



Environmental risk indicators in the European Union and the USA

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Regional indicators in the EU or the USA

- As far as we know, EU countries or the USA do not publish *regional* indicators of environmental risk
- But they do publish indicators of sustainability
- And indicators of environmental damage, sometimes in the form of «Green GDP»
- **The regional environmental risk indicator system that we have discussed at this workshop may be considered a further development and refinement of sustainability indicators, damage indicators etc.**

Indicators of Environmental Risk in the EU and the USA

- In the EU and the USA environmental risk is indicated and regulated *per problem*

Problem area	Accumulated Risk	Acute Risk
All emissions from industry sources	Industrial emissions directive	Industrial emissions directive
Rivers and lakes	Water framework directive	Water framework directive
Hazardous substances	EU – REACH USA - Superfund	EU – Seveso USA - Superfund
Biodiversity	Habitat directive	
Contaminated soil	EU soil strategy	
Marine life	OSPAR	

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Release permit is needed

- Covers more than 30,000 industrial facilities
- Requires reporting on releases to air, water and land as well as pollution content of waste and waste-water of **91** pollutants
- Each facility needs release permit

The release permit covers more than releases

- The release permit is a key tool for managing environmental risk from industrial production
- Additional regulations apply to industrial facilities handling hazardous chemicals (REACH, Seveso)

The release permit covers more than releases

- The release permit covers
 - Emission limit values
 - Appropriate requirements to ensure protection of the soil and groundwater, and measures concerning the monitoring and management of waste
 - Suitable emission monitoring requirements (methodology, frequency, evaluation procedure)

The release permit covers more than releases

- The release permit covers
 - An obligation to supply authorities regularly, at least annually, with information based on monitoring and other required data, enabling the authority to verify compliance
 - Appropriate requirements for regular maintenance and surveillance of measures to prevent releases
 - Appropriate requirements concerning periodic monitoring of soil and groundwater

The release permit covers more than releases

- The release permit covers
 - Measures relating to conditions other than normal operation, such as start-up and shut-down, leaks, malfunction, momentary stoppages and definitive cessation of operations
 - Provisions for the minimization of long-distance, transboundary pollution
 - Conditions for assessing compliance with the emission limit values and other applicable requirements
- **Of these requirements emission limit values are the most important for deciding acceptable environmental risk in practice**

Emission limit values are based on Best Available Technology

- Best Available Technology Reference Documents (BREFs) specify Best Available Technology in practice
- Emission limit values should be as strict or stricter than defined in BREFs
- Can be less strict if an assessment shows that the achievement in terms of emission reduction would lead to disproportionately higher costs compared to benefits, due to
 - The geographical conditions or the local environmental conditions of the installation
 - The technical characteristics of the installation

BREFs are found on a webpage

- <http://eippcb.jrc.ec.europa.eu/reference/>

Best Available Techniques Reference Document (BREFs)

Ceramic Manufacturing Industry

Common Waste Water and Waste Gas Treatment/
Management Systems in the Chemical Sector

Emissions from Storage

Energy Efficiency

Ferrous Metals Processing Industry

Food, Drink and Milk Industries

Industrial Cooling Systems

Intensive Rearing of Poultry and Pigs

Iron and Steel Production

Large Combustion Plants

Code	Adopted/Published Document	Formal draft (*)	Meeting report	Estimated review start (**)
CER	BREF (08.2007)			
CWW	BREF (02.2003)	FD (07.2014)	MR (06.2008)	
EFS	BREF (07.2006)			
ENE	BREF (02.2009)			
FMP	BREF (12.2001)			Review on hold
FDM	BREF (08.2006)		MR (10.2014)	
ICS	BREF (12.2001)			
IRPP	BREF (07.2003)	D2 (08.2013)	MR (06.2009)	
IS	BATC (03.2012) BREF			
LCP	BREF (07.2006)	D1 (06.2013)	MR (10.2011)	

BREF Iron and Steel

- Is 627 pages long! Prepared by Joint Research Center (JRC). Summarized in a 36 page official document:

1.2. BAT Conclusions For Sinter Plants

Unless otherwise stated, the BAT conclusions presented in this section can be applied to all sinter plants.

Air emissions

19. BAT for blending/mixing is to prevent or reduce diffuse dust emissions by agglomerating fine materials by adjusting the moisture content (see also BAT 11).

20. BAT for primary emissions from sinter plants is to reduce dust emissions from the sinter strand waste gas by means of a bag filter.

BAT for primary emissions for existing plants is to reduce dust emissions from the sinter strand waste gas by using advanced electrostatic precipitators when bag filters are not applicable.

The BAT-associated emission level for dust is $< 1 - 15 \text{ mg/Nm}^3$ for the bag filter and $< 20 - 40 \text{ mg/Nm}^3$ for the advanced electrostatic precipitator (which should be designed and operated to achieve these values), both determined as a daily mean value.

Bag Filter

Description

Bag filters used in sinter plants are usually applied downstream of an existing electrostatic precipitator or cyclone but can also be operated as a standalone device.



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What is REACH?

- regulation on Registration, Evaluation, Authorization and restriction of CHemicals
- REACH is both about procedure and about limit values
- It places the responsibility for the safe management of the risks of chemical substances on the industry
- The burden of proof is on industries. They must convince the regulator that a chemical is safe and procedures for handling it are safe.
- Applies to manufacturers and to importers.

Registration is necessary

- Substances manufactured or imported in quantities of 1 ton or more per year per company, manufacturer og importer need to registrate the substance in a registration dossier (= documentation), which must be submitted to the authority.
- Must include testing procedures

Substances of Very High Concern

- REACH singles out Substances of Very High Concern
- These require approval from REACH authorities
- The approval licence aims to ensure that risks from these substances are properly controlled, and that they over time are replaced by other substances

Substances of Very High Concern

- Currently 31 substances are of very high concern.
- The list is found here:
http://ec.europa.eu/environment/water/water-framework/priority_substances.htm
- Examples
 - Alaclor
 - Anthracene
 - Antrazine
 - Benzene
 - Cadmium and its compounds
 - Etc.
- More substances under consideration, in scientifically based review process (Joint Research Center)

Conclusions

- In practice management of environmental risk comes down to quantitative indicators
 - BREF
 - Substances of very high concern
- Many more than I have showed here are discussed in the CAEP-Vista report on International Experiences, and in Section 5 of the document From Principles to Policy (Framework Document D).