

WASTE INCINERATOR ASH POISONS THE FOOD CHAIN: A BRIEF FOR DELEGATES KEEP THE PROMISE, ELIMINATE POPs!

The objective of the Stockholm Convention is to “to protect human health and the environment from persistent organic pollutants” by minimizing or eliminating all global sources of POPs, including emissions and releases. Until now the main focus has been on reducing air emissions from industrial sources and releases from products containing POPs. Waste incinerators are a key source of POPs as air emissions, but the much greater releases of POPs through the waste incineration residues have largely been ignored. IPEN addresses this issue in a newly released study: *Toxic Ash Poisons Our Food Chain*, which reveals the global scale of the problem of POPs-contaminated incinerator ash, which is generated at a rate of millions of tons every year.

KEY FINDINGS OF THE REPORT INCLUDE:

- The amount of dioxins released (contained) in waste incineration fly ash is highly underestimated, making current exposure and risk assessments unreliable.
- Fly ash contains a wide range of other POPs including undestroyed POPs treated by waste incinerators.
- Fly ash is reused for different purposes on a broad scale, and is getting out of control and leading to POPs recycling on a massive scale through ash distribution.
- The use of incineration ash as a food additive for poultry (see the Toxic Egg Scandal in Taiwan), for agricultural use as fertilizer, or as a soil amendment is contaminating the food chain.
- Regulatory efforts to reduce dioxin levels in incineration ash are non-existent.
- Using fly ash for backfilling, embankment, and remediation of contaminated sites is creating new POPs-contaminated sites, which will each cost millions of dollars to remediate.
- Weak Low POPs Content Levels (LPCL) are allowing transboundary movement of contaminated ash with virtually no controls, spreading the contamination problem around the globe.
- Leachate tests fail to predict dioxin leaching from incineration wastes.
- There are a wide range of alternative waste management practices and waste disposal (use) technologies and techniques that can prevent formation of dioxin as occurs in waste incineration.
- Even the most strict proposal by consultants of the EU for a Low POPs Content Level (1 ppb) is underestimating the true risk, as it does not include dioxin-

like (DL) PCBs in the modeling and ignores the fact that lower levels of dioxin in soil (4 – 75 pg TEQ g⁻¹) can lead to serious exceedances of the EU standard for eggs.

IPEN RECOMMENDATIONS TO DELEGATES FOR THE BRS COPs:

1. **Adopt** the more stringent value for Low POPs Content Level for dioxin (PCDD/F) of **1 ppb**.
2. **Ban** the use/application of wastes to soil or on terrain surfaces (without stabilization) with a level of PCDD/Fs and DL PCBs above **0.05** and/or **at least 0.1 ppb**.
3. **Incorporate** DL PCBs into the evaluation of the LPCL, so the level of 1 ppb will be applicable for both PCDD/Fs and DL PCBs as a combined total expressed in WHO-TEQ.
4. **We encourage** decision-makers and bodies of both Conventions to promote and use practical technologies for real destruction of dioxins in waste incineration fly ash above 1 ppb with DE above 99.999% measured as total TEQ level using non-combustion techniques.
5. **Seek an upgrade** of the inventory methods for PCDD/Fs and other U-POPs in waste incineration residues, as they are currently unreliable due to large data gaps.

Strong action is required by delegates to address this ongoing and global POPs contamination source. Many countries are now reconsidering the need for waste incineration as society transitions to a circular economy that values resource conservation and recycling above the resource destruction of waste incineration. Eventually, waste incineration will be phased out, and universally regarded as an outdated and polluting technology that undermines the objectives of the Stockholm Convention.

As a priority delegates should adopt the strictest Low POPs Content Levels proposed at the BRS COPs. Dioxin is a primary concern and **the LOW POPs Content threshold for PCDD/F should be reduced from 15 ppb to 1 ppb**. This will have the effect of ensuring that current and future stockpiles of incineration residues will be correctly designated as “hazardous waste” and subject to treatment to reduce POPs releases to the environment. Additionally, another benefit of reducing the threshold will be the ability to **control exports of this toxic waste to developing countries and countries in economic transition**, where the capacity to manage these wastes is minimal. As the case studies in the IPEN report demon-



Fly ash in big bags stored exposed to the elements in MSW incinerator in Hanyang city, Wuhan, China. Source: (Zhang, Huang et al. 2015).

strate, the management of incinerator residues is generally poor, leading to negative environmental impacts. Establishing strict criteria for this waste in some developed countries without establishing global regulation through strict Low POPs Content Levels will only exacerbate the situation and promote flows of this toxic waste from wealthy countries to low income countries as industry seeks to transfer waste management costs offshore.

The IPEN report exposes that the leaching of dioxin, dioxin-like PCBs and other POPs are rapidly accumulating in chicken eggs to levels that exceed both the EU standards for POPs in eggs and tolerable daily intakes (TDI) for humans from eating only a small number of eggs. A wide range of case studies presented from across the globe reveal unsound residue management, contamination of agriculture and human exposure.

Using the Dioxin Toolkit, IPEN has estimated that the total amount of dioxins released into fly ash every year is between the range of 3.4 kg I-TEQ and 45.6 kg I-TEQ. There are large data gaps in terms of the number of hazardous and medical waste incinerators that can be identified, so this reflects the releases only from “waste-to-energy” incinerators mainly burning municipal waste. Using some pieces of information available about total amounts in fly ash from hazardous and medical waste incineration, IPEN estimated total amount around 10 kg TEQ as the most likely amount of dioxins released in fly ash every year globally.

Every year more incinerators are constructed. Constructing new incinerators only serves to undermine the Convention, as each new incinerator represents a new source of POPs emissions and releases. IPEN’s report identifies a range of alternative techniques for waste management that do not require incineration and can deal with the most intractable wastes, such as medical wastes, POPs wastes and other

hazardous wastes. Managing toxic incinerator residues must reflect their environmental costs, which currently are mostly externalised, disguising the true cost of incinerating waste relative to other methods.

IPEN urges all delegates to “Keep the Promise and Eliminate POPs” through strict Low POPs Content Levels and tight controls on incinerator and other industrial residues and their movement.

The IPEN report *Toxic Ash Poisons Our Food Chain* is available on the IPEN website: <http://ipen.org/documents/toxic-ash-poisons-our-food-chain>

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