helpdesk luxembourg
REACH&CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

New Persistent Organic Pollutants (POPs) Regulation
Introduction and impact on companies

Ghaya Rziga
REACH&CLP Helpdesk Luxembourg

12 December 2019

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

LE GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Environnement, du Climat et du Développement durable

LE GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Économie

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Outline

Persistent Organic Pollutants (POPs)

- General introduction
- Which substances are currently POPs?
- International and European POPs regulations
- POPs regulation - Regulation (EU) 2019/1021
- Impact on companies
- Implementation plans, implementation in Luxembourg
- Penalties

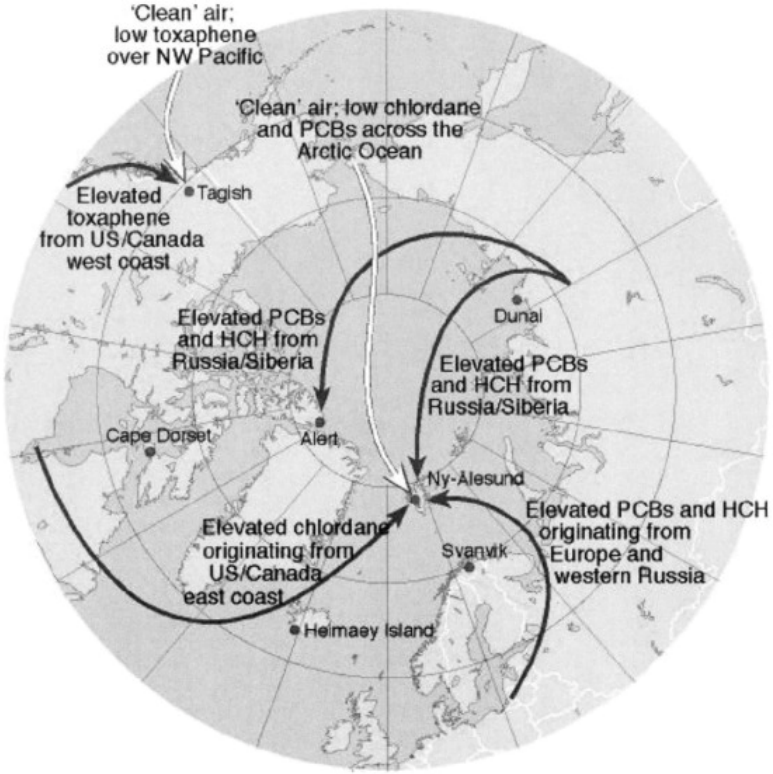
helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

What are the persistent organic pollutants?

Persistent organic pollutants (POPs) are hazardous organic chemicals with particular properties:

- **persistent**
- **bioaccumulative**
- **toxic**
- **very mobile (long-distance travellers)**

➔ Risk for human health and the environment



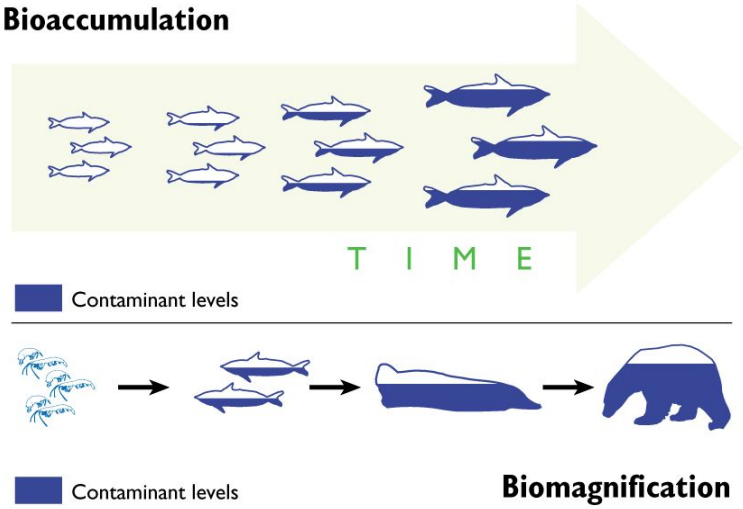
Transboundary Travelers

[Environmental Swords of Damocles *Daniel A. Vallero Ph.D., in Paradigms Lost, 2006]*

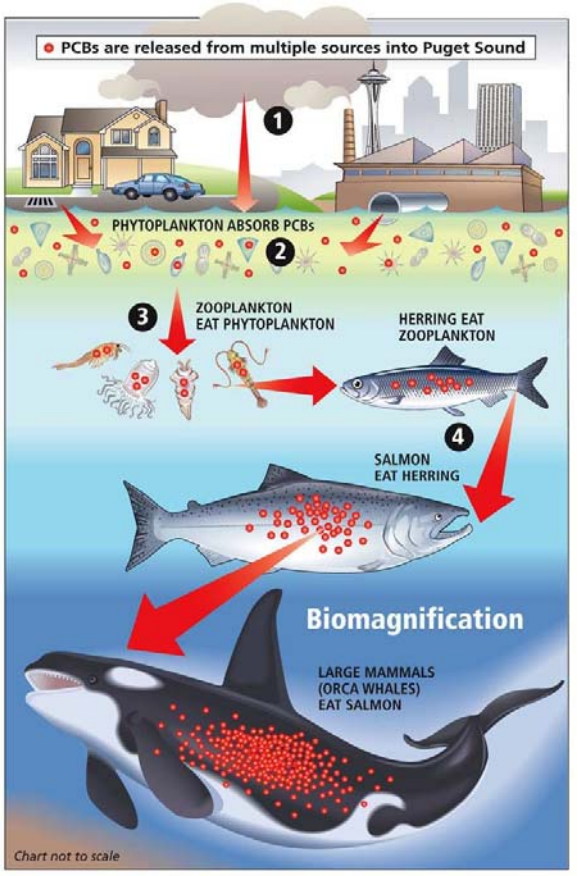
helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Risks for humans and the environment

Ecological impacts



Source: www.cimioutdoored.org/bioaccumulation/



Source: www.cimioutdoored.org/bioaccumulation/

➔ Effects observed at all levels of the food chain depending on the hazardous properties of the pollutant:

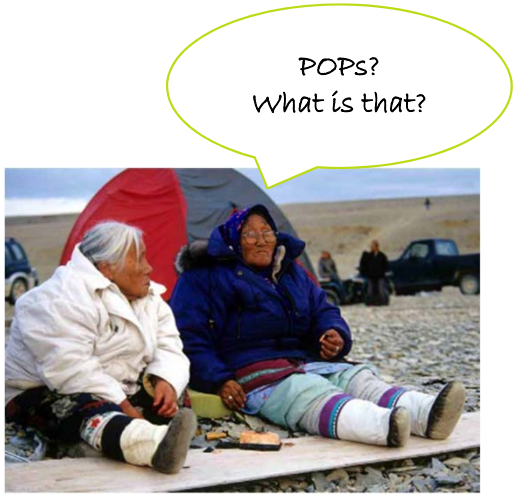
Smaller brain size, behavioural changes, hormonal disruption, carcinogenesis, cell and tissue damage, reproductive problems, etc.

Risks for humans and the environment

Health impacts

Potential links between exposure to POPs and various health impacts:

- hormone-dependent cancers
- reproductive health issues
- metabolic disorders (including type 2 diabetes)
- obesity



Inuit women in Greenland
By Ansgar Walk

➢**Higher pollutant levels in the blood of pregnant Inuit women** related to higher consumption of marine mammals (polar bears, walruses) and fish

➢**POPs detected in breast milk** (study monitoring breast milk from French, Danish and Finnish mothers) ➔ **Exposure of babies**

Persistent organic pollutants: towards a POPs-free future, Science for Environment Policy, Issue 19, October 2017

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

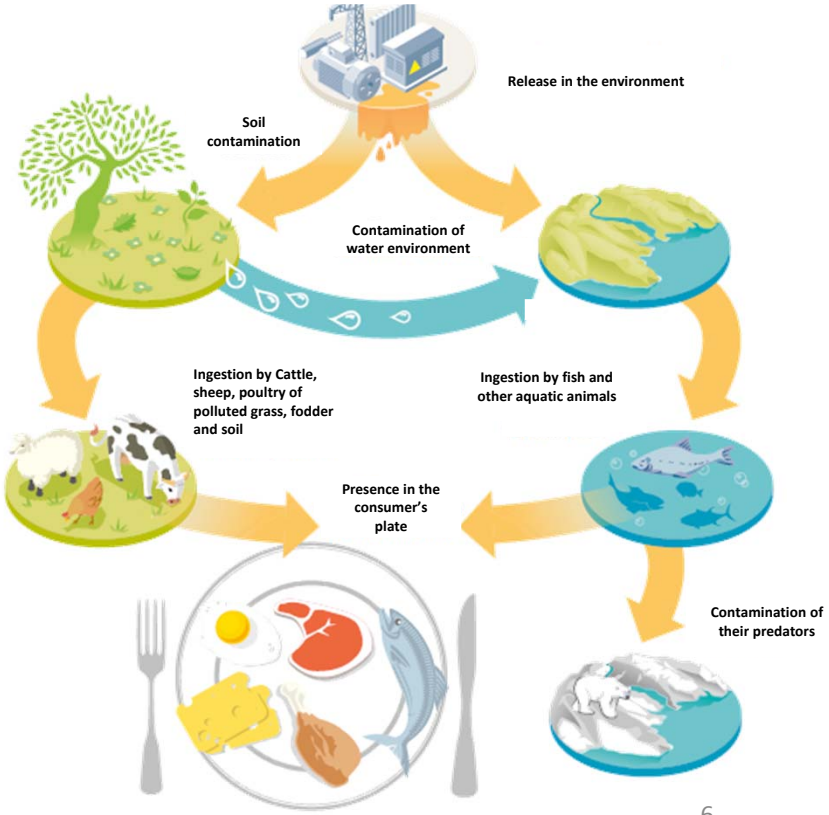
How are we exposed to POPs?

Ingestion: swallowing food or water contaminated with POPs

Inhalation: breathing indoor or outdoor air contaminated with POPs (vehicles' exhaust, cigarettes, second-hand smoke, etc.)

Skin contact: touching products made with POPs

POPs diffusion in the environment



Adapted from: MEDDE, Brochure "les polluants organiques persistants", October 2015

helpdesk luxembourg REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Which substances are currently POPs?

POPs examples
▪ Dichloro-diphenyl-trichloroethane (DDT)
• Polybomodiphenyl ether
• Polychlorinated biphenyls (PCBs)
• Hexabromocyclododecane (HBCD)
➢ Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)

Three Main Sources:

- ▪ Pesticides
- • Industrial chemicals
- ➢ Unintentional production

helpdesk luxembourg REACH & CLP

Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Which substances are currently POPs?

▪ Pesticides	• Industrial chemicals
DDT (1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane)	Tetrabromodiphenyl ether - Pentabromodiphenyl ether
Pentachlorophenol and its salts and esters	Hexabromodiphenyl ether - Heptabromodiphenyl ether
Hexachlorocyclohexanes, including lindane	Bis(pentabromophenyl)ether (decabromodiphenyl ether; decaBDE)
Hexachlorobenzene - Pentachlorobenzene	Perfluorooctane sulfonic acid and its derivatives (PFOS)
Endosulfan - Chlordecone - Mirex	Pentachlorobenzene
Dieldrin - Endrin - Aldrin - Chlordane	Hexachlorobenzene
Heptachlor - Toxaphene	Alkanes C10-C13, chloro (short-chain chlorinated paraffins) (SCCPs)

➢ Unintentional by-products
Hexachlorobenzene
Pentachlorobenzene
Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)
Polychlorinated naphthalenes
Polycyclic aromatic hydrocarbons (PAHs)

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

International and European POPs Regulations

The POPs problematic needs global cooperation:

POPs are regulated worldwide by the **Stockholm Convention** and the **Aarhus Protocol**

Adoption: 2001
Entry into force: 2004
Number of Parties: 183
Number of Signatories: 152

Source: www.pops.int/TheConvention/Overview

Adoption: 1998
Entry into force: 2001
Number of Parties: 47 (2014)

Source: www.wikipedia.org/wiki/Aarhus_Convention

same objectives: control, reduce or eliminate POPs emissions into the environment

These pieces of legislation are implemented in the European Union by the **POPs Regulation**

Regulation (EU) 2019/1021 – In force
Recast of Regulation (EC) No 850/2004

POPs regulation - Regulation (EU) 2019/1021

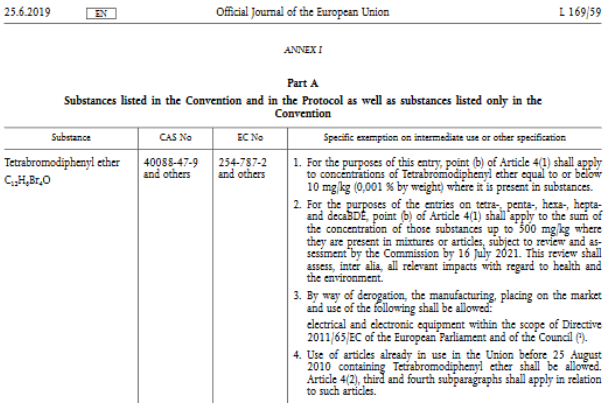
[Article 1 POPs Regulation]

Aim: protect human health and the environment with specific control measures that

- prohibit or severely restrict the production, placing on the market and use of POPs
- minimise the environmental release of POPs that are formed as industrial by-products
- make sure that stockpiles of restricted POPs are safely managed
- ensure the environmentally sound disposal of waste consisting of, or contaminated by POPs.

Substances listed under:

- Annex I: substances under prohibition
- Annex II: substances under restriction
- Annex III: substances under release reduction provisions
- Annex IV: substances under waste management provisions



25.6.2019 EN Official Journal of the European Union L 169/59

ANNEX I

Part A

Substances listed in the Convention and in the Protocol as well as substances listed only in the Convention

Substance	CAS No	EC No	Specific exemption on intermediate use or other specification
Tetrabromodiphenyl ether $C_{12}H_6Br_4O$	40088-47-9 and others	254-787-2 and others	1. For the purposes of this entry, point (b) of Article 4(1) shall apply to concentrations of Tetrabromodiphenyl ether equal to or below 10 mg/kg (0,001 % by weight) where it is present in substances. 2. For the purposes of the entries on tetra-, penta-, hexa-, hepta- and decaBDE, point (b) of Article 4(1) shall apply to the sum of the concentration of those substances up to 500 mg/kg where they are present in mixtures or articles, subject to review and assessment by the Commission by 16 July 2021. This review shall assess, inter alia, all relevant impacts with regard to health and the environment. 3. By way of derogation, the manufacturing, placing on the market and use of the following shall be allowed: electrical and electronic equipment within the scope of Directive 2011/65/EC of the European Parliament and of the Council (1). 4. Use of articles already in use in the Union before 25 August 2010 containing Tetrabromodiphenyl ether shall be allowed. Article 4(2), third and fourth subparagraphs shall apply in relation to such articles.

New substances added in the lists of the Stockholm Convention or the Aarhus Protocol
➔ amendment of the annexes of the POPs regulation

helpdesk luxembourg REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Proposals for new POPs

Any Party to the Stockholm convention can propose a new POP ➔ Assessment and amendment process

List of substances currently proposed for POPs regulation:

Chemical/group name	Example pf particular uses	Status	Submitter
Dechlorane plus	Manufacture of plastic products, electronic equipment..	Risk profile under development	Norway
Methoxychlor	Insecticide	Risk profile under development	Commission on behalf of the EU
Dicofol	Pesticide, effective against mite.	Listed under the Stockholm Convention	Commission on behalf of the EU
Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds	Manufacture of stain- and water-resistant coatings for textile and carpets	Listed under the Stockholm Convention	Commission on behalf of the EU
Perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds	Present in fire-fighting foams	Recommended for listing under the Stockholm Convention	Norway

More information: ECHA > Legislation > POPs > Proposals for new POPs

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Impact on companies - Prohibition & restriction

[Article 3 POPs Regulation]

The manufacturing, placing on the market and use of substances listed under **Annex I are prohibited**

- **Currently 26 substances listed**
- **Subject to exemptions on certain uses**

The manufacturing, placing on the market and use of substances listed under **Annex II are restricted**

- **Currently zero substance listed**

Impact on companies - Exemptions

[Article 4 & Annex I POPs Regulation]

General exemptions:

- substance used for laboratory-scale research or as a reference standard
- substance present as an unintentional trace contaminant (concentration limits, Annex I)

  ➔ **Concentration of decaBDE ≤ 10 mg/kg (0.001 % by weight)**

Time-limited exempted uses for

- C-decaBDE

Parts of aircraft

Parts of vehicles

Additives in heating appliances

Examples!

Interesting link for more information: Stockholm Convention > Implementation > Publications > Guidelines > Pocket guide on exemptions

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Impact on companies - Stock management

[Article 5 POPs Regulation]

Stockpiles containing POP substances might cause health and environmental issues if not managed appropriately
➔**Stockpile possession requires particular provisions**

- Stockpile with substances from Annex I or II & no use is permitted
  - ➔ Stockpile should be managed as waste

- Stockpile > 50 kg & contains POP substance, which manufacture and use is still permitted
  - ➔ Notification of the nature and volume of the stockpile to the competent authority
  - ➔ Monitoring of the use and management from the competent authority

- Stockpiles should be managed in a **safe, efficient and environmentally sound manner**

Impact on companies - Waste management

[Article 7 POPs Regulation]

Avoid the contamination of waste with POP substances listed in Annex IV (currently 26 substances)

If the waste is consisting or contaminated by POPs listed in Annex IV

➔Waste should be disposed or recovered with no delay according to specific operations listed in Annex V, part 1 to ensure that the **POPs content is destroyed or irreversibly transformed:**

- Physico-chemical treatment
- Incineration on land
- Use principally as a fuel or other means to generate energy, excluding waste containing PCBs
- Recycling/reclamation of metals and metal compounds

Note: Substance isolation during disposal process is possible, later on the substance should be eliminated appropriately.

Disposal or recovery operations leading to recovery, recycling, or re-use on their own of the substances listed in Annex IV is prohibited.

Impact on companies - Waste management

[Article 7 POPs Regulation]

Waste management - Derogation

Other disposal methods may be considered

- if environmentally preferable,
- if the POPs content in the waste is below the concentration limits specified in Annex IV

Example: the concentration limit for the sum of polybrominated diphenyl ethers (PBDEs), including decaBDE, is set at 1 000 mg/kg.

Exeptionally, **Member States may allow different disposal operations**

- ➢ POPs contaminated waste specified in Annex V part 2
- ➢ under conditions mentioned in Article 7.4.b

To ensure the control and traceability of waste containing POPs ➔ Article 17 of the waste directive 2008/98/EC

Directive (EU) 2018/851 !

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Alternatives

Support transition to safer alternatives

Using substances
- with no POPs characteristics
- Lower risk

➔ Protection of human health and the environment

To find out more : Stockholm Convention > Implementation > Alternatives > Overview

If you have information or suggestions: Please contact the Stockholm convention Secretariat!

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Reduction, minimisation and elimination of substances release

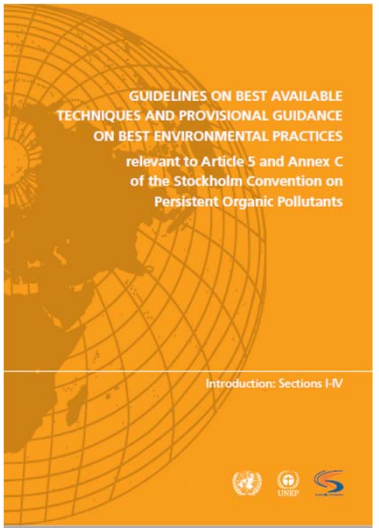
[Article 6 POPs Regulation]

POP substances listed in Annex III - unintentional by-products of industrial processes

Polychlorinated biphenyls (PCB) - Hexachlorobenzene (HCB) - Pentachlorobenzene
Hexachlorobutadiene - Polychlorinated naphthalenes - Polycyclic aromatic hydrocarbons (PAHs)
Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)

Member States obligation:

- draw up inventories
- communicate appropriate national action plans ➔ Continuous & cost-effective reduction
- For construction proposals of new facilities or modification of existing ones
  ➔ consider **alternative processes**, techniques or practices



Guidelines on Best Available Techniques and Provisional Guidance on Best Environmental Practices
(in relation with Article 5 and Annex C of the Stockholm convention)

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Implementation Plans

[Article 9 POPs Regulation]

Necessary measures to identify, reduce or eliminate releases of POPs into the environment

➔ **Develop & communicate an action plan**

Member states should

- **involve the public** early and effectively
- make it **publicly available & communicate on it**
- **exchange information** between EU Commission, ECHA and Member States

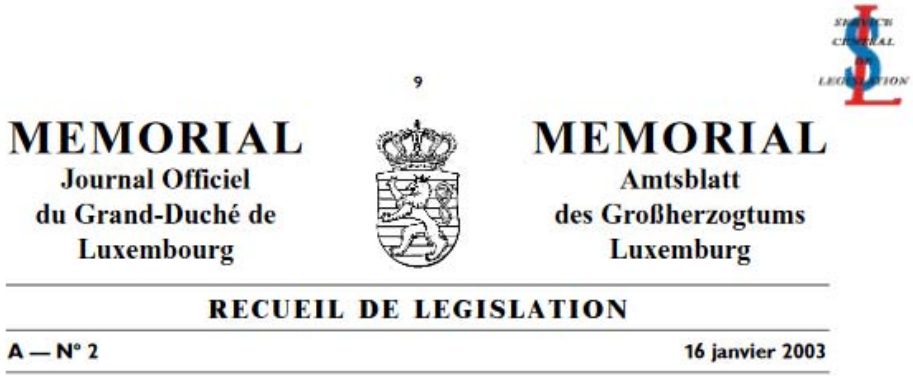
On the Union level, the commission should

- publish an implementation plan
- maintain appropriate monitoring programmes ➔ comparable data on PCDD/PCDF & PCB
- assess the need of mandatory monitoring of HCB, PAHs, Pentachlorobenzene, Hexachlorobutadiene, Polychlorinated naphthalenes
- rise awareness within public, professionals & decision makers

Implementation Plan in Luxembourg

Law of 8 January 2003

➔ **approving the Stockholm Convention** on Persistent Organic Pollutants, done at Stockholm on 22 May 2001.


9

MEMORIAL
Journal Officiel
du Grand-Duché de
Luxembourg

MEMORIAL
Amtsblatt
des Großherzogtums
Luxemburg

RECUEIL DE LEGISLATION

A — N° 2 16 janvier 2003

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Implementation Plan in Luxembourg

National Implementation Plan (2015) - update

- an overview of the situation of POPs in the Grand Duchy
- details on the POPs reduction provisions
- Measures to apply the best available techniques, strengthening of the limit values
- Regular measurement programs, such as the Environmental Administration's biomonitoring program, of air quality, soils, surface water, the food chain and occupational health.
- Proactive information to the public

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Implementation Plan in Luxembourg

National Implementation Plan (2015) - update

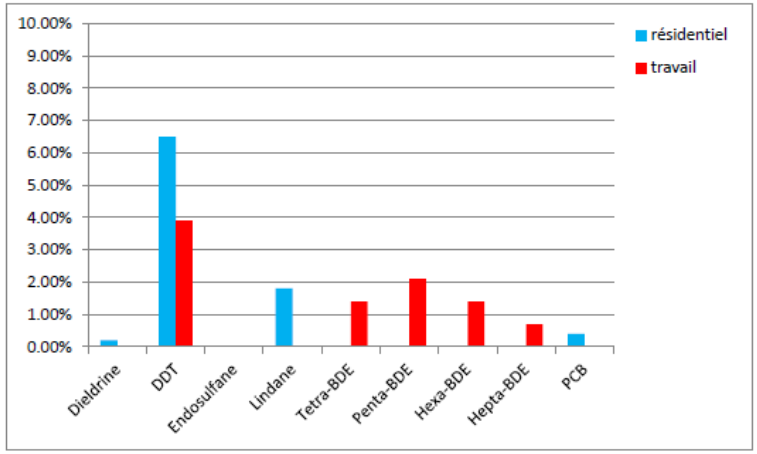


Figure 2: Fréquence des contaminations de poussières dans le secteur résidentiel (n=2178 de 2004-2007) et du lieu de travail (n=487 de 2008-2014).

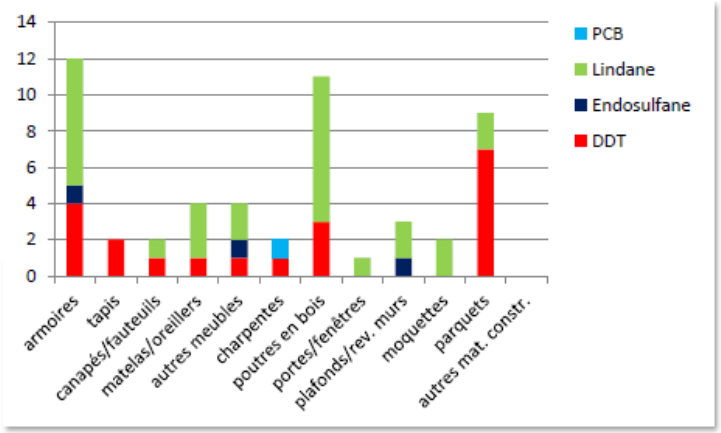
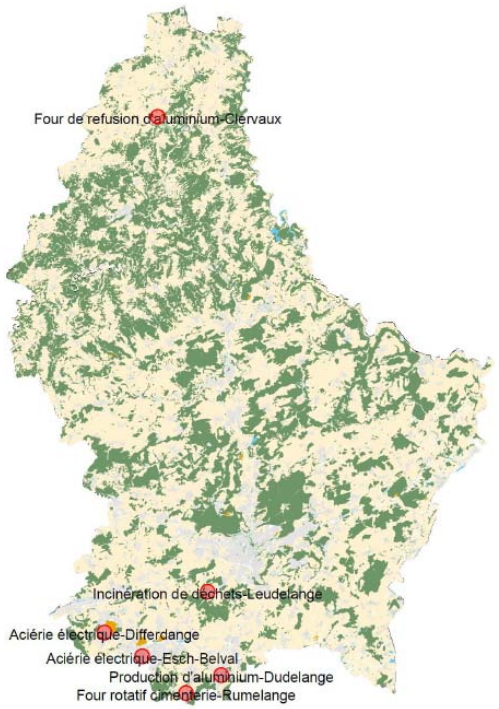


Figure 3: Sources contamination (matériaux) identifiées.

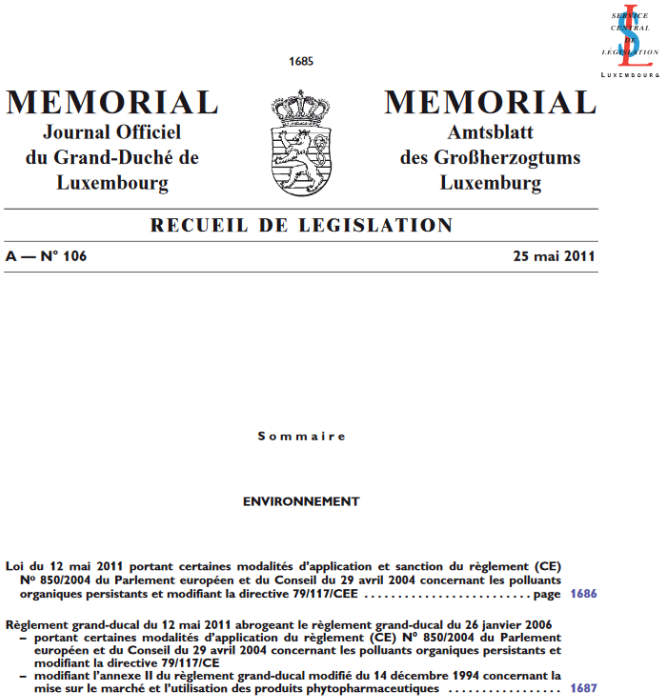


Main POPs sources in Luxembourg, 2015 (map.geoportail.lu)

Penalties in Luxembourg

Member States shall lay down rules on penalties applicable to infringements of POPs Regulation

[Article 14 POPs Regulation]



1685

MEMORIAL
Journal Officiel
du Grand-Duché de
Luxembourg

MEMORIAL
Amtsblatt
des Großherzogtums
Luxemburg

RECUEIL DE LEGISLATION

A — N° 106 — 25 mai 2011

Sommaire

ENVIRONNEMENT

Loi du 12 mai 2011 portant certaines modalités d'application et sanction du règlement (CE) N° 850/2004 du Parlement européen et du Conseil du 29 avril 2004 concernant les polluants organiques persistants et modifiant la directive 79/117/CEE ..... page 1686

Règlement grand-ducal du 12 mai 2011 abrogeant le règlement grand-ducal du 26 janvier 2006
- portant certaines modalités d'application du règlement (CE) N° 850/2004 du Parlement européen et du Conseil du 29 avril 2004 concernant les polluants organiques persistants et modifiant la directive 79/117/CE
- modifiant l'annexe II du règlement grand-ducal modifié du 14 décembre 1994 concernant la mise sur le marché et l'utilisation des produits phytopharmaceutiques 1687

Act of 12 May 2011 laying down certain **implementing rules and sanctioning** of Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on organic pollutants and amending Directive 79/117 / EEC.

➔ **MECDD & AEV being the competent authorities in Luxembourg [Article 1]**

➔ **Details on Penalties [Article 7]**

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Conclusion

Not Really!

Polycyclic aromatic hydrocarbons (PAHs) levels in Arctic air remain constant despite decreasing global emission

result of local warming causing more volatile PAHs to move from the surface to the air

Could climate change increase the POPs risks on human health and the environment?

A global temperature rise of 1°C

→ 10 - 15% increase in the volatility of semi-volatile POPs, such as PCBs and PBDEs.

→ Compromise the Stockholm convection efforts!

➔A much bigger challenge!

Important contribution from businesses and industries to achieve the reduction and/or elimination of releases of POPs into the environment

new and efficient technologies

making investments for the development of alternatives, etc.

REACH&CLP Helpdesk Luxembourg

POPs Regulation

New Helpdesk activity

New website - under development

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Useful Links

@ Stockholm convention:

http://www.pops.int/

@ ECHA – POP:

https://echa.europa.eu/understanding-pops

@ Portail de l'environnement - Emwelt.lu – PNMO:

https://environnement.public.lu/fr/loft/air/plans-air/PNMO-POP.html

helpdesk luxembourg
REACH & CLP
Un service du Luxembourg Institute of Science and Technology
En partenariat avec le Ministère de l'Environnement, du Climat et du Développement durable et le Ministère de l'Economie

Thank you for your attention!