degradation is faster. Methoxychlor does not hydrolyse under environmentally relevant acidic conditions. In water/sediment experiments, the degradation in sediment under aerobic conditions is slow (HSDB, 2001).

Methoxychlor is extremely toxic to water organisms. The acute LC₅₀ values for fish are 52 and 67 µg/l for rainbow trout and bluegill sunfish, respectively and the acute toxicity to water fleas is 0,8 µg/l (The Pesticide Manual, 1994). The same range of toxicity to other fish and invertebrates were reported in EPA ECOTOX (2001). It has also potential for bioaccumulation. Bioconcentration factors of 8300 have been measured for fathead minnow in a flow-through system, 12 000 in mussel, 5000-8570 in snail, 8400 in algae etc. It is reported that methoxychlor fairly rapidly metabolises in fish. The acute toxicity to mammals and birds is low, but it should be emphasised that methoxychlor is an endocrine disrupting chemical (Cumming, 1997).

3. DESIRED REDUCTION

In 2000, methoxychlor was included in the OSPAR List of Chemicals Identified for Priority Action. The OSPAR objective with regard to hazardous substances is to continuously reduce discharges, emissions and losses with the ultimate aim of achieving concentrations in the marine environment near background values for naturally occurring substances and close to zero for man-made synthetic substances. Every endeavour will be made to move towards the target of cessation of discharges, emissions and losses of hazardous substances by the year 2020 (OSPAR, 1998).

4. IDENTIFICATION OF POSSIBLE MEASURES

4.1 Review of existing national and international measures

The European Community has not banned or restricted the use of methoxychlor at the EU level. There are no licences for the application of veterinary medicines containing methoxychlor in the EU.

Chemical industry has agreed upon a voluntary withdrawal of methoxychlor from the market by not notifying methoxychlor in the third list of the European review of plant protection product active ingredients according to Commission Regulation (EC) 451/2000. The substances that were not notified in the second phase should be phased out on 27 of July 2003 (based on Council Directive 91/414/EEC). There is a possibility for the Commission to decide on a transition period for the withdrawal of a product, but in this case this is unlikely, as it seems that methoxychlor is hardly used anymore. The substance will therefore be phased out as a plant protection product in the near future.

4.2 Possible additional measures

The cessation of the use of methoxychlor can be achieved either on the basis of voluntary agreements with the manufacturing industry and importers or by banning its use through legislation.

The future use of methoxychlor in veterinary medicines can be prevented by not including methoxychlor in the Annexes of Council Regulation (EEC) 2377/90.

No information is available on the existence of industry formulating methoxychlor in the OSPAR region. If there was formulation of methoxychlor for the use as biocide or as plant protection product, control measures for point source discharges and emissions could be studied.

5. CHOICE FOR ACTION

5.1 Assessment of options

5.1.1 Voluntary arrangements

Methoxychlor is not used as a biocidal product (indoor use) at the moment in any of the OSPAR countries. It is, however, listed by the European Chemical Bureau (ECB) as a biocidal active substance that has been on the European market before 13.5.2000. Based on Commission Regulation (EEC) 1896/2000, the substances that are on the ECB list must have either been identified or notified at the latest by 27.3.2002. Identification means that the industry is not interested anymore in the marketing of methoxychlor and that therefore products containing methoxychlor will be withdrawn from the market after a few years allowing a transition period for phase out. Notification of methoxychlor would have led

to a full risk evaluation under the Biocides Directive 98/8/EC. However, verification of the notifications received in the framework of the Biocides Directive has shown that methoxychlor has not been notified for inclusion into any of the annexes of the Directive. As the use of methoxychlor as a plant protection product and as a biocide will terminate in any of the OSPAR countries, a voluntary agreement with the chemical industry for a total ban could be possible.

Based on the information obtained from 8 OSPAR Contracting Parties and EMEA methoxychlor is not used in veterinary medicines. Negotiations with the medicines manufacturing industry should be carried out in order to guarantee that methoxychlor will not be used in future, either.

Based on the WWF (2001) report for OSPAR, no existing producers or importers of methoxychlor are reported in Europe. Unless information on industries formulating methoxychlor will be received, local control measures of discharges and emissions do not seem necessary.

5.1.2 Legal instruments

Methoxychlor will be withdrawn from the EU market under Council Directive 91/414/EEC and will not be listed in Annex I of this Directive. However, in future it is possible for the chemical industry to apply for registration of methoxychlor as a new active substance. The use of methoxychlor as a pesticide could be prohibited by Council Directive 79/117/EEC prohibiting the placing on the market and use of plant protection products. However, after the adoption of Council Directive 91/414/EEC, no prohibitions have been implemented on the basis of Council Directive 79/117/EEC.

The interest of the chemical industry in the use of methoxychlor as a biocide has become clear after 27.3.2002. Methoxychlor has not been notified and therefore a full risk evaluation under Council Directive 98/8/EC will not be carried out. However, as for pesticides a new registration can be applied later. OSPAR could therefore propose to the European Commission to consider the prohibition of the use of methoxychlor on the basis of Council Directive 76/769/EEC of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.

If methoxychlor were registered in future under the Biocides Directive 98/8/EC before the guidelines for detecting the endocrine disrupting potential of chemicals are available and criteria for unacceptable endocrine effects are agreed, OSPAR should insist that methoxychlor be tested and treated under these accepted procedures in future.

Due to the two-step approval procedure of the Biocides Directive 98/8/EC OSPAR Contracting Parties being EU Member States are in a position on the basis of their national authorisation procedures not to approve any products containing methoxychlor for placing on the market and use in their countries. According to the Directive, Member States may only authorise the use of products, which do not cause unacceptable risks to humans and to the environment when used according to the instructions.

5.2 Choice for action/measures

At present the use of methoxychlor as a plant protection product is authorised in three EC Member States. However, methoxychlor was not notified and therefore will, on 1 July 2003, not be included in Annex 1 of Council Directive 91/414/EEC concerning the placing on the market of plant protection products. After that date, products containing methoxychlor will have to be withdrawn from the market.

- OSPAR should therefore note that all uses of methoxychlor as an agricultural pesticide will shortly cease, which means that the main sources of inputs of methoxychlor to the marine environment in previous decades will be phased out;

- OSPAR Contracting States which are not EU or EEA Member States should pursue national measures to the same effect.

Methoxychlor is not currently used as a biocidal product (in enclosed situations) in any OSPAR country. Verification of the notifications received in the framework of the Biocides Directive has shown that methoxychlor has not been notified for inclusion into any of the annexes of the Directive. Biocidal products containing methoxychlor can hence no longer be authorised by EU Member States.

Based on available information, methoxychlor is not currently used in human or veterinary medicines.

- OSPAR should send a copy of this Background Document to the European Agency for the Evaluation of Medicinal Products (EMA), and request to be notified of any consideration of any future proposal in relation to methoxychlor.
- OSPAR Contracting Parties should ensure that their authorities competent for the approval of human or veterinary medicines are aware of this Background Document.
- OSPAR should invite the European Commission to inform it whether the European Commission sees a need for a prohibition under Council Directives 76/769/EEC and 9/117/EEC.

If any proposal for a future approval of methoxychlor is brought forward before the guidelines for detecting the endocrine-disrupting potential of chemicals are available and the criteria for unacceptable endocrine effects have been agreed,

- OSPAR Contracting Parties should insist that methoxychlor should be tested and treated under the agreed procedures.

Based on available information, no producers or importers of methoxychlor are reported to exist in Europe. Unless information on formulation industry will be received, local emission control measures seem unnecessary.

Methoxychlor may not be a critical substance in the North-East Atlantic, but may cause risk to the other regions. Thus, the Contracting Parties should act in other international contexts, as within the European Union and global forums.

- OSPAR should send this Background Document to the European Commission.
- OSPAR Contracting Parties should follow closely the work undertaken under the UN-ECE Convention on the Long-Range Transport of Airborne Pollution and, in addition, participate actively in the work and deliver all the contributions possible to the work of this organisation.
- OSPAR should consider whether there is scope for taking initiatives in relation to methoxychlor under the Stockholm Convention on Persistent Organic Pollutants.
- OSPAR should send copies of this background document to the appropriate bodies dealing with those agreements and invite Contracting Parties who are common parties to OSPAR and those other agreements to promote action to take account of this background document by those other international bodies in a consistent manner.

OSPAR Contracting Parties should be active towards EMA to prevent the inclusion of methoxychlor in Annexes of Council Regulation (EEC) 2377/90 if applied in future.

Contracting Parties should consider if methoxychlor is a persistent organic pollutant (POP) candidate substance and act accordingly in other international forums.

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ANNEX 1: OSPAR FACT SHEET METHOXYCHLOR

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
0	VERSION:		30.8.2001			
1	IDENTIFICATION					
1.1	Cas No		72435			
1.2	EINECS/ELINCS		200-779-9			
1.3	Name		Benzene, 1,1'-(2,2,2-trichloroethylidene)bis(4-methoxy-			
1.4	Synonym		Methoxychlor			
1.5	Group/Function		Pesticide			
2	PHYSICAL/CHEMICAL PROPERTIES					
2.1	Molecular weight, g/mole		345.66 QSAR-DK			
2.1		5000 orl-rat, Lewis & Sweet 1984 1850 o	3.46E+02 envichem			
2.2	Water solubility, mg/l		3.02E-01 QSAR-DK			EPIWIN 3.02
2.2		0.04 24°C	4.00E-02 envichem			
2.2		0	0.00E+00 DK_pest	Danish EPA, Strandgade 29, DK 1401 Copenhagen K		
2.3	Vapour pressure, Pa		3.44E-04 QSAR-DK			EPIWIN 3.02
3	ABIOTIC/BIOTIC DEGRADATION PROPERTIES					
3.1	Abiotic OH-oxidation t $\frac{1}{2}$ d		0.2 QSAR-DK			EPIWIN 3.02
3.2	Photolysis t $\frac{1}{2}$ d					
3.3	Ready Biodegradability					
3.4	Halflife	46	10.01 DK_pest	Danish EPA, Strandgade 29, DK 1401 Copenhagen K	9	
3.5	Inherent Biodegradability					

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
3.6	Biodeg-QSAR					
3.6			0.3834 QSAR-DK			BIOWIN1
3.6			1.5126 QSAR-DK			BIOWIN3
3.6			Not inherent QSAR-DK			Interpretation of BIOWIN1 and BIOWIN3
3.6			0.202 QSAR-DK	Environ.Tox.Chem. 18(8): 1763-1768. Environ.Tox.Chem. 19(10): 2478-2485.		Syracuse version of H. Loonen's Simca Fragment linear MITI model.
3.6			0.0063 QSAR-DK	Environ.Tox.Chem. 18(8): 1763-1768. Environ.Tox.Chem. 19(10): 2478-2485.		Syracuse version of H. Loonen's Simca Fragment non-linear MITI model.
3.6			Not Ready QSAR-DK	Draft Advisory list for self-classification of dangerous substances 2001. Danish EPA p. 39. http://www.mst.dk/activi/01050000.htm .		Danish EPA Multicase biodeg model on MITI substances
4	BIOACCUMULATION/BIOCONCENTRATION					
4.1	logKow		6 QSAR-DK			EPIWIN 3.02
4.1		4.3 Mackay 1982	4 envichem		5.00	
4.1			5 IUCT			IGE fact sheet
4.2	Bcf		1622 QSAR-DK			EPIWIN 3.02

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
4.2		2870	2870 aquire3	Bookhout,C.G., J.D.Costlow,Jr., and R.Monroe(1976). Effects of Methoxychlor on Larval Development of Mud-Crab and Blue Crab Water Air Soil Pollut. 5(3):349-365	5.63	
4.2			70700 qsar	Lakota,S., A.Raszka, I.Kupczak, S.Hlond, J.Stefan, and J.Roszkowski (1978). The Effect of Methoxychlor and Propoxur on the Health of Carp Fry (Cyprinus carpio L.) Acta Hydrobiol. 20(3):197-205	8.75	
5	AQUATIC TOXIC PROPERTIES					
5.1	Acute toxicity algae, mg/l	70700	0.02 aquire1_2	Wurtsbaugh,W.A. and C.S.Apperson (1978). Effects of Mosquito Control Insecticides on Nitrogen Fixation and Growth of Blue-Green Algae in Natural Plankton Associations Bull. Environ. Contam. Toxicol. 19:641-647	9.17	
5.1		8	0.008 aquire3	Paris,D.F. and D.L.Lewis(1976) Accumulation of Methoxychlor by Microorganisms Isolated From Aqueous Systems Bull. Environ. Contam. Toxicol. 15(1):24-32	9.17	

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
5.2	Acute toxicity daphnia, mg/l	0,42	0.00042 aquire1_2	Armstrong,D.A., D.V.Buchanan, M.H.Mallon, R.S.Caldwell, and R.E.Millemann (1976). Toxicity of the Insecticide Methoxychlor to the Dungeness Crab Cancer magister Mar. Biol. 38:239-252	9.17	
5.2		0,00078	0.00078 fraunhofer	Fraunhofer Institute, Umweltchemieund Økotoxikologie, 57377 Schmallingenberg, Germany	9.17	
5.2		0.0005 96 hr, Orconectes nais, Sanders 1972	0.0005 envichem	Sanders, H.O. 1972. The toxicities of some insecticides to four species of malacostracan crustacea. Fish Pesticide Res. Lab. Columbia, Mo., Bureau of Sport Fish and Wildlife.	9.17	
5.2		0,00078	0.00078 DK_pest	Danish EPA, Strandgade 29, DK 1401 Copenhagen K	9.17	
5.2		6	0.006 aquire4_5	Knapek,R. and S.Lakota (1974). Biological Testing to Determine Toxic Effects of Pesticides in Water. (Einige Biotests zur Untersuchung der Toxischen Wirkung von Pestiziden im Wasser) Tagungsber. Akad. Landwirtschaftswiss. D.D.R. 126:105-109 (GER) (ENG ABS)	9.17	

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
5.2		2,15	0.00215 aquire3	Merna,J.W. and P.J.Eisele(1973). The Effects of Methoxychlor on Aquatic Biota EPA-R3-73-046, Ecol. Res. Ser., Office of Research and Monitoring, U.S. EPA, Washington, D.C.:59 p. (U.S. NTIS PB-228643)	9.17	
5.3	Acute toxicity fish, mg/l	1,7	0.0017 aquire1_2	Johnson,W.W. and M.T.Finley (1980). Handbook of Acute Toxicity of Chemicals to Fish and Aquatic Invertebrates Resour. Publ. 137, Fish Wildl. Serv., U.S.D.I., Washington, D.C.:98 p.	9.17	
5.3		0,0005	0.0005 fraunhofer	Fraunhofer Institute, Umweltchemieund Økotoxikologie, 57377 Schmalleberg, Germany	9.17	
5.3		0.0075 96 hr, Pimephales promelas 0.02 96	0.0075 envichem	Verschueren, K. 1983. Handbook of environmental data of organic chemicals. Van Nostrand Reinhold Co. Inc., New York. 1310 s.	9.17	
5.3		0,049	0.049 ecotoc	Parrish ea 77	9.17	
5.3		0	0 DK_pest	Danish EPA, Strandgade 29, DK 1401 Copenhagen K	9.17	

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
5.3		14	0.014 aquire4_5	Knapek,R. and S.Lakota (1974) Biological Testing to Determine Toxic Effects of Pesticides in Water. (Einige Biotests zur Untersuchung der Toxischen Wirkung von Pestiziden im Wasser) Tagungsber. Akad. Landwirtschaftswiss. D.D.R. 126:105-109 (GER) (ENG ABS)	9.17	
5.3		56	0.056 aquire3	Henderson,C., Q.H.Pickering, and C.M.Tarzwell (1959). Relative Toxicity of Ten Chlorinated Hydrocarbon Insecticides to Four Species of FishTrans. Am. Fish. Soc. 88(1):23-32	9.17	
5.4	Chronic toxicity daphnia, mg/l	0,04	0.00004 aquire1_2	Armstrong,D.A., D.V.Buchanan, M.H.Mallon, R.S.Caldwell, and R.E.Millemann (1976). Toxicity of the Insecticide Methoxychlor to the Dungeness Crab Cancer magister. Mar. Biol. 38:239-252	9.17	
5.5	Chronic toxicity fish, mg/l	23	0.023 aquire1_2	Hansen,D.J. and P.R.Parrish (1977) Suitability of Sheepshead Minnows (Cyprinodon variegatus) for Life-Cycle Toxicity Tests In: F.L.Mayer and J.L.Hamelink (Eds.), Aquatic Toxicology and Hazard Evaluation, 1st Symposium, ASTM STP 634, Philadelphia, PA:117-126	7.5	

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
5.5		0.00013 srv, chr, Pimephales promelas	0.00013 envichem	Merna, J.W. & Eisele, P.J. 1973. The effects of methoxychloron aquatic biota. U.S. Environmental Protection Agency, Duluth, MN, EPA-R3-73-046. 59 pp.	9.17	This value is the lowest effect conc. given
5.5		0,012	0.012 ecotoc	Parrish ea 77	7.5	
5.5		40	0.04 aquire3	Kennedy,H.D., L.L.Eller, and D.F.Walsh (1970). Chronic Effects of Methoxychlor on Bluegills and Aquatic Invertebrates Tech. Paper No. 53, Bureau of Sport Fish. Wildl., Fish Wildl. Service, U.S.D.I., Washington, D.C.:18 p.	7.5	
5.6	Aquatox-QSAR		qsar			
5.6			0.28 QSAR-DK	Draft Advisory list for self-classification of dangerous substances 2001. Danish EPA p. 39. http://www.mst.dk/activi/01050000.htm .		Acute fish, Danish EPA Multicase Acute LC50 Fathead Minnow model.
5.6			0.0008 QSAR-DK			Acute Daphnia, Danish EPA Multicase Acute EC50 Daphnia model.
5.6			0.1737 QSAR-DK			Fish NOEC, Lethal Body Burden NOEC mg/l (A:C ratio 10:1) for fish based on EPIWIN 3.02 BCF

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
5.7	Aquatic toxicity - other species					
6	HUMAN TOXIC PROPERTIES					
6.1	Acute toxicity					
6.2	Carcinogenicity	3	3 B2B	International Agency for Research on Cancer, Homepage www.iarc.fr	2.00	
6.3	Chronic toxicity	200	200 DK_pest	Danish EPA, Strandgade 29, DK 1401 Copenhagen K	2	
6.4	Mutagenicity					
6.5	Reprotoxicity	D	D B6D	Deutsche Forschungsgemeinschaft, MAK- und BAT-Werte-Liste 1992 Senatskommission zur Prufung gesundheitsschädlicher Arbeitsstoffe. , Mitteilung 28. Weinheim, Verlag Chemie, 1992.		
7	EXPOSURE					
7.1	Production Volume	tons/year				
7.2	Use/Industry Category					
7.3	Use in articles					
7.4	Environm. Occur. Measured		Yes ICES			(Compartment)
7.5	Environm. Occur. Modelled					(Compartment)
8	DYNAMEC-PROFILE					
8.1	Ranking calc. Water					
8.2	Ranking calc. Sediment					
8.3	Ranking meas. Water		33	Ranking according to the Fraunhofer report jan 2000		
8.4	Ranking meas. Sediment					
8.5	Selection in DYNAMEC	NSDB(I), ED(y),			Group A	IGE fact sheet
9	EU-LEGISLATION					
9.1	Dir 67/548/EEC (Classification)			Annex 1, Dir 67/548/EEC		

Index	Parameter	Original Value	Converted Source value	Reference	Scaled value	Remarks
9.1			(40) IUCT			IGE fact sheet
9.2	Reg 793/93/EEC (Existing substances)					
9.3	Dir 2000/60/EEC (WFD)					
9.4	Dir 76/769/EEC (M&U)					
9.5	Dir 76/464/EEC (water)					
9.6	Dir 91/414/EEC (ppp)					
9.7	Dir 98/8/EEC (biocid)					
10	ADDITIONAL INFORMATION					
10.1	Hazard assessment - OECD					
10.2	Other risk assessments					
10.3	Advisory classification		R22-50/53 DK - List	Draft Advisory list for self-classification of dangerous substances 2001. Danish EPA . http://www.mst.dk/activi/01050000.htm		

ANNEX 2: MONITORING STRATEGY FOR METHOXYCHLOR

As part of the Joint Assessment and Monitoring Programme (*reference number 2003-22*), OSPAR 2004 adopted an Agreement on monitoring strategies for OSPAR Chemicals for Priority Chemicals (*reference number 2004-15*) to implement the following monitoring for tracking progress towards the objectives of the OSPAR Hazardous Substances Strategy (*reference number 2003-21*) with regard to methoxychlor. The Monitoring Strategy for methoxychlor will be updated as and when necessary, and redirected in the light of subsequent experience.

No producers, importers or use of methoxychlor are reported to exist in Europe. Three Contracting Parties have monitored methoxychlor in the environment.

Considering that future emissions to the environment from production, import or use in the OSPAR area are unlikely, it appears that the progress on moving towards the 2020 cessation target is far advanced. As it is theoretically possible that methoxychlor could re emerge on the market, Contracting Parties should monitor the situation with respect to biocidal product, plant protection products, veterinary medicine and pharmaceutical product market and report any possible findings to OSPAR.

Methoxychlor is not listed under the EC Water Framework Directive and there are little environmental concentration data. Methoxychlor long range atmospheric transport can not be ruled out, and all Contracting Parties are advised to bear in mind methoxychlor and its degradation products in their national environmental screening projects in particular in soil and air.

METHOXYCHLOR MONITORING STRATEGY	
<i>Implementation of actions and measures</i>	<ul style="list-style-type: none">• Examination of progress in the implementation of regulations on marketing and/or use or emission and/or discharge which have been agreed, or are endorsed, by the Background Document
<i>Atmospheric inputs</i>	<i>Additional voluntary activity</i> <ul style="list-style-type: none">• <i>In view of potential for long-range atmospheric transport of methoxychlor, Contracting Parties should bear in mind methoxychlor and its degradation products in organising their national screening projects, particularly for soil and air</i>