Make Low POPs Content Levels low enough for health and environment protection: Keep the Promise, Eliminate POPs! A brief for delegates.

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The Stockholm Convention aims to reduce or eliminate all releases of POPs and includes **measures to reduce or eliminate releases from stockpiles and wastes in Article 6**. This includes establishment of **"low POPs content levels" which are a crucial tool to** control potential releases of POPs due to **improper handling of POPs wastes**. Low POPs Content Levels (LPCLs) define the value at which wastes are considered to be **POPs wastes** and therefore must be ***"Disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed" (Article 6.1 d ii).*** LPCLs are crucial for defining appropriate methods and options for POPs waste disposal.

There is now compelling evidence that environmental pollution is a major cause of death in low and middle income countries. These countries are those least able to manage or mitigate such threats because of their lack of technical expertise, limited technological capacity and sparse financial resources. The establishment of Low POPs Content Levels (LPCL) for several POPs are therefore subject to critical decisions at this Triple COP which will have significant implications for low and middle income countries as well as more industrialised nations.

The levels set for low POPs content should not be unduly influenced by vested interests to minimise their compliance costs or to facilitate widespread transboundary movements of hazardous wastes contaminated with POPs for profit. For most POPs there are no other limit values set for defining when waste containing those POPs is considered as hazardous waste. The LPCLs adopted will fulfil the role of defining certain wastes as hazardous waste according their content of certain POPs listed in Stockholm Convention. The application of strict LPCLs for dioxin, brominated flame retardants contained in e-waste and other POPs will be *the only global regulatory tool* that can be used to prevent import and export of these contaminated wastes, in many cases from countries with stricter legislation to countries with weaker legislation or control.

If decisions are made to adopt 'weak' LPCLs using the highest proposed levels as a threshold for determining POPs waste, then transboundary movement in POPs contaminated materials such as incinerator residues and contaminated soils will expand and accelerate. The flow of this contaminated material is likely to be from developed countries to developing countries where management costs are lower and regulations weaker. If this is allowed to happen then the objectives of the Stockholm and Basel Conventions will be permanently undermined at the expense of human health and the environment. This effect has already been demonstrated by Breivik, Gioia et al. (2011) due to POPs waste export from developed countries to Africa and Asia. A weak LPCL will enshrine this arrangement and unnecessarily expose new populations to POPs when contaminated materials are shipped as 'construction materials' or other products without restriction.

If the LPCLs for brominated flame retardants (PBDEs, HBCD and others) are strict enough it can help to STOP e-waste transboundary movements. IPEN therefore recommends that the following levels be adopted and LPCLs for specific POPs.

Dioxins and Furans - Polychlorinated dibenzodioxins and Polychlorinated dibenzofurans (PCDD/DF): IPEN supports a LPCL of 1 ng WHO-TEQ/g (1 ppb)[1] for PCDD/DF wastes based on levels protective of human health and the environment.

Wastes with levels of PCDD/Fs and DL PCBs above 0.05 ng WHO-TEQ/g (0.05 ppb) should be prohibited from any application on surface soils. The current provisional LPCL of 15,000 µg WHO-TEQ/kg (15 ppb), if adopted as final, **c**reates a potential for widespread exposure due to transboundary movement of PCDD/DF and DL PCB contaminated materials. Soil with levels of PCDD/DF concentrations well below the proposed 15 ppb limit have been demonstrated to result in POPs concentrations in poultry eggs that exceed the safe consumption limits (DiGangi, Petrlik 2005).[2]

Brominated POPs – Hexabromocyclododecane (HBCD) and polybrominated diphenyl ethers (PBDE): IPEN strongly recommends that a LPCL of 100 mg/kg for HBCD and 50 mg/kg for PBDEs should be approved as final levels.

The IPEN recommendations are consistent with the conclusions of the extensive report by consultants for the EU (Potrykus, Milunov et al. 2015). The consultants recommended two levels for each of the POPs. The preferred levels were the lower levels (LPCL1). The recommended lower levels for each of the PBDEs (TetraBDE, PentaBDE, HexaBDE and HeptaBDE) was 10 ppm. This meant a total LPCL of 40 ppm for mixtures of the POP BDEs, which is lower than but close to the current recommendation of 50 ppm. There is widespread evidence that brominated POPs are entering the recycling chain for plastics and undermining attempts to transition to a circular economy in which clean plastics can be recycled. POPs BDEs are being translocated from articles and products with limited human exposure into products to which there is widespread exposure among vulnerable populations. This includes items such as children's toys (DiGangi, Strakova, 2015) and household carpet underlay (DiGangi, Strakova, 2011). To prevent contamination of the plastics recycling chain with brominated POPs it is essential that delegates adopt the lower LPCL.

Arguments have been made by some that detecting the brominated POPs will be difficult and expensive and therefore a higher LPCL should be set which is easy to detect. However, the use of XRF devices (x-ray fluorescence) have been shown to detect these POPs cheaply and easily at similar detection limit to expensive gas chromatography and certainly at levels which meet the requirements of the lowest proposed LPCL. Advances have also been made in flotation separation techniques which have been used in the developing world among waste pickers to separate brominated plastics from clean plastics with a high level of success (Truc et al 2015). This is a very inexpensive separation method which could be further improved to ensure repeatability and efficacy.

Polychlorinated naphthalene and polychlorinated biphenyls (PCN and PCBs): IPEN strongly urges delegates to adopt a LPCL of 10 ppm for PCNs and to revise the current (provisional) LPCL for PCBs down from 50 ppm to a new level of 10 ppm.

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[1] This level should include also Dioxin Like (DL) PCBs which have not been included in definitions for LPCLs. IPEN suggests to set an LPCL of 1 ng WHO-TEQ/g (1 ppb) for PCDD/Fs and DL PCBs).

[2] Currently published case from Poland demonstrated that use of wooden construction material treated with pentachlorophenol contaminated by PCDD/Fs at level of 4 ppb led to serious contamination of soil and chicken eggs exceeding more than 10-times the limit set for eggs in EU. (Piskorska-Pliszczynska et al. 2016) Piskorska-Pliszczynska, J., P. Strucinski, S. Mikolajczyk, S. Maszewski, J. Rachubik and M. Pajurek (2016). "Pentachlorophenol from an old henhouse as a dioxin source in eggs and related human exposure." Environmental Pollution **208, Part B**: 404-412.

PCNs are structurally, physically and chemically similar to PCBs and some congeners have a similar toxicity as some of the most toxic coplanar congeners of PCBs **(**Plassche and Schwegler 2002). PCB formulations have also been found to contain trace contamination by PCNs. An evaluation by EU consultants (Potrykus, Milunov et al. 2015) recommended a LPCL range between 1 ppm and 10 ppm for PCN noting the final adopted level should not exceed 10 ppm. The lower level may be in conflict with current background soil contamination levels so a level of 10 ppm is supported. In addition, IPEN strongly urges delegates to consider revising the LPCL for PCBs downward from 50 ppm to 10 ppm as the structure, toxicity and exposure scenarios are similar for PCNs. It would therefore be illogical to maintain a five-fold difference in concentrations for LPCLs.

Pentachlorophenol (PCP): IPEN strongly recommends delegates adopt a health protective LPCL of 1 ppm for pentachlorophenol.

IPEN supports the recommendations of the UBA consultants (Potrykus, Milunov et al. 2015) to establish a LPCL of 1-10 ppm with 1ppm being considered the most protective of human health and the environment. This level is considered to be the most protective of human health from exposure to waste contaminated with PCP without falling below the environmental background levels which would raise practical problems.

References

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