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**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE
COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE
COMMITTEE OF THE REGIONS**

**On the review and update of the second European Union Implementation Plan in
accordance with Article 8 (4) of Regulation No 850/2004 on persistent organic pollutants**

{SWD(2018) 495 final}

1. INTRODUCTION

The Stockholm Convention on Persistent Organic Pollutants (POPs)¹ was adopted in May 2001 in the framework of the United Nations Environment Programme (UNEP). The European Union and its Member States² are parties to the Convention³ and the provisions of the Convention have been implemented in Union law by Regulation (EC) No 850/2004 of the European Parliament and of the Council⁴ (the POPs Regulation).

The Stockholm Convention requires Parties pursuant to Article 7 to:

- (a) Develop and endeavour to implement a plan for the implementation of its obligations under this Convention;
- (b) Transmit its implementation plan to the Conference of the Parties within two years of the date on which this Convention enters into force for it;
- (c) Review and update, as appropriate, its implementation plan on a periodic basis and in a manner to be specified by a decision of the Conference of the Parties.

The first European implementation plan, titled the 'Community Implementation Plan' was developed in 2007 (SEC (2007) 341)⁵. The implementation plan was later updated with a 'Union Implementation Plan' in 2014 (COM (2014) 306 final). The review and update of the second implementation plan has become necessary to further address 1) the inclusion of a number of new persistent organic pollutants into the Stockholm Convention, and 2) the technical and legislative progress made in the area.

This new implementation plan has been subject to a consultation with Member States' competent authorities, industry, environmental organisations and the general public.

The implementation plan will be submitted to the Secretariat of the Stockholm Convention in accordance with the European Union's obligations as a Party.

2. PERSISTENT ORGANIC POLLUTANTS (POPs)

POPs are chemical substances that persist in the environment, bio-accumulate, and pose a risk of causing significant adverse effects to human health or the environment. These pollutants are transported across international boundaries far from their sources and even accumulate in regions where they have never been used or produced. POPs pose a threat to the environment and to human health all over the globe, with the Arctic, Baltic and the Alpine regions being examples of EU sinks of POPs. International action has been deemed necessary to reduce and eliminate production, use and releases of these substances. The substances addressed in the international legal instruments on POPs are listed in Table 1.

¹ http://www.pops.int/documents/convtext/convtext_en.pdf.

² One EU Member State has not yet ratified (Italy).

³ Council Decision of 14 October 2004 concerning the conclusion, on behalf of the European Community, of the Stockholm Convention on Persistent Organic Pollutants (2006/507/EC) (OJ L 209, 31.7.2006, p. 1.)

⁴ Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC (OJ L 158, 30.4.2004, p. 7).

⁵ http://ec.europa.eu/environment/pops/pdf/sec_2007_341.pdf

3. INTERNATIONAL AGREEMENTS ADDRESSING POPs

3.1. UNECE Protocol on POPs⁶

The Protocol on POPs ("the POPs Protocol") of the UNECE Convention on Long-Range Trans-boundary Air Pollution (CLRTAP) was adopted on 24 June 1998 in Aarhus, Denmark. The Protocol focuses currently on a list of 16 substances comprising eleven pesticides, two industrial chemicals and three unintentional by-products. The ultimate objective is to eliminate any discharges, emissions and losses of these POP substances.

The Protocol bans the production and use of the chemicals that are listed, either immediately or at a later stage and includes provisions for dealing with waste consisting of or containing those chemicals. It obliges Parties to reduce their emissions of dioxins, furans, polycyclic aromatic hydrocarbons (PAHs) and HCB and lays down specific emission limit values for the incineration of municipal, hazardous and medical waste.

3.2. Stockholm Convention

The Stockholm Convention on POPs was adopted in 2001 and entered into force in 2004. It promotes global action on an initial cluster of twelve POP substances, with an overall objective to protect human health and the environment from POPs and requires Parties to take measures to eliminate or reduce the release of POPs into the environment. Specific reference is made to a precautionary approach as set forth in Principle 15 of the 1992 Rio Declaration on Environment and Development. This principle is implemented by Article 8 of the Convention, which lays down the rules for including additional chemicals in the Stockholm Convention.

There are 22 chemicals currently listed in Annex A of the Stockholm Convention which are subject to a prohibition on production and use, except where there are generic or specific exemptions. In addition, the production and use of DDT, a pesticide still used in many developing countries, is severely restricted, as set out in Annex B of the Stockholm Convention. There are also exemptions and acceptable uses in place for PFOS, its salts and PFOSF.

The generic exemptions allow laboratory-scale research, use as a reference standard and unintentional trace contaminants in products and articles. Articles containing POPs manufactured or already in use before the date of entry into force of the relevant obligation are also subject to an exemption provided that Parties submit information on the uses and a national plan for waste management for such articles to the Secretariat of the Stockholm Convention.

Releases of unintentionally produced by-products listed in Annex C (dioxins, furans, PCBs, PeCB, HCB and from December 2016 PCNs) are subject to continuous minimisation with the ultimate objective of total elimination, where feasible. According to Annex C, Parties shall promote and, in accordance with their action plans, require the use of best available techniques for new sources within their major source categories identified in Part II and Part III of Annex C of the Stockholm Convention.

The Stockholm Convention also foresees identification and safe management of stockpiles containing or consisting of POPs. Waste containing, consisting of or contaminated with POPs should be disposed of in such a way that the POP content is destroyed or irreversibly

⁶ UNECE (United Nations Economic Commission for Europe) Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Persistent Organic Pollutants http://www.unece.org/env/lrtap/pops_h1.htm

transformed so that it does not exhibit POPs characteristics. Where this does not represent the environmentally preferable option or where the POP content is low, waste shall be otherwise disposed of in an environmentally sound manner. Disposal operations that may lead to recovery or re-use of POPs are explicitly forbidden. With regard to shipment of wastes, relevant international rules, standards and guidelines, such as the 1989 Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal, are to be taken into account.

Table 1 Overview on POPs regulated at international level; the new POPs under the Stockholm Convention (since 2009) are highlighted in grey

Substance	CAS	Listed in Stockholm Convention	Listed in the UNECE Protocol on POPs	Listed in the EU POP regulation
Intentionally produced POPs				
Aldrin	309-00-2	Annex A	yes	yes
Chlordane	57-74-9	Annex A	yes	yes
Chlordecone	143-50-0	Annex A	yes	yes
Dieldrin	60-57-1	Annex A	yes	yes
Endosulfan	959-98-8 33213-65-9 115-29-7 1031-07-8	Annex A	no	yes
Endrin	72-20-8	Annex A	yes	yes
Heptachlor	76-44-8	Annex A	yes	yes
Hexabromobiphenyl (HBB)	36355-01-8	Annex A	yes	yes
Hexabromocyclododecane (HBCDD)	25637-99-4 3194-55-6	Annex A	no	yes
Hexabromodiphenyl ether and heptabromodiphenyl ether	68631-49-2 207122-15-4 446255-22-7 207122-16-5 and others	Annex A	yes	yes
				yes
Hexachlorobenzene (HCB)	118-74-1	Annex A	yes	yes
Alpha hexachlorocyclohexane*	319-84-6	Annex A	yes: Hexachlorocyclohexanes (HCH; CAS: 608-73-1 ⁷), including lindane (CAS: 58-89-9)	Yes (all isomers including gamma HCH found in lindane)
Beta hexachlorocyclohexane*	319-85-7	Annex A		
Lindane*	58-89-9	Annex A		
Mirex	2385-85-5	Annex A	yes	yes
Pentachlorobenzene	608-93-5	Annex A	yes	yes
Pentachlorophenol (PCP)	87-86-5	Annex A	no	no
Polychlorinated biphenyls (PCB)	all PCBs and their mixtures have different CAS numbers	Annex A	yes	yes
Tetrabromodiphenyl ether and pentabromodiphenyl ether	5436-43-1 60348-60-9 and others	Annex A	yes	yes
				yes
Toxaphene	8001-35-2	Annex A	yes	yes
DDT	50-29-3	Annex B	yes	yes

⁷ This CAS No. covers the isomer mixture of alpha, beta, gamma, delta and epsilon HCH.

Substance	CAS	Listed in Stockholm Convention	Listed in the UNECE Protocol on POPs	Listed in the EU POP regulation
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (PFOS)	1763-23-1 s, 307-35-7, and others	Annex B	yes	yes
SCCPs – short chain chlorinated paraffins	85535-84-8	under review	yes	yes
HCBD – hexachlorobutadiene	87-68-3	Annex A	yes	yes
PCN – polychlorinated naphthalenes	all PCNs & their mixtures have different CAS numbers	Annex A	yes	yes
Unintentionally produced POPs				
Polychlorinated dibenzop-dioxins (PCDD)	1746-01-6	Annex C	yes	yes
Polychlorinated dibenzofurans (PCDF)	1746-01-6	Annex C	yes	
Hexachlorobenzene (HCB)	118-74-1	Annex C	yes	yes
Pentachlorobenzene	608-93-5	Annex C	yes	yes
Polychlorinated Biphenyls (PCBs)	all PCBs & their mixtures have different CAS numbers	Annex C	yes	yes
PCN – polychlorinated naphthalenes	all PCNs & their mixtures have different CAS numbers	Annex C	yes	no
Polycyclic aromatic hydrocarbons (PAHs)	207-08-9 and others	no	yes	yes

* Lindane, Alpha- and Beta hexachlorocyclohexane, as well as Chlordecone and Hexabromobiphenyl are new POPs under the Stockholm Convention but have already been covered under the POP Protocol and the EU POP Regulation.

4. PURPOSE OF THE UNION IMPLEMENTATION PLAN ON POPs

The Stockholm Convention lays down an obligation to all Parties, to develop and endeavour to implement a plan for the implementation of its obligations under the Stockholm Convention. For the Union, this obligation is expressed in Article 8 of Regulation (EC) No 850/2004 on Persistent Organic Pollutants. The Union has in 2007 therefore developed an implementation plan on POPs, which also covers the substances that fall under the UNECE Protocol on POPs⁸.

The overall purpose of the implementation plan is not only to fulfill legal obligations, but also to take stock of actions taken and lay down a strategy and action plan for further Union measures related to POPs included in the Stockholm Convention and/or in the UNECE Protocol on POPs.

The UIP therefore aims to:

- review the existing Union level measures related to POPs;
- assess their efficiency and sufficiency in meeting the obligations of the Stockholm Convention;
- identify needs for further Union level measures;

⁸ SEC (2007) 341

- establish a plan for implementing the further measures;
- identify and strengthen links and potential synergies between POPs management and other environmental policies and other policy fields; and
- increase awareness on POPs and their control measures.

5. SUMMARY OF THE ACCOMPANYING STAFF WORKING DOCUMENT

The Commission Staff Working Document lays down the third Union Implementation Plan as required by the Stockholm Convention. The review and update of the second Implementation Plan addresses the inclusion of new persistent organic pollutants into the Stockholm Convention and the technical and legislative progress made in the area.

The introduction provides an overview of the international legislative framework in which the POPs Regulation operates, including a summary of the UNECE Protocol on POPs and the Stockholm Convention.

Chapter 2 presents a status quo of the EU's execution of its obligations as a Party to the above-mentioned international frameworks. It describes the relevant EU legislation put in place as well as the financial instruments that support implementation.

The EU has adopted and implements a number of legislative measures that are related to POPs addressing both the aims of the Stockholm Convention and also the UNECE Protocol on POPs. The main legal instrument is Regulation (EC) No 850/2004 on persistent organic pollutants, which entered into force on 20 May 2004. The POPs Regulation has been amended several times to list new substances and to establish concentration limits in waste.

Other chemicals legislation complements the POPs Regulation in implementing the obligations of the Stockholm Convention and the POPs Protocol, ensuring that the export ban on POPs is implemented, that allowed imports and exports are in conformity with the rules of the Stockholm Convention, that POPs are collected and irreversibly destroyed and preventing that the chemicals exhibiting POP characteristics are produced or marketed.

Monitoring of the occurrence of POPs in food and feed and in the environment is done on the basis of various legal acts and in the context of a number of programmes. The European Pollutant Release and Transfer Register (E-PRTR) enhances public access to environmental information. It covers 91 pollutants and 65 economic activities and implements threshold levels for a number of pollutants, including POPs.

The Information Platform for Chemical Monitoring data (IPChem) aims at facilitating the access to monitoring data, including on POPs. It draws together monitoring data-sets in the form of 'modules', which are available publicly. IPChem provides a valuable resource to researchers and allow cross-reference of different data-sets quickly and easily.

A number of financial instruments exist in the Union that provide funding to support implementation of the Stockholm Convention in the Union and at international level and research on matters that are relevant for POPs. The Union also provides funding to international instruments, including the support of the Secretariat of the Convention.

Chapter 3 provides an overall assessment of POPs in the European Union, regarding their production, their use, their placing on the market as well as with regard to existing stockpiles and the contamination of the waste stream. This chapter is mainly based on reports and implementation plans prepared by the Member States.

Chapter 4 provides an in-depth analysis of each individual obligation of the Stockholm Convention affecting the EU's treatment of POPs. Subsequent to this analysis, the Commission identifies 25 technical measures to improve implementation of the EU's obligations under Stockholm Convention.

Chapters 3 and 4 demonstrate that the use of the substances listed in the Stockholm Convention or the POPs Protocol and regulated by the POPs Regulation at EU level before 2008 (the old POPs) has been progressively phased-out in the EU. Remaining uses of old POPs are only in articles that were produced and placed on the market before the entry into force of the POPs Regulation and as standards for research purposes. Both remaining uses are covered by general exemptions granted in the Stockholm Convention and the POPs Regulation.

The new POP substances listed in the Stockholm Convention or the POPs Protocol between 2009 and 2015 were subsequently added to the POPs Regulation. Those substances were already subject to prohibition or severe restrictions in the EU prior to their listing and with the new amendments of the POPs Regulation, certain restrictions go further than previously in order to comply with the new international commitments.

Waste containing POPs (e.g. obsolete pesticides or contaminated equipment) has been imported into some EU Member States for the purpose of its disposal and elimination. These imports originate from EU and non-EU countries that lack adequate technology for proper disposal of such waste. These imports have been undertaken in accordance with the provisions of the Stockholm Convention and they contribute to the overall reduction of POPs in the EU and globally.

There was almost no export of POPs outside the EU. Only a few kilograms of lindane have been exported from one Member State under the exemption for standards for research purposes.

In a few Member States there were still stockpiles of obsolete pesticides which contain POP substances and for which production, use and placing on the market are now strictly forbidden under the POPs Regulation. These stockpiles amount to less than 50.000 tonnes, estimated to contain between 2.000 and 9.000 tonnes of POPs.

The obligation under the Stockholm Convention to eliminate the use of polychlorinated biphenyls (PCBs) in equipment by 2025 is partly reflected in Council Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT), which requires Member States to develop registers of equipment containing more than 5 dm³ of PCBs and to ensure that the equipment containing PCBs in the registers was decontaminated or disposed of by 31.12.2010 at the latest. In compliance with the Directive 96/59/EC, inventories of PCB-containing equipment, as well as action plans for their disposal and collection were compiled by all Member States.

A survey and an evaluation undertaken in 2011 and 2014, respectively, identified that good progress had been made towards the identification of PCB-containing equipment and disposal of PCB wastes in the EU, with some Member States close to meeting the 2010 target. However, most Member States had not met the target of decontamination or disposal of liquids and equipment contaminated with PCB by 31.12.2010, and work to identify, remove and dispose of PCB-contaminated liquids was still ongoing after 2010.

The polybrominated diphenyl ethers (PBDEs) tetraBDE, pentaBDE, hexaBDE and heptaBDE were produced and used as flame retardants until the late 1990ies in the Union and continued to be used for some time in certain articles thereafter, in particular in plastics used in electrical and electronic equipment. Although their production and use has been phased out

due to regulatory measures and their replacement by decaBDE, their presence in waste of electrical and electronic equipment (WEEE) is still a challenge in the EU.

There are indications that only few full scale e-waste recycling facilities separate plastics containing PBDEs as required by EU legislation. Therefore, there are some doubts whether the capacity of EU recycling plants for separation of PBDEs containing plastic from other plastic are currently sufficiently developed to separate a major part of PBDE containing plastic waste stream. Data suggest that the flow of plastics recovered from WEEE and containing PBDE is not currently being properly controlled in European recycling operations.

The production, placing on the market and use of perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (PFOS) is regulated under the POPs Regulation. Most uses are prohibited but some exemptions are granted by the POPs Regulation, which are significantly less numerous than in the Stockholm Convention, as alternatives are available for many of those uses. The exemptions are regularly reviewed and their use decreases over time.

Hexabromocyclododecane is a brominated flame retardant which has been extensively used across the EU within expandable polystyrene (EPS) and extruded polystyrene (XPS) insulation boarding used within roof and cavity wall insulation. The listing of this chemical in the POPs Regulation in 2016 provides for a ban of all uses, with a time limited exemption for the use in expanded polystyrene articles.

Unintentional emissions of pentachlorobenzene to the environment (mainly air and to a lesser degree soil), mainly resulting from power production from coal (ca. 83%) and domestic burning of solid fuels, wood and mixed wastes (8%), were found to decrease. Within the E-PRTR data-set only a limited number of sites across the Union report the emission of pentachlorobenzene to air for the period 2007 – 2012 and no emissions were reported for 2013.

Chapters 5 and 6 provide additional information on implementation of other obligations than those directly linked with chemicals that are listed. They demonstrate that the exchange of information on technical matters amongst Member States and with third countries is still a challenge and should be improved in order to better support the objective of the Convention. Also the information made available to the general public by Member State authorities or by the Commission in order to raise awareness of POPs should be improved.

The European Union and the Member States provide considerable technical and financial assistance to support implementation of the Convention by developing countries through various instruments.

6. OVERALL CONCLUSIONS

In the European Union, legal measures regarding production, placing on the market and use of POPs, and those addressing the management of waste that consists of or contains POPs are sufficiently comprehensive to meet the obligations of the Convention and the POPs Protocol.

Significant progress towards the elimination of POPs has been achieved. Production and use of all POP substances is prohibited with some minor exemptions. A main challenge for the EU is to eliminate POPs from the waste cycle and remaining stockpiles as these still present a major emission source.

In the light of the obligations stemming from the Stockholm Convention and taking into account the situation in the European Union, the implementation plan outlines 30 actions that are needed to meet the obligations. 8 actions are new and address in particular the newly

listed chemicals. 9 actions are continuous actions and 13 actions were already listed in the previous implementation plan and are still ongoing since they have not yet been completed.

The release of POPs due to unintentional production remains one of the most important issues to be tackled in the EU. Several actions are thus dedicated to the development of corresponding measures with the goal to reach a further reduction of POP emissions. Prevention of the formation of unintentional POPs through the development of processes and technologies that avoid their formation should mainly be addressed in the area of industrial production but also cover domestic sources such as diffuse incineration sources. There is still need for additional research and technological development.

Inventories of polychlorinated biphenyl (PCB) containing equipment, as well as action plans for their collection and disposal were compiled by all Member States. Information about current amounts of PCB equipment and PCB wastes in the EU showed that there are still significant quantities of PCB equipment in use. The quantities of PCB that were used in open applications is unknown, as is the quantities of products containing PCBs still in use or capable of emitting to the natural environment. Further efforts are required to meet the objective under the Stockholm Convention of a phase-out of the use of PCB by 2025.

There is limited on-going production of perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (PFOS) in the EU. The use of PFOS in the metal plating industry is the main remaining source for PFOS releases from an intended purpose. Alternatives and substitutes have already been investigated for this use, which need to be implemented to completely phase-out the use of PFOS.

The identification and management of sites contaminated by hexachlorocyclohexane (HCH) waste represents a challenge within the Union. An updated assessment revealed that deposited HCH wastes within the EU might amount up to 1.8 to 3 million tonnes. Seventeen Member States have identified contaminated land as an issue within existing national implementation plans, with further action needed to help address this issue. A coordinated strategy for the identification of contaminated sites and for their environmentally sound remediation may be necessary.

Reporting from Member States to the Commission is a prerequisite for the EU to be able to identify further measures for the implementation of the Stockholm Convention in order to meet the objectives and also for submitting adequate reports to the Convention. However, several Member States have not met their reporting obligations and need to improve.

As regards the monitoring, despite the fact that Member States' authorities, research organisations and EU bodies are making significant efforts to monitor numerous chemicals in various matrices (water, air, biota, soil, human milk, etc.) as a consequence of EU legislation, national and international initiatives and scientific curiosity, there is a knowledge gap on the chemical burden. This occurs because the chemical data generated by the monitoring activities are not being collected, managed and assessed in a coherent and accessible manner. To address this gap, an information platform for chemical monitoring data has been established at the European scale and a coordinated and integrated approach to collecting, storing, accessing and assessing of data will be ensured in future.

The European Union should develop mechanisms for better coordination between the bilateral aid programmes of the Commission and those of the Member States with regards to POPs in order to ensure that the available resources are used more efficiently. To increase awareness and demonstrate the support provided by EU financial instruments that are relevant for POP-related action, specific information could be provided on the POP specific Commission website.