



# Defining POPs

Alan Watson C.Eng

IPEN/PIC

International POPs Elimination Network  
Public Interest Consultants, Swansea, Wales.



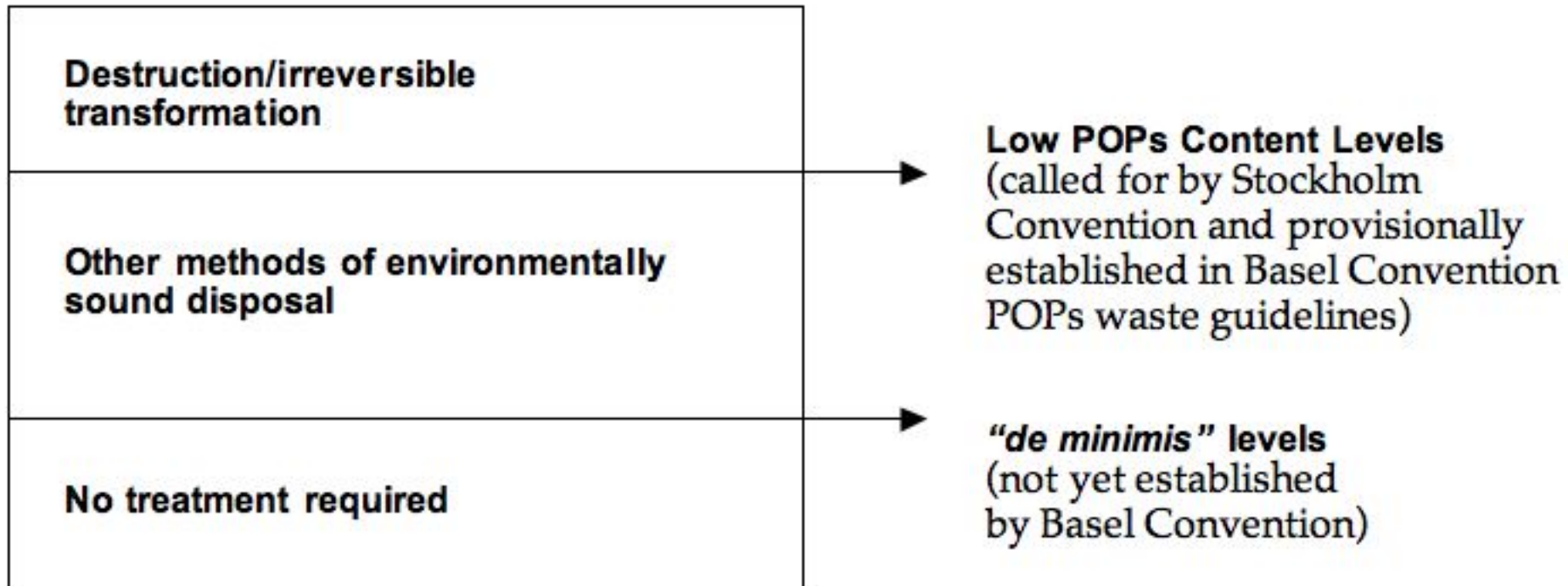
a toxics-free future

## Article 6 (d)(ii)

- Take appropriate measures so that such wastes, including products and articles upon becoming wastes, are:

Disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed so that they do not exhibit the characteristics of persistent organic pollutants or otherwise disposed of in an environmentally sound manner when destruction or irreversible transformation does not represent the environmentally preferable option or the persistent organic pollutant content is low, taking into account international rules, standards, and guidelines, including those that may be developed pursuant to paragraph 2, and relevant global and regional regimes governing the management of hazardous wastes;

# Article 6 (translated!)



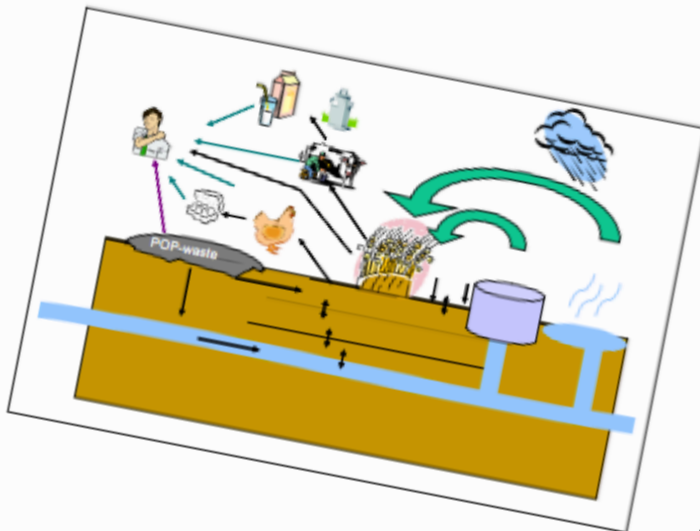
European Commission, Brussels

Study to facilitate the implementation of certain waste related provisions  
of the Regulation on Persistent Organic Pollutants (POPs)

REFERENCE: ENV.A.2/ETU/2004/0044

FINAL REPORT

August 2005







**BIPRO**  
Beratungsgesellschaft für integrierte Problemlösungen

# Defining Low POPs




BIPRO. (2005). *Study to facilitate the implementation of certain waste related provisions of the regulation on persistent organic pollutants (POPs) for the European Commission, Brussels FINAL REPORT.*

# EU Consultants Methodology

## *Lower limitation criteria:*

- ◆ A: Analytical potential 
- ◆ B: Environmental background contamination 
- ◆ C: Disposal/recovery capacities 
- ◆ D: Economic feasibility 

## *Upper limitation criteria:*

- ◆ X: Z: Existing limit values already agreed by the European Union 
- ◆ Y: Worst case scenario for human health risks 
- ◆ Z: Precautionary principle 

# EU Recommendations for Dioxin

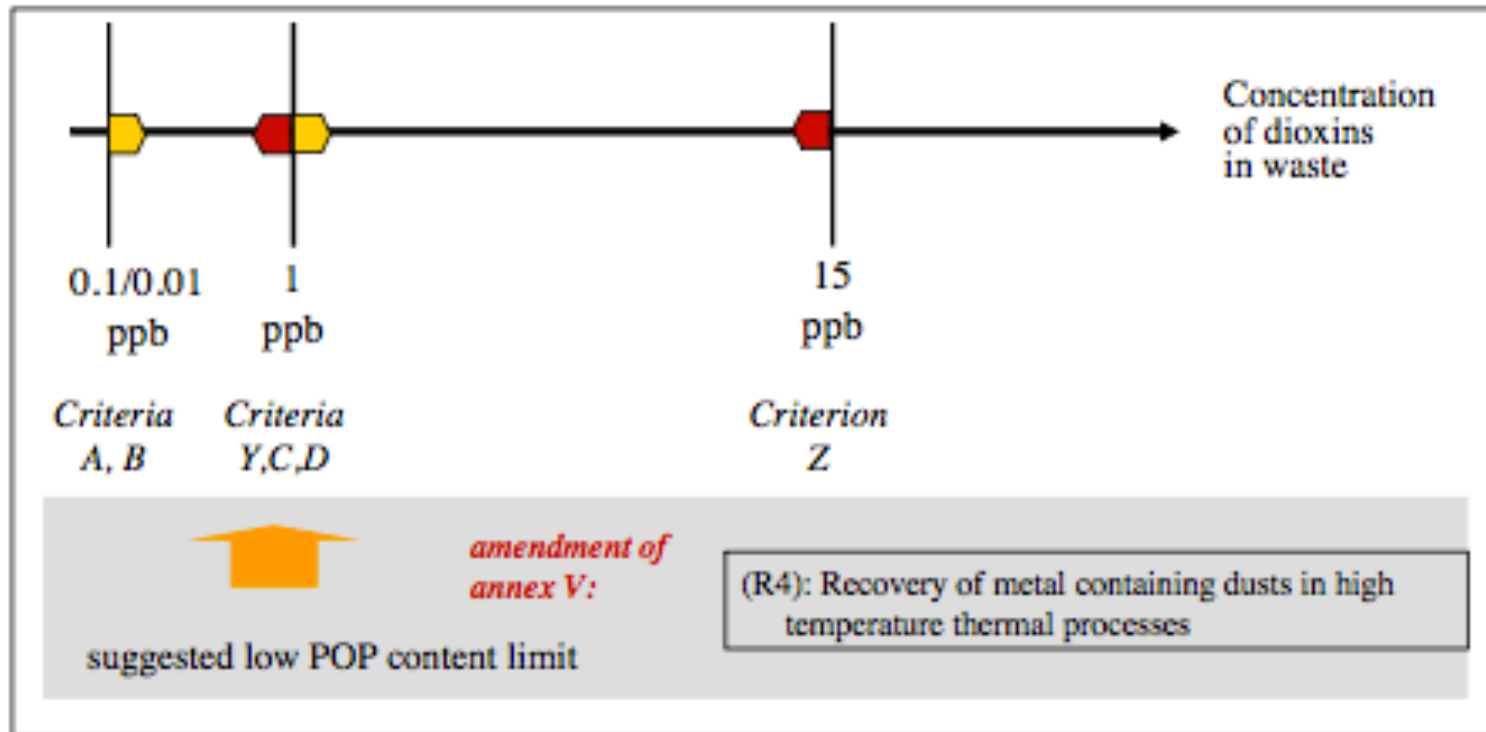


Figure 1-7: Recommended low POP content limit for PCDD/PCDF (expressed as I-TEQ) provided Annex V to the POP regulation is amended accordingly

# Eggs as Exposure indicators

max. PCCD/F level in eggs: 3 pg TEQ/g fat\*

safety factor: 10 (intra-species variations) assessment

critical level where safety factor is exceeded: **30 pg/g fat**

assumption:

contamination soil/material → contamination eggs

0.4 - 0.9 ppb → elevation by 7 -10 pg/g fat

1 - 4 ppb → elevation > 30 pg/g fat in eggs

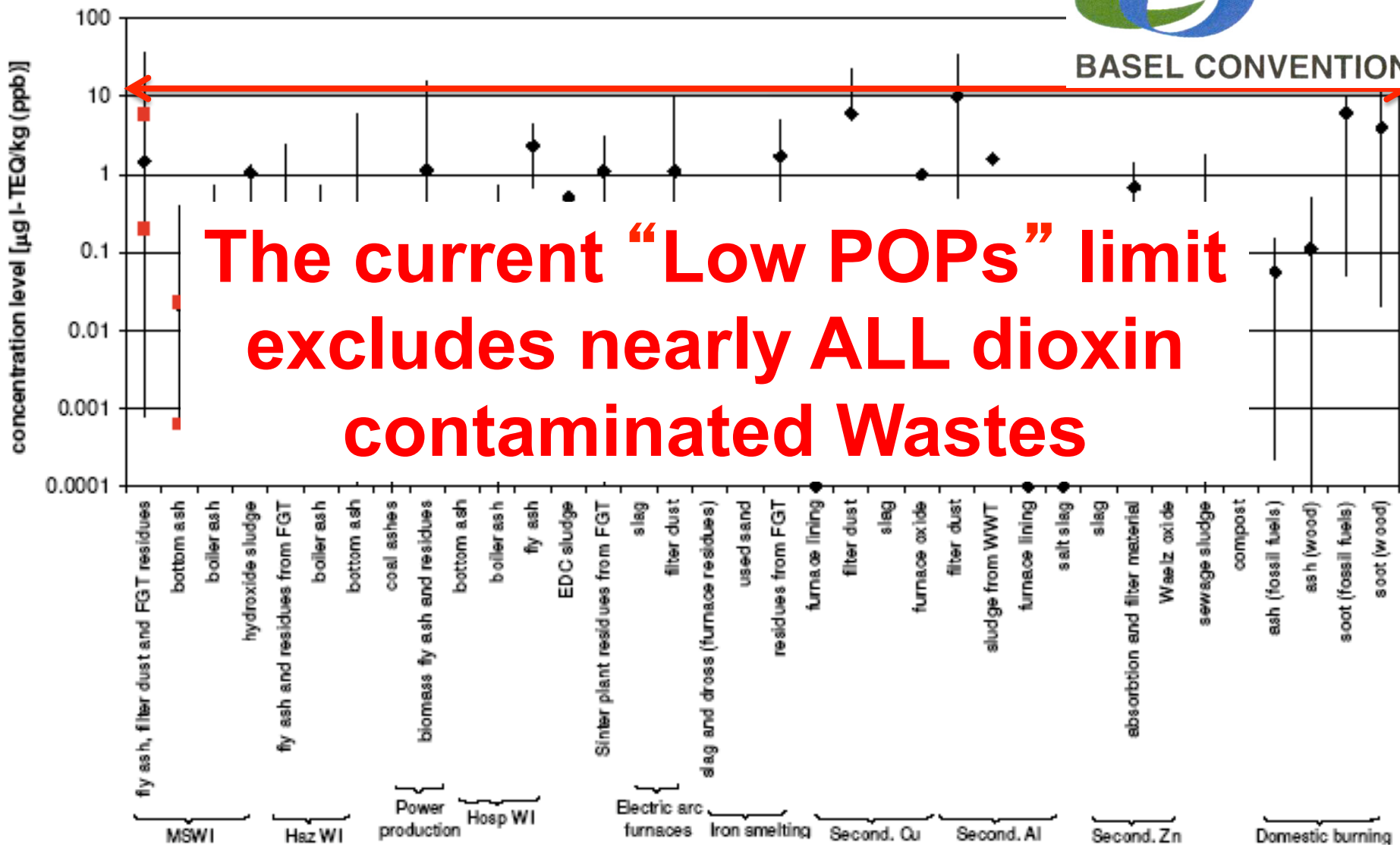


*health risk might not be excluded by >1 ppb low POP content limit*

# LOW POPs



BASEL CONVENTION





## Other POPs?

<b>Output streams</b>	<b>Amount per kg of waste input</b>	<b>Specific load</b>	<b>Specific account stream per kg of waste input</b>
Flue-gas	6.0 m <sup>3</sup>	0.08 ng/m <sup>3</sup>	0.48 ng/kg
Bottom ash	0.25 kg	7.0 ng/kg	1.75 ng/kg
Waste water	0	n/a	0
Filter dust and other residues from flue-gas cleaning	0.07 kg	220 ng/kg	15.40 ng/kg

**Table 3.4: PCDD/PCDF balance for a municipal waste incineration plant in Germany [1, UBA, 2001], [64, TWGComments, 2003]**

# Background to the EU Levels...

- “13. This issue was debated numbers of times. The EU position changed, sharing our concern re catching flyash. We started out with a range of 1- ~~10~~ - 50 µg/kg, with the 10 in bold suggesting that that might be the eventual compromise position. Denmark tried to get 0.1 µg/kg reinstated, but after discussions with their experts concluded that it could be dropped. The eventual range agreed for further consideration by the inter-sessional working group was 1- ~~10~~ - 50 µg/kg.”

David Wilson report back for DEFRA Basel Convention Open-

# UK Comments on Low POPs

*“ The UK proposals for low POPs content are as follows.*

*.....*

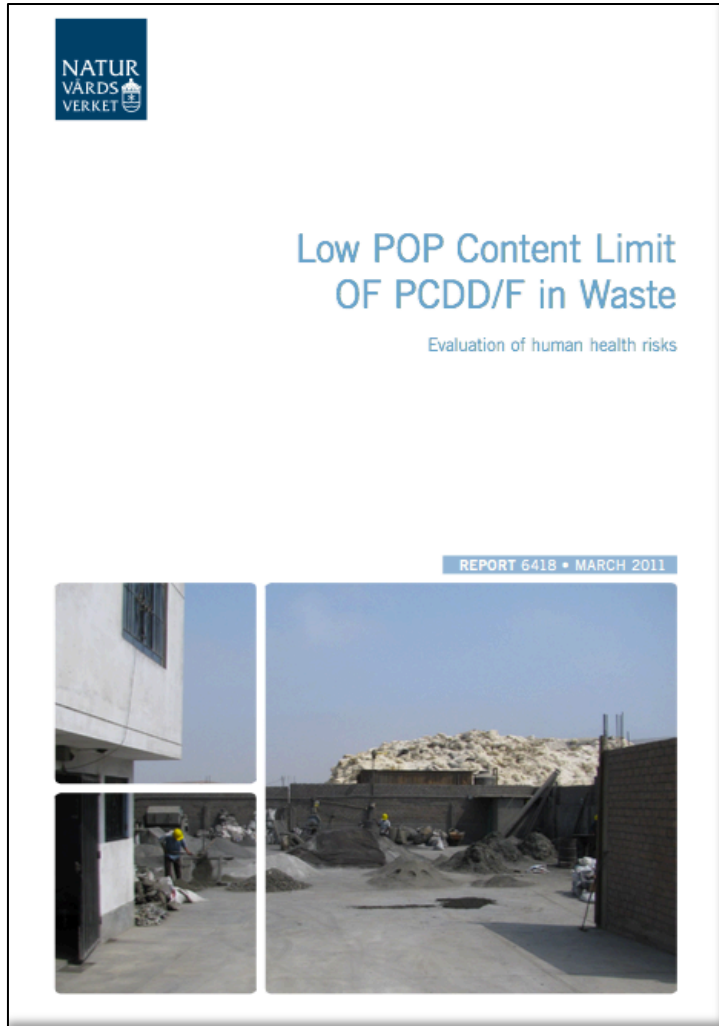
*c. We propose that the value for PCDD/PCDF (including dioxin-like PCBs) be set at 50 µg WHO-TEQ/kg. However, if it would help to reach an overall agreement, then we could accept a lower value, approaching 50 µg WHO-TEQ/kg”.*

LOW POPs – the cheapest form of waste treatment  
– Linguistic Detoxification



“It’s the new symbol for chemicals the government says aren’t so bad after all.”

# Swedish Government Review



“ .... the current low POPs content cannot be seen as protective of human health”

Naturvårdsverket. (2011). *Low POP content limit OF PCDD/F in waste evaluation of human health risks report 6418*. Swedish Environmental Protection Agency

# EU admits Low POPs Level is “High” ...

For solid materials residues (fly ashes) and articles other than food and feed no PCDD/F regulation exists and the only relevant limit is the low POPs content of 15 ng TEQ/g as low POPs content. This value is high and there is a considerable debate on this provisional Basel Convention low POPs limit. For fly ashes in Japan e.g. a limit of 3 ng TEQ/g exist and in the incineration BREF fly ash values from German incinerators below 0.5 ng TEQ/g are mentioned

## PREFACE

This draft Commission Staff Working Document presents a draft of the second European Union Implementation Plan (UIP) on Persistent Organic Pollutants (POPs). The first European Community Implementation Plan (CIP) was developed in 2007 (SEC (2007) 341)<sup>1</sup>. The review and update of the first Implementation Plan has become necessary to address; 1) the inclusion of a number of new POPs into the Stockholm Convention and the UNECE CLRTAP POP Protocol<sup>2</sup>; 2) the technical and legislative progress made in the area as well as; 3) the findings of the Commission Report COM (2010) 514 on the application of the Regulation (EC) 850/2004 on persistent organic pollutants (POP Regulation).



# EU Review of New POPs

ESWI, & BIPRO. (April 2011). *Study on waste related issues of newly listed pops and candidate pops - service request under the framework contract no ENV.G.4/FRA/2007/0066*. European Commission. (Original published March 2011)



# EU Consultants Recommendations

Substance	LPCL 1 (ppm)	LPCL 2 (ppm)	Remark
TetraBDE	10	200	LPCL 2 to be reviewed by 2016
PentaBDE	10	200	LPCL 2 to be reviewed by 2016
HexaBDE	10	200	LPCL 2 to be reviewed by 2016
HeptaBDE	10	1000	LPCL 2 to be reviewed by 2016
PFOS	10	50	LPCL 2 Review by 2016; With stricter limitation for sewage
HBCD	100	1,000	LPCL 2 covers separated waste types

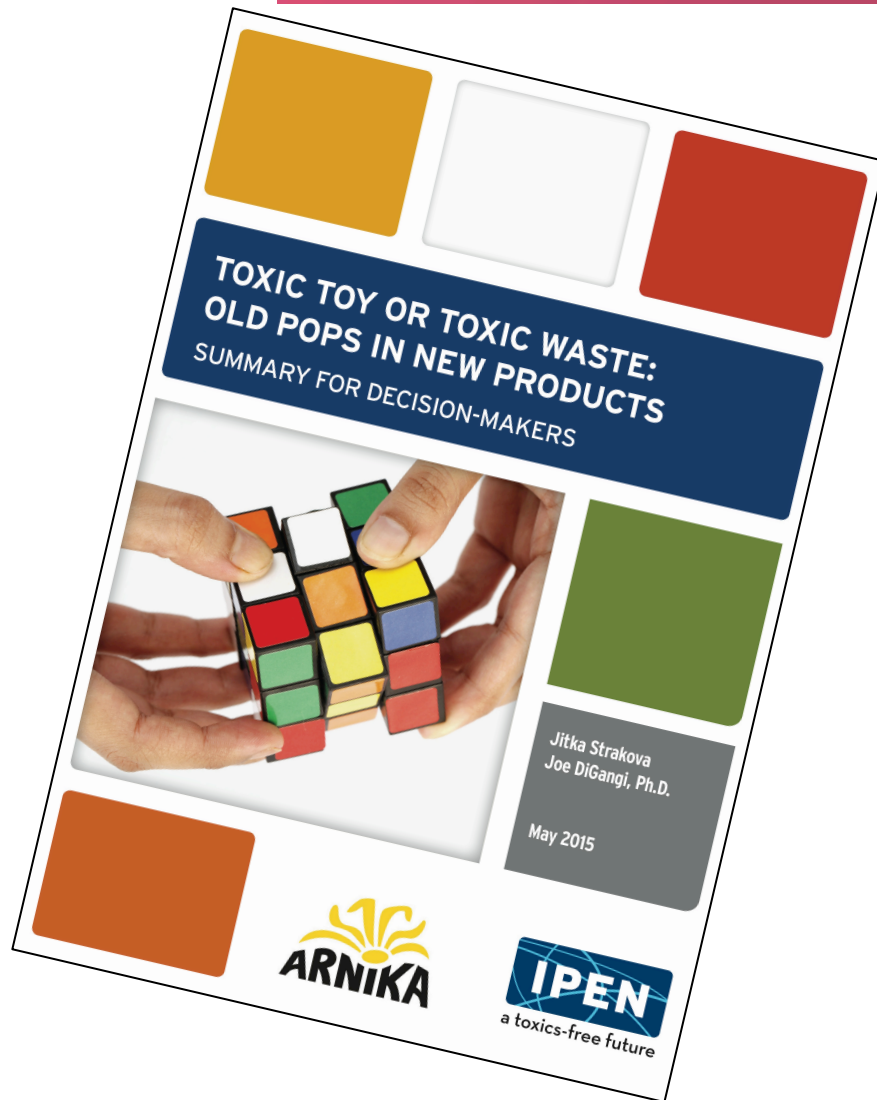


# Tonnage of New POPs in the EU at different Low POP levels

Substance	Expected quantity of waste (kt/y) classified as POP waste at low POP concentration level of:					
	0.1 ppm	1 ppm	10 ppm	50 ppm	100 ppm	1,000 ppm
<b>C-PentaBDE</b>	5,871	5,871	5,871	656	656	-
<b>C-OctaBDE</b>	105 (0.732*)	105 (0.732*)	105 (0.732*)	105 (0.732*)	105 (0.732*)	105 (0.732*)
<b>TetraBDE</b>	5,871	5,871	656	656	656	-
<b>PentaBDE</b>	5,976 (5,872*)	5,976 (5,872*)	761 (657*)	761 (657*)	657*	0.732*
<b>HexaBDE</b>	5,976 (5,872*)	5,976 (5,872*)	761 (657*)	105 (0.732*)	0.732*	0.732*
<b>HeptaBDE</b>	5,976 (5,872*)	761 (657*)	105 (0.732*)	105 (0.732*)	105 (0.732*)	0.732*
<b>PFOS</b>	16,211	5,212	1,972	1,941	3.1	1.4
<b>PeCB</b>	80,777	80,366	13,203		1,625	1,153
<b>SCCP</b>	11,621	622	42,8	42,8	38,4	3,99
<b>HBCD</b>	6,479,402	20,846	14,520	14,324	12,739	9,289

BiPRO (2011, February 25). *Service request under the framework contract no ENV.G.4/FRA/2007/0066 DRAFT FINAL REPORT "study on waste related issues of newly listed pops and candidate pops"*. European Commission

# Toxic Recycling



POPRC recommended to “...eliminate brominated diphenyl ethers from the recycling streams as swiftly as possible” noting that, “Failure to do so will inevitably result in wider human and environmental contamination and the dispersal of brominated diphenyl ethers into matrices from which recovery is not technically or economically feasible and in the loss of the long-term credibility of recycling.”

Stockholm Convention 2011)





A road sign at the side  
of the site

