

# EU Legislation on Export/Storage/Disposal of Mercury

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# Framework Legislation

- Waste Framework Directive 2008/98/EC
- Landfill Directive 1999/31/EC
- Waste Acceptance Criteria Decision 2003/33/EC
- Regulation 1013/2006 on Shipment of Waste

# Waste Framework Directive 2008/98/EC



# Waste Framework Directive 2008/98/EC

- Waste management without risk
- Definitions of waste, reuse, recycling, recovery, disposal, end-of-waste status, by-products
- Waste management hierarchy:
  - Prevention
  - Preparing for reuse
  - Recycling
  - Other recovery, notably energy recovery
  - Disposal (last option)
- Waste Reduction, Recycling and Recovery targets
- Polluter pays principle
- Extended producer responsibility

# Waste Framework Directive 2008/98/EC

- Waste management plans and waste prevention programmes
- Principles of self-sufficiency and proximity
- Permits and registrations
- List of wastes according to origin and composition
- Allowed Recovery and Disposal Operations
- Provisions on hazardous wastes:
  - Ban of mixing
  - Hazardous wastes properties list
  - Casuistry
  - Record keeping 3 years
  - Packaged or labelled in line with international or EU regulations

# Waste Framework Directive 2008/98/EC

## DISPOSAL OPERATIONS

D 1 Deposit into or on to land (e.g. landfill, etc.)  
D 5 Specially engineered landfill  
D 9 Physico-chemical treatment results in final compounds or mixtures discarded by means of any of the operations D1 to D14  
D 12 Permanent storage  
D 13 Blending or mixing prior to submission to D 1 to D 12  
D 15 Storage pending any of the operations D 1 to D 14

05 07 01\* mercurywastes from natural gas purification,  
06 04 04\* mercury wastes from inorganic chemical processes,  
06 07 03\* barium sulphate sludge containing mercury,  
10 14 01\* waste from gas cleaning containing mercury,  
16 01 08\* components containing mercury,  
16 06 03\* mercury-containing batteries,  
17 09 01\* construction and demolition mercury wastes  
20 01 21\* fluorescent tubes, other mercury-containing waste

## Hazardous Waste Management

H 5 "Harmful"  
H 6 "Toxic"  
H 7 "Carcinogenic":  
H 10 "Toxic for reproduction":  
H 11 "Mutagenic":  
H 12 releases toxic or very toxic gases  
H 14 "Ecotoxic"  
H 15 capable of yielding another substance

## RECOVERY OPERATIONS

R 4 Recycling/reclamation of metals and metal compounds  
R 5 Recycling/reclamation of other inorganic materials  
R 8 Recovery of components from catalysts  
R 11 Use of waste obtained from R 1 to R 10  
R 13 Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage, pending collection, on the site where the waste is produced)

# Landfill Directive 1999/31/EC



# Landfill Directive 1999/31/EC

- Landfill definition scope
- Landfill classes
- Requirements of location, stability, leachate management, protection of solid and water, etc.
- Requirements for a permit, closure and after-care procedures
- Monitoring and control during operation and after-care
- Allowed storage up to 3 years if pending to recovery, 1 year if disposal
- Treatment operations accepted for landfills
- First guideline for the acceptance of waste at landfills. Liquid waste are not allowed.



# Waste Acceptance Criteria Decision 2003/33/EC

- Develops Landfill Directive on basic characterization, compliance testing and on site verification
- The acceptance of Hg waste at each landfill type primarily depends on the leaching properties of the waste.
- Sets out leaching limit values, sampling and test methods to determine the leachability
- Mercury waste above the leaching limit value for a specific type of landfill has to be treated again to reduce the content of mercury or to be stabilised and reduce the leachability
- Criteria for monolithic waste will have to provide at least the same level of environmental protection as for granular waste
- For underground storage specific safety assessment is prescribed due to the fact that leaching limit values do not apply

# Waste Acceptance Criteria Decision 2003/33/EC

<b>Mercury leaching limit values for different landfill types according to Decision 2003/33/EC</b>			
<b>Landfill type</b>	<b>L/S =2 l/kg mg/kg dry substance</b>	<b>L/S =10 l/kg mg/kg dry substance</b>	<b>C0 (percolating test) mg/l</b>
<b>Criteria for waste acceptable for landfills for hazardous waste</b>	<b>0.5</b>	<b>2</b>	<b>0.3</b>
<b>Criteria for hazardous waste acceptable at landfills for non hazardous waste</b>	<b>0.05</b>	<b>0.2</b>	<b>0.03</b>
<b>Criteria for granular non-hazardous waste accepted in the same cell as stable non-reactive hazardous waste</b>	<b>0.05</b>	<b>0.2</b>	<b>0.03</b>
<b>Criteria for landfills for inert waste</b>	<b>0.003</b>	<b>0.01</b>	<b>0.002</b>

# Regulation 1013/2006 on Shipment of Waste



# Regulation 1013/2006 on Shipment of Waste

- Transposition of Basel Convention and OECD Decision
- Transboundary movement of hazardous wastes and other wastes reduced to the minimum, priority for recovery
- Principle of self-sufficiency and proximity
- Shipments of waste destined for disposal operation shall be subject to prior written notification and consent procedure
- Not allowed the export of hazardous wastes to Parties, particularly developing countries, which have prohibited by their legislation all imports, or waste will not be ES managed
- Shipment of mercury and mercury-containing waste should be allowed when a new waste specialized installation is uneconomic or the Hg production is very small

# Metallic Mercury Legislation



# Metallic Mercury Legislation

- European Strategy Concerning Mercury (2005)
- Mercury Regulation N° 1102/2008
- Directive 2011/97/UE specific criteria for the temporary storage of metallic mercury considered as waste
- Recommendation 2009/39/CE on safe storage of mercury no longer used in Chlor-Alkali Industry

# European Strategy Concerning Mercury 2005

- European Strategy Concerning Mercury is not a legally binding instrument but is normally followed by binding measures
- European Commission adopted the Strategy setting out 20 actions to reduce mercury levels in the environment and human exposure
- Development of the Strategy has promoted new legislation on mercury issues as well as progress in scientific, technical knowledge and public awareness

# European Strategy Concerning Mercury

## Actions related to metallic mercury

- **REDUCING SUPPLY**

As a pro-active contribution to a proposed globally organised effort to phase out primary production of mercury and to stop surpluses re-entering the market, the Commission pursued to phase out the export of mercury from the EU by 2011

- **ADDRESSING SURPLUSES AND RESERVOIRS**

Proposed action to storage and disposal of mercury from largest holders, consistent with the phase out of mercury exports by 2011  
Permanent disposal seemed to be optimal from an environmental point of view but too expensive and technically uncertain



# Regulation (EC) No. 1102/2008

- 1) As of 15-03-2011, exports from UE of metallic mercury, cinnabar ore, mercury chloride, mercury oxide and mixtures of metallic mercury with other substances, of at least 95% mercury weight are banned (Exemptions to medical, experimental and analytical purposes)
- 2) As of 15-03-2011, considered as waste metallic mercury from:
  - No longer used in Chlor-Alkali Industry
  - Gained from cleaning natural gas
  - Gained from non-ferrous mining and smelting operations
  - Extracted from cinnabar ore
- 3) Amendment of landfill acceptance rules. Metallic mercury may be:
  - Temporary stored (>1y) D15 or permanently in salt mines adapted, or deep underground hard rock formations D12
  - Temporary stored (>1y) in aboveground storage D15
- 4) Assessment of ongoing research of solidification/stabilisation methods and long-term behaviour of Hg<sup>0</sup> underground

# Regulation (EC) No. 1102/2008

Export Ban to non-EU countries of metallic mercury, and certain of its compounds and mixtures (as of 15-03-2011)

Classified as waste most of the available metallic mercury (as of 15-03-2011)

Liquid metallic mercury could be disposed ensuring that their storage and final disposal is carried out safely  
Amendment of Landfill Directive

Temporary stored (>1y) in:  
-Salt mines adapted, or deep underground hard rock formations  
-Temporary stored (>1y) in aboveground storage D15

Permanently stored in salt mines adapted, or deep underground hard rock formations D12

Definitions of requirements for storage facilities and acceptance criteria for mercury  
Amendment Landfill Directive

Directive 2011/97/EU  
Definitions of requirements for Hg temporary storage mercury waste

Assessment of ongoing research of solidification/stabilisation methods and long-term behaviour of metallic mercury underground

## Regulation (EC) No. 1102/2008

### Points for revision in 2013

- Specific criteria for the permanent storage of metallic mercury considered as waste
- Ongoing research on safe disposal options including technologies of stabilisation/solidification
- Time limits concerning temporary storage (5 years so far)
- Storage obligation to metallic mercury from other sources
- Extending export ban to other compounds
- Import Ban

# Directive 2011/97/EU Temporary storage criteria



# Directive 2011/97/EU Temporary storage criteria

## Requirements for the purpose of temporary storage of metallic mercury for more than 1 year

- Storage site requirements
- Composition of the mercury
- Containment Standards
- Acceptance procedures
- Certificates
- Monitoring, inspection and emergency requirements
- Record keeping

## Recommendation 2009/39/CE safe storage of Hg no longer used in Cl-Al Industry

- First voluntary industry agreement to be formally recognised by a commission Recommendation.
- Euro Chlor, the business association representing chlor-alkali producers in the EU and the European Free Trade Association regions, ensure safe underground storage of mercury surpluses
- The Commission will develop the specific technical criteria the locations will have to meet, as well as rigorous safety requirements to be observed at the sites.
- Surplus mercury will be removed from decommissioned chlorine plants, transported to its final destination in approved sealed steel containers



**GOVERNMENT OF SPAIN**

**THANK YOU  
FOR YOUR ATTENTION**

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