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EUROPEAN COMMISSION

Brussels, 15.10.2010  
COM(2010) 562 final

**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE  
EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE**

**On the implementation of the Community Strategy for dioxins, furans, and  
polychlorinated biphenyls (COM(2001)593) – Third progress report**

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**1. Context**

Dioxins, furans and polychlorinated biphenyls (PCBs) are a group of toxic and stable chemicals that affect human health and the environment. Once released into the environment these organic pollutants will persist for decades in soils, waters and the atmosphere and hence continue to be of concern for a very long time after the release has ceased. These pollutants cause impairment of the immune system, the nervous system, the endocrine system and the reproductive functions and are also suspected of causing cancer. Foetuses and newborn children are most sensitive to exposure. There is considerable public, political and scientific concern over the negative effects on human health and on the environment of long-term exposure even to very small amounts of these chemicals.

A general reduction of dioxin, furan and PCBs releases to the environment and exposure to humans has been achieved in particular through comprehensive control of industrial emission sources and through strategies aiming at reducing the presence of these substances in feed and food. Between 1990 and 2007 industrial emissions of newly formed dioxins, furans and PCBs were reduced in the European Union by 80%<sup>1</sup>. Among the prevailing sources residential combustion accounts for 22% of total emissions<sup>2</sup>, while the remainder of releases originates from a variety of industrial and non-industrial sources. Further reductions require a better analysis of local sources and seem to be more successfully addressed by regional and/or national measures.

To reduce human intake, it is important to reduce the levels in the entire food chain since food consumption is the most important route for human exposure. Dioxins emitted to air can for example be deposited on soil and plants or in water and taken up and accumulated by animals and fish as they feed, thereby entering the food chain. Measures to reduce the exposure to dioxins, furans and PCBs therefore need to be taken both for the environment and for feed and food.

In order to address the health and environmental concerns due to these pollutants the Commission adopted in 2001 a Communication to the Council, the European Parliament and the Economic and Social Committee setting out a Community Strategy for dioxins, furans and PCBs<sup>3</sup> (Dioxin Strategy). The Dioxin Strategy consists of two parts: one part containing actions for reducing the presence of dioxins, furans and PCBs in the environment and one part containing actions for reducing their presence in feed and food. The Environment Council endorsed the Commission's Strategy on dioxins in all parts and requested the Commission to report back its implementation. A first progress report covering the period 2002-2003 was

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<sup>1</sup> Reporting to EMEP under the Convention of Long-range Transboundary Air Pollution.

<sup>2</sup> <http://ec.europa.eu/environment/dioxin/pdf/brochure09.pdf>.

<sup>3</sup> COM(2001) 593 final, 24 October 2001.

provided by the Commission on 13 April 2004<sup>4</sup> and a second progress report covering the period 2004-2006 on 10 April 2007<sup>5</sup>. This Communication is the third progress report summarising the activities undertaken by the Commission over the period 2007-2009 in the areas concerned.

## **2. Activities undertaken to reduce the presence of dioxins and PCBs in the environment.**

### **2.1. Contribution to and implementation of multilateral environmental agreements.**

Regulation (EC) 850/2004<sup>6</sup> on persistent organic pollutants (the Regulation) was adopted in April 2004, in order to implement the Stockholm Convention (the Convention) and the 1998 Protocol on POPs under the Convention on Long-Range Transboundary Air Pollution (the POPs Protocol) within the European Union. The Regulation contains provisions regarding production, placing on the market and use of chemicals, management of stockpiles and wastes and measures to reduce unintentional releases of POPs. Furthermore, Member States must set up emission inventories for unintentionally produced POPs, national implementation plans (NIPs) as well as monitoring and information exchange mechanisms.

The POPs Protocol was amended at the 27th session of the Executive Body for the Convention on Long-Range Transboundary Air Pollution (CLRTAP) in December 2009. The amendments introduced include further requirements for reductions of dioxins, furans and PCBs by setting emission limit values for example for waste incinerators, sinter plants and secondary steel plants. It should be noted that these amendments are largely covered by existing EU legislation. Positive effects from these amendments can therefore be expected mainly from parties outside of the EU and their ratification is therefore crucial to reap additional reductions in the UNECE region.

Article 12 of the Regulation requires annual reporting by Member States on the actual production and use of POPs and triennial reporting on the implementation of other provisions of the Regulation. The Commission is required to compile the reports and integrate them with the information from the EPER<sup>7</sup>, the E-PRTR<sup>8</sup> and the Emission Inventory of EMEP<sup>9</sup> in a synthesis report. The first synthesis report was finalised by a contractor on behalf of the Commission in 2009<sup>10</sup> based on the 2004–2006 triennial reports and the 2006–2008 annual reports. A summary of the synthesis report and a discussion on progress achieved in the implementation of the Community Implementation Plan (CIP)<sup>11</sup> until the end of 2009 is

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<sup>4</sup> COM(2001) 240 final.

<sup>5</sup> COM(2007) 396 final.

<sup>6</sup> OJ L 229, 29.6.2004, p. 5

<sup>7</sup> EPER (European Pollutant Emission Register) established by Commission Decision 2000/479/EC

<sup>8</sup> E-PRTR (European Pollutant Release and Transfer Register) established by the Regulation (EC) 166/2006.

<sup>9</sup> EMEP (Co-operative programme for monitoring and evaluation of the long range transmission of air pollutants in Europe)

<sup>10</sup> [http://ec.europa.eu/environment/pops/index\\_en.htm](http://ec.europa.eu/environment/pops/index_en.htm). The contractor who wrote this report is responsible for its content.

<sup>11</sup> SEC (2007) 341

included in a recent report from the Commission to the European Parliament and to the Council<sup>12</sup>. The main conclusions of the report are as follows:

- The requirements of the Regulation are largely fulfilled as concerns intentionally produced POPs. Production, placing on the market and use has been phased out and stock inventories have been prepared.
- Elaboration of National Implementation Plans (NIPs) pursuant to the Convention requirements and the related establishment of National Action Plans (NAPs) on measures to identify, characterise and minimise the total releases of unintentional produced POPs are not yet completed or have not even started in a number of Member States. Only 19 Member States have developed NIPs and related NAPs and provided them to the Convention Secretariat.
- At the same time environmental monitoring of PCDD/Fs and PCBs is established in most Member States. However, there is no EU level database enabling evaluation of time trends in the environment, nor is the information provided by Member States sufficient to evaluate policy effectiveness at EU level. A more comprehensive and detailed compilation of comparable monitoring data at EU level and establishment of a common information system is needed.

The Commission provided financial support to the Secretariat of the Stockholm Convention on POPs for further elaboration of the Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases (Toolkit). This Toolkit allows to identify sources of unintentionally released POPs (PCDD/Fs, PCBs and Hexachlorobenzene) and to quantify their emissions.

Under CLRTAP a new major assessment is underway to quantify the importance of long-range and intercontinental transport of POPs, including dioxins, furans and PCBs. That effort is jointly lead by the EU (the European Commission) and the USA (US Environmental Protection Agency) within the Task Force on Hemispheric Transport of Air Pollution. The 2010 Assessment aims at providing a solid scientific basis for possible future policy dealing with this group of global pollution both within the CLRTAP, UNEP and at national level. The Task Force concluded that intercontinental transport is small but significant and that POP contamination in pristine regions, like the Arctic, is entirely dominated by pollution from outside this region.

2.2. Developments in EU environmental policy related to emissions of dioxins, furans and polychlorinated biphenyls.

### *Industrial Emissions*

In the area of *industrial emissions* the Commission presented in December 2007 a proposal for an Industrial Emissions Directive (IED)<sup>13</sup> that integrates the Integrated Pollution Prevention and Control Directive 2008/1/EC<sup>14</sup> and six sectoral Directives on industrial emissions into a single clear and coherent legislative instrument. Entry into force of the IED is

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<sup>12</sup> COM(2010)514 : Report from the Commission to the European Parliament and the Council on the application of Regulation (EC) No 850/2004 on persistent organic pollutants in accordance with Article 12(6) of the Regulation.

<sup>13</sup> COM(2007) 844 final

<sup>14</sup> OJ L24, 29.1.2008, p8.

expected for the end of 2010 and its implementation by the Member States from the end of 2012 onwards. This revised legislation will lead to significant benefits to the environment and human health by reducing industrial emissions including emissions of dioxins across the EU. This will in particular be achieved through better application of the Best Available Techniques (BAT) to prevent and control emissions. Permit conditions for industrial installations will have to be based on the BAT conclusions, which will be derived from the BAT Reference Documents (BREFs) and will be adopted by the Commission in agreement with the Member States.

The work on identifying and updating BAT for the industrial activities covered by the IPPC Directive has continued. In the process of revising the BREFs in order to update them with the latest information on BAT, special emphasis was put on a comprehensive coverage of techniques to prevent and control POPs emissions. In particular, the information exchange for the revision of the BREFs for sectors such as Iron and Steel manufacturing, Cement, Lime and Magnesium Oxide manufacturing and Non-ferrous Metals gathered a lot of new information related to the prevention and control of the release of POPs, in particular PCDD/F, into the environment. This has led to new or updated conclusions on BAT fostering improved processes and stricter BAT associated emission levels for those polluting substances.

As a result of a successful abatement policy of industrial emissions, the relative contribution of *domestic sources to total dioxin emissions* has increased over the past decades. The Commission has initiated an information exchange<sup>15</sup> in order to assist Member States in their efforts towards reduction of dioxin emissions and to ensure that knowledge is shared and awareness is conveyed across the EU.

#### *Emissions to Water*

As required by Article 16(4) of the Water Framework Directive (2000/60/EC), the Commission is currently reviewing the list of priority substances in Annex X of the Directive, i.e. the list of substances which present a significant risk to or via the aquatic environment. These should be subject to measures aimed at progressive reduction and, in the case of priority hazardous substances, cessation or phasing-out of emissions. Article 8 of Directive 2008/105/EC on environmental quality standards in the field of water policy requires the review to consider among others the substances set out in its Annex III. These include dioxins and PCBs, which are therefore under consideration for inclusion in the list of priority substances due to be proposed by the Commission early in 2011.

#### *Emissions to Soil*

Dioxins, furans, and polychlorinated biphenyls in the soil can enter the food and feed chains and contaminate water. Currently, there is no provision in EU law requiring the identification of sites contaminated by these substances.

Pursuant to the Sixth Environment Action Programme, in 2006 the Commission adopted the Thematic Strategy for Soil Protection including a proposal for a Soil Framework Directive. The proposal aims, among others, at identifying sites across the EU contaminated by relevant hazardous substances, including dioxins, furans, and polychlorinated biphenyls, in

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<sup>15</sup> <http://ec.europa.eu/environment/dioxin/pdf/report09.pdf>,  
<http://ec.europa.eu/environment/dioxin/pdf/brochure09.pdf>

accordance with a step-wise procedure. Once identified, Member States would have to ensure that these contaminated sites are remediated in accordance with a nationally established remediation strategy. The proposal is currently stalled in the legislative procedure. In the absence of such a Directive, there will be no EU-wide obligation to identify and remedy sites contaminated by hazardous substances, including dioxins, furans, and polychlorinated biphenyls.

### *Disposal of PCBs and PCTs*

Pursuant to Directive 96/59/EC<sup>16</sup> on the disposal of PCBs and PCTs, Member States continue in their efforts to eliminate PCBs and equipments contaminated with PCBs. After the expiry of the deadline, the Commission will verify the implementation of this provision and issue a report.

### **3. Activities undertaken to reduce the presence of dioxins and PCBs in feed and food.**

#### 3.1. Integrated approach to legislation on feed and food to reduce the presence of dioxins, furans and PCBs throughout the food chain

Legislation establishing maximum and action levels for dioxins and furans in feed and food has been in place since 2002 and for dioxins, furans and dioxin-like PCBs since 2006<sup>17</sup>.

The current action and maximum levels are established making use of the toxic equivalency factors (TEFs) established by WHO in 1998. Following the review by the World Health Organisation (WHO) of the toxicity equivalence factors (TEF) of dioxins and dioxin-like polychlorinated biphenyls (PCBs) in 2005, the existing maximum levels on dioxins and dioxin-like PCBs in feed and food has been under review since 2007. In this review, not only the changes following the use of new TEF values have to be taken into account but also new knowledge as regards the occurrence of dioxins, furans and dioxin-like PCBs in feed and food and the achieved reduction of the presence of these substances in feed and food.

For this review, the European Food Safety Authority (EFSA) has compiled all occurrence data available using the new 2005 TEF values comparing these data making use with the 1998 TEF values and these data are available in the report "Results of the monitoring of dioxin levels in food and feed<sup>18</sup>". The data contained in this report are the basis for the discussion with the experts from the Member States in the Expert Committee "Persistent Organic Pollutants (POPs) in Food", as working party of the Standing Committee on the Food Chain and Animal Health, section Toxicological Safety of the Food Chain. It is expected that the discussions on the new maximum and action levels will be finalised by the end of 2010.

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<sup>16</sup> OJ L 243, 24.9.1996, p. 31

<sup>17</sup> For feed: Directive 2002/32/EC of the European Parliament and of the Council on undesirable substances in animal feed as amended by Commission Directive 2006/13/EC of 3 February 2006 as regards dioxins and dioxin-like PCBs(OJ L32, 4.2.2006, p. 44)

For food: Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in food. (OJ L364, 20.12.2006, p. 5) and Commission Recommendation 2006/88/EC of 6 February 2006 on the reduction of the presence of dioxins, furans and PCBs in feedingstuffs and foodstuffs (OJ L42, 14.2.2006, p. 26)

<sup>18</sup> European Food Safety Authority; Results of the monitoring of dioxin levels in food and feed. EFSA Journal 2010; 8(3):1385 [35 pp.]. doi:10.2903/j.efsa.2010.1385. Available online:

<http://www.efsa.europa.eu/en/scdocs/doc/1385.pdf>

However it was observed that it was impossible to perform an accurate trend analysis based on the available data and it is recommended to perform continuous random testing of a sufficient number of samples in each food and feed group across the European Union to ensure accurate assessments of the presence of dioxins and dioxin-like PCBs and to perform reliable exposure assessment.

The Commission together with EFSA has already taken initiatives to improve the data gathering and reporting and EFSA developed a common reporting format for data on dioxins and PCBs<sup>19</sup>.

On non-dioxin-like PCBs, the European Food Safety Authority has performed an assessment on the risks for public and animal health of the presence of non dioxin-like PCBs (NDL-PCBs) in feed and food<sup>20</sup>. Due to different sources of contamination, different places of origin of the feed and food commodities, as well as different production methods and circumstances, definite relationships between the presence of NDL-PCB and dioxins and dioxin-like PCBs (DL-PCBs) are only found occasionally in specific well-defined contamination cases or in geographically defined areas.

Usually, feed and food containing high levels of NDL-PCB will also contain high levels of DL-PCB and dioxins and furans. In these circumstances the existing risk management measures to reduce the presence of DL-PCBs and dioxins and furans in feed and food, will probably also protect animals and consumers from elevated NDL-PCB exposure.

In specific situations however, such as contamination with lower chlorinated PCB mixtures, where levels of NDL-PCB could be high, but levels of dioxins, furans and DL-PCBs could be low, measures to reduce the presence of dioxins, furans and DL-PCBs will not guarantee protection of the population against food with high levels of NDL-PCBs.

Therefore EFSA recommended a continued effort to lower the levels of NDL-PCB in feed and food.

Taking into account the conclusions of this risk assessment, discussions have been initiated on the setting of regulatory levels for non-dioxin-like PCBs in feed and food. It has already been agreed with the experts from the Member States to establish maximum levels on NDL PCBs on the basis of the sum of 6 indicator NDL PCBs (PCB 28, 52,101,138, 153 and 180) and to make use of recent occurrence data. EFSA has collected and compiled existing occurrence data on the presence of NDL-PCBs in feed and food. It is expected that the discussions on the maximum levels for NDL-PCBs in feed and food will be finalised by the end of 2010.

### 3.2. Management of a major contamination incident involving dioxins and PCBs.

In December 2008, during routine monitoring by the Irish authorities of the food chain for a range of contaminants, elevated levels of polychlorinated biphenyls (PCBs) were found in pig meat originating in Ireland. As these PCB levels might be an indicator for unacceptable dioxin contamination, further investigations were immediately started to determine the dioxin content and to identify the possible source of contamination. Analytical results confirmed the presence of very high levels of dioxins in pig meat

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<sup>19</sup> <http://www.efsa.europa.eu/en/datexdata/docs/ReportingFormatDioxinPCBs.xls>

<sup>20</sup> <http://www.efsa.europa.eu/en/scdocs/doc/284.pdf>



The use of contaminated bread crumbs produced from bakery waste was identified to be the source. The contamination was due to the direct heating process whereby combustion gases come in direct contact with the material to dry. The fuel used was apparently contaminated with PCB transformer oil which after burning results in high levels of dioxins in the combustion gases which were deposited on the material to be dried.

Member States have been asked to establish on the basis of the existing legislative tools a vigilant monitoring system for businesses in feed and food which use direct heating and to perform the appropriate controls on it.

#### **4. Research activities**

To fill some of the existing knowledge gaps dioxins, furans and PCBs, together with other substances, have been addressed in a number of research projects funded under the Sixth and Seventh Research Framework Programme focussing on exposure, biomonitoring, health effects and improving toxicological assessment of dioxins. Research on these substances has also been undertaken by the Joint Research Centre in the areas of

- Generation of PCDD/F-emission factors in support to the implementation monitoring of the Stockholm Convention on POPs.
- Evaluation of the dioxin content of milk fat as suitable indicator for integrated environmental/exposure monitoring.
- Levels of PCDD/Fs and PCBs in soil as a function of land use practice.
- Investigation of river basin specific pollutants in support to the Water Framework Directive (WFD) - Dioxins and Furans in the Rivers Elbe, Danube and their tributaries.
- Identification of the sources for high PCDD/F ambient air levels in new Member States. Support to Enlargement.
- Fate of PCDD/Fs and other POPs at the air/water interface.
- Monitoring atmospheric levels of PCDD/Fs and other POPs on and off shore.

#### **5. Conclusions**

The overall objective of the Dioxin Strategy to develop an integrated approach in order to reduce the presence of dioxins, furans and PCBs in the environment as well as in feed and food has been achieved to a large extent with the reduction of industrial emissions of these pollutants by about 80% over the past two decades. The introduction of revised legislation regulating industrial emissions is expected to further reduce these emissions.

Remaining sources of dioxins, furans and polychlorinated biphenyls are relatively wide spread over small-scale industrial and non industrial sources and seem to be more effectively targeted by national/regional and local measures.

Certain areas where further analysis continues to be needed are related to a better understanding of the occurrence of dioxins in food and feed and secondary releases from soils and waters of contaminated sites.