



To EU Member States' experts

To the Environment Delegates of the EU Member States at the EU

Brussels, 24 April 2007

## **Environmental and Health NGOs<sup>i</sup> call for a wide mercury export ban and safe temporary storage of surplus mercury.**

The coalition of environmental and health NGOs welcome the Commission's proposal on an EU mercury export ban and the safe storage of surplus mercury, in keeping with the EU Strategy on Mercury (28/1/2005). However, we consider that several aspects of the regulation should be strengthened to fully ensure protection for human health and the environment, and therefore welcome the direction of the European Parliament rapporteur's report and proposed amendments. We call on the Member States' experts to consider these proposals.

It is well known that mercury travels throughout the atmosphere, contaminating European and global food supplies at levels posing a major risk to human health, wildlife and the environment. Since current measures are not sufficient to reduce contamination, further actions must be taken.

We therefore urge you to take account of the following issues:

### **1. The proposed ban should be implemented as soon as possible, preferably by 2008<sup>ii</sup>.**

- The later the implementation date, the more mercury will go into the world market. The EU is the world's largest mercury exporter, most of which goes to developing countries where it is often haphazardly used and released, contaminating workers and their families, local communities and global food supplies.
- The European Parliament's resolution in March 2006 requested implementation by 2010.

### **2. The export ban should include mercury compounds and cinnabar.**

- Compounds comprise some of the largest global uses of mercury, and therefore represent a significant loophole in the proposal.
- It makes little sense to permit EU export of mercury compounds, which EU traders could simply produce or trade for export. Converting liquid mercury to a compound, and later reconvert it back may cost less than US\$100 per flask. At the current market price of some \$600 per flask, unscrupulous traders could abuse the 'compound loophole', and still make money.<sup>iii</sup>
- Including compounds will ensure consistency in the regulation. Although storage of the compound calomel<sup>1</sup> is requested, its export is not currently included in the ban.
- In the EU an estimated 48 tonnes of mercury are recovered from refining of non-ferrous metals, of which about half may be in the form of calomel. Another 50-100 tonnes of mercury could be recovered from EU calomel.<sup>2</sup> This mercury could therefore be added to the global market, if calomel is not prohibited for export from the EU.
- Cinnabar is the mineral where mercury is naturally found; including cinnabar in this regulation ensures that primary mining of mercury, which would add new mercury to the market, is prohibited.
- Other compounds such as mercuric oxide, mercuric chloride and other organo-mercury compounds are still manufactured in the EU. Different trade names can be used for products which do not reveal their mercury content. Many of these compounds may still be manufactured in the EU and exported for mercury recovery; and there is an economic incentive to manufacture e.g. mercury chloride and oxide and then recover the mercury after export.

Further details on compounds can be found in the annex.

<sup>1</sup> IPPC Reference Document on Best Available Techniques in the Non-Ferrous Metals Industries, European Commission, December 2001, p. 134.

<sup>2</sup> Mercury flows and safe storage of surplus mercury, August 2006, Concorde East/West for EC DG ENV, p.8

**3. Mercury-containing waste with high content of mercury should also be prohibited from export.**

- According to EU legislation, mercury and mercury-containing wastes can be exported with the consent of the receiving country ONLY to OECD countries: those EU member states which are member of the OECD, Norway, Switzerland and Iceland to: Australia, Canada, Japan, Korea, Mexico, New Zealand, Turkey and the United States. These countries have facilities which could be used for extracting mercury from mercury compounds or mercury containing wastes. Therefore on the basis of the proposed regulation there is a loophole where mercury can still be exported indirectly from the EU. This loophole needs to therefore be closed. (see also annex)

**4. Mercury-containing products, which are subject to EU use and marketing restrictions should also be included in the ban.**

- Mercury containing products contribute significantly to mercury spills, release at disposal, and therefore both direct health risks and environmental contamination.
- Cost effective mercury-free alternatives are available for virtually all mercury containing products.
- The EU should avoid double standards. Mercury-containing products prohibited here should not be exported to countries where they may not yet be regulated, and where their disposal is often poorly handled.
- The European Parliament (March 2006) called for the export ban to include mercury compounds and products containing mercury which are or will soon be subject to EU use and marketing restrictions.

**5. Temporary storage of decommissioned mercury from the chlor-alkali industry must start as soon as possible, in continuously-monitored secure sites located where immediate intervention can take place if necessary.**

- The Commission's proposal to decide on the final disposal of metallic mercury seems to be premature.
  - Disposal of liquid wastes is prohibited from the EU Landfill Directive, due to the risks the nature of these waste entail. Disposal for liquid metallic mercury in salt mines raises serious concerns with respect to the environmental safety over the very-long term.<sup>3</sup>
  - The European Commission is currently co-financing MAYASA to implement the LIFE preparatory project MERSADE, with the objectives to value the facilities available at the current storage area, design a prototype for storage of metallic mercury and a monitoring plan for 50 years and study a line for transforming liquid metal mercury into a more stable species. The project started in late 2006<sup>4</sup>.
  - In the US investigation on safe disposal of mercury has been going on for years.<sup>5</sup> A study has concluded that the safest way is to store mercury in above-ground facilities where continuous monitoring will take place, amongst other defined safety conditions<sup>6</sup>. Temporary timeframe is set in 40 years for the time being.<sup>7</sup>
  - Research to develop a technology for the chemical stabilization of metallic and oxidized mercury is still ongoing in Sweden, but no commercial solution is available yet<sup>8</sup>.
- Until safe disposal techniques are developed and fully evaluated metallic mercury shall be stored temporarily in such a way that it can be retrieved.
- A framework of minimum conditions for storage should be established ensuring continuous monitoring, minimum safety standards, regular and transparent reporting, advance planning and projections, assurance of delivery, and penalties for failure.
- The responsibility for safe final disposal should remain with the Member States and the chlor-alkali industry as appropriate.

<sup>3</sup> EEB Conference report "EU mercury surplus management and Mercury-use restrictions in measuring and control equipment", October 2006, p.23

<sup>4</sup> <http://www.mayasa.es/ing/mersade.asp>

<sup>5</sup> USEPA (1997) – Mercury Study, Report to Congress. EPA-452/R-97-003. US Environmental Protection Agency, Washington DC, USA; 199

<sup>6</sup> US EPA Preliminary Analysis of Alternatives for the Long Term Management of Excess Mercury, August 2002, <http://www.epa.gov/ORD/NRMRL/pubs/600r03048/600R03048.pdf>

<sup>7</sup> Record of Decision for the Final Mercury Management Environmental Impact Statement; Notice <http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2004/pdf/04-9726.pdf>

<sup>8</sup> [http://www.sakab.se/upload/dokument/pdf/Laddningsbara%20filer/Forskning%20&%20utveckling/Mercury\\_immobilization.pdf](http://www.sakab.se/upload/dokument/pdf/Laddningsbara%20filer/Forskning%20&%20utveckling/Mercury_immobilization.pdf)

- The European Parliament (March 2006) has called for legally binding measures to safely store excess mercury in secure sites, continuously monitored and located where active intervention can take place immediately if necessary. It also underlined the importance of the polluter-pays principle as far as storage of surplus mercury is concerned.
- 6. The trade tracking system shall be set up, as soon as possible and BEFORE the export ban date, to provide information periodically and to record all exports and imports of elemental and compound mercury between Member States, and between the EU and external countries.**
- Periodical reporting will ensure transparency of the trade, and allow developments that run contrary to the intention and effectiveness of the ban to be easily assessed by the Commission and stakeholders.
  - It would create a level playing field for mercury importers and traders, giving them an incentive to take responsibility for their commerce.
  - Member States should provide information to the EC regularly, and the EC should make this information public.
  - The movement of mercury within the industry sector should also be recorded and reported to the Commission, before and after the effective date of the export ban.
  - The tracking system data should include: companies' identity, country, location, quantities involved, purpose of use, etc.
  - It shall be ensured that information from the relevant industries is submitted to the Member States regularly; the information shall include figures on the total amount of mercury still in use, recovered upon closure or reconversion of the plant, sent for temporary storage, transfers, amounts stored onsite temporarily etc.
  - The European Parliament (March 2006) has called for a mercury trade tracking system to be in place before the export ban.
- 7. The regulation shall be based on Art. 175 of the EC Treaty and shall allow Member States to implement stricter measures, as early as appropriate.**
- The proposed measure is motivated by the objectives of protecting the environment and human health, and not by commercial policy considerations<sup>9</sup> it is clear that the legal basis should refer to the environment and that the Member states shall have the right to adopt more stringent measures (as allows Art. 176 of the EC Treaty).
- 8. The EU should consider prohibiting imports of mercury and mercury compounds in order to:**
- ensure EU mercury supplies are consistent with EU demand, mandatory storage obligations, and policies encouraging mercury recovery from wastes and products.
  - better protect the EU waste/mercury recyclers – avoiding low-cost mercury flooding EU market.
  - The EU could undertake very targeted import prohibitions where it is necessary to implement important EU policies.<sup>10</sup>
- 9. Technical and financial support to developing countries and NGOs working on the issue could be crucial for those countries' progress towards mercury-free products and processes.**
- The recent decision of the 24<sup>th</sup> UNEP Governing Council has invited Governments to provide resources to the developing countries in view of the agreed global work to reduce mercury supply, demand and emissions.

<sup>9</sup> EC Proposed Regulation on the banning of exports and the safe storage of metallic mercury, page 6: "The export ban element indicates Article 133 ECT as the appropriate legal bases, EVEN IF the measure is motivated by the objectives of protecting human health, and NOT by commercial policy considerations.

<sup>10</sup> With respect to the purely legal question of confronting trade obstacles, we note the very recent promulgation of Council Regulation No. 1236/2005, restricting trade in products used for torture and other inhuman punishment. We specifically note the import prohibition of equipment that can only be used for capital punishment, torture, or other similar purposes in Article 4 of this regulation. This import prohibition suggests the EU can undertake very targeted import bans where it is necessary to implement important EU policies.

In conclusion, we reiterate our appreciation for this Commission initiative. A strong EU position recognises the EU's responsibility for its share of the problem. Ensuring an EU mercury export ban pragmatically acknowledges that there is little point in simply reducing mercury demand within the EU, only for unwanted mercury to be exported to the developing world under far less stringent controls, released, and ultimately returned to Europe's atmosphere and the fish we eat.

The value of a strong EU commitment to tackling mercury problems on the global stage must not be underestimated. This is a straightforward opportunity to reduce the health risks to millions of EU citizens, and many more globally, that we cannot afford to miss.

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## Annex

### 1. Additional elements and justifications for prohibiting exports of mercury compounds

If exports of mercury compounds are not banned along with elemental mercury, there is a possibility that the compound calomel (see below) could be exported and that mercury could be recovered from it outside the EU. There is also the possibility that mercury could be first converted to one of several compounds to circumvent the ban on elemental mercury exports, exported as a compound, and then re-converted to elemental mercury outside the EU.<sup>11</sup> Below you can find some more details with respect to the main mercury compounds.

#### Mercurous chloride (calomel)

- Calomel is produced as a waste product primarily when removing mercury from flue gases with the Boliden Norzinc process during zinc, gold, copper, etc. refining. It is also a component of reference electrodes in electrochemistry<sup>12</sup>.
- In the EU an estimated 48 tonnes of mercury are recovered annually from refining of non-ferrous metals, of which about half may be in the form of calomel<sup>13</sup>.
- However another 50-100 tonnes of mercury could be recovered from calomel in the EU<sup>2</sup>.

➤ Therefore there can be a possibility that calomel is exported by the EU as a compound, and processed outside the EU to recover the mercury. This could generate 50-100 tonnes of additional mercury in the global market, annually.

#### Mercuric Oxide

- Mercury is present in high concentrations (about 30% by weight) in mercury oxide batteries (mainly sold as button cells - especially used in devices such as watches and pocket calculators - but also with a number of military and other applications). Marketing of mercury oxide batteries is now severely restricted in the EU and other OECD countries, although specific uses (especially military) may still be exempted (COWI, 2002).<sup>14</sup>
- Some 15 tonnes of mercury per year (RPA, 2002) may have been consumed by the EU in batteries in 2000. This figure should be compared to around 2 tonnes/year suggested by industry, which reports only sales by the European Battery Producers Association (EPBA) members, who no longer sell mercury oxide button cells in the EU<sup>3</sup>.
- In recent years EU demand for red oxide (mercuric oxide) and calomel (mercurous chloride), both mercury compounds produced and sold by MAYASA, has fallen considerably.
- Mercury could be recovered from a Western European mercury cell chlor-alkali plant, sold to the Spanish mercury mining and trading company, shipped to Germany for further conversion into mercuric oxide, sold to mainland China for the manufacture of button-cell batteries, and the batteries exported to Hong Kong for incorporation into mass-produced watches for export to the European Union and the US<sup>15</sup>.
- These statistics (of 2000) report a remarkable 2000 tonnes of mercuric oxide batteries imported by the EU, and the EU exported nearly 1000 tonnes<sup>16</sup>. There is however reason to believe these numbers are much lower in 2006.<sup>17</sup>
- It is assumed that there also remain a large number of button cell batteries manufactured in the EU-27 containing on the order of 1% mercury. These will surely be replaced by mercury free button cells in the next several years. The mercury content of new alkaline batteries produced in the EU is considered to be quite low.<sup>18</sup>

<sup>11</sup> Mercury flows and safe storage of surplus mercury, August 2006, Concorde East/West for EC DG ENV, p.30

<sup>12</sup> <http://en.wikipedia.org/wiki/Calomel>

<sup>13</sup> Mercury flows and safe storage of surplus mercury, August 2006, Concorde East/West for EC DG ENV, p.8

<sup>14</sup> Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.34

<sup>15</sup> Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.ES-5

<sup>16</sup> Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.49

<sup>17</sup> see Comtrade statistics for 2001-2005, <http://comtrade.un.org/>

<sup>18</sup> Mercury flows and safe storage of surplus mercury, August 2006, Concorde East/West for EC DG ENV, p.23

- Mercuric oxide is sometimes used as a mercury source as it breaks down into elemental mercury quite easily.<sup>19</sup>

- Therefore some tonnes of mercury continue to be used in mercuric oxide batteries given the above mentioned figures, although the precise quantity is not clear.
- Given that MAYASA and others have been manufacturing mercuric oxide and calomel, these could still be made for export.
- Germany has also been manufacturing mercuric oxide. They could continue production and sell it abroad for indirect mercury recovery.

### Other mercury compounds

- Mercury compounds are still commonly used in many countries in cosmetics, batteries, pharmaceuticals, paints and biocides, according to CADTSC (2001). The compounds in most frequent use include mercury oxide, mercury chloride, and phenylmercuric acetate.<sup>20</sup>
- In fact, the use of certain compounds, which MAYASA no longer produces in much volume, has long been promoted by a range of trade names and other descriptions that often appear to have no relation to mercury.<sup>7</sup>
- According to the US EPA (1999), the only major mercury compounds still imported by the US for use in products are organo-mercury compounds. In a recent year, U.S. imports of organo-mercury compounds were said to be 37 tonnes.<sup>7</sup>
- Nevertheless, the geographic locations of major mercury dealers are generally evident from the trade data – unless they convert the mercury to a compound (such as mercuric chloride) to better disguise the movement of raw mercury.<sup>21</sup>
- Pesticides containing mercury compounds including mercuric oxide, mercurous chloride (calomel): other inorganic mercury compounds: alkyl mercury compounds: and alkoxyalkyl and aryl mercury compounds are banned or severely restricted for use in the EU under 79/117/EEC (1991,1992)

#### *Mercury Chloride*

- It was formerly used in insecticides, batteries; as an antiseptic, disinfectant, preservative, in metallurgy and as a photographic fixative.<sup>22</sup>

#### *Phenylmercuric acetate*

- Used in general, in consumer products, building materials or furnishings that contribute to indoor air pollution and in pesticide products.<sup>23</sup>

#### *Organo-mercury compounds*

- Important organomercury compounds are the methylmercury cations,  $\text{CH}_3\text{Hg}^+$ ; ethylmercury cations,  $\text{C}_2\text{H}_5\text{Hg}^+$ ; dimethylmercury,  $(\text{CH}_3)_2\text{Hg}$  and thiomersal,  $\text{C}_9\text{H}_9\text{HgNaO}_2\text{S}$ . Organomercury compounds, and dimethylmercury in particular, are notoriously toxic and find use as antifungal agents and insecticides.<sup>24</sup>
- Thiomersal or thimerosal (known to many of us as “Merthiolate” in past decades) is a preservative used in a number of biological and drug products including some vaccines. Thimerosal is approximately 50% mercury by weight, in the organic form of ethylmercury.<sup>25</sup>
- Dimethylmercury is most often used in toxicology experiments as a fixed point of reference due to its extreme toxicity. It has also been used to calibrate NMR (Nuclear Magnetic Resonance) instruments for detection of mercury, although less toxic mercury salts are preferred.<sup>26</sup>

<sup>19</sup> [http://en.wikipedia.org/wiki/Mercury\(II\)\\_oxide](http://en.wikipedia.org/wiki/Mercury(II)_oxide)

<sup>20</sup> Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.50

<sup>21</sup> Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.43

<sup>22</sup> [http://en.wikipedia.org/wiki/Mercury\(II\)\\_chloride](http://en.wikipedia.org/wiki/Mercury(II)_chloride)

<sup>23</sup> [http://www.scorecard.org/chemical-profiles/consumer-products.tcl?edf\\_substance\\_id=62%2d38%2d4](http://www.scorecard.org/chemical-profiles/consumer-products.tcl?edf_substance_id=62%2d38%2d4)

<sup>24</sup> [http://en.wikipedia.org/wiki/Organomercury\\_chemistry](http://en.wikipedia.org/wiki/Organomercury_chemistry)

<sup>25</sup> <http://en.wikipedia.org/wiki/Thiomersal>

<sup>26</sup> <http://en.wikipedia.org/wiki/Dimethylmercury>

- Different trade names can be used for products which do not reveal their mercury content.
- Many of these compounds may still be manufactured in the EU and exported for mercury recovery.
- It would be economically beneficial to manufacture mercury chloride and oxide and then recover the mercury after export.<sup>27</sup>

## 2. Note on the possibilities to export waste for recovery

- **Regulation 1013/2006 on shipment of waste:** Art. 36: exports of waste (for recovery) listed as hazardous in Annex V (mercury and mercury-containing wastes are included) are prohibited to non-OECD countries<sup>28</sup> (therefore allowed to OECD countries, with consent of the receiving country)

- Therefore according to EU legislation, mercury-containing wastes can be exported for recovery with the consent of the receiving country ONLY to OECD countries: those EU member states which are member of the OECD, Norway, Switzerland and Iceland to: Australia, Canada, Japan, Korea, Mexico, New Zealand, Turkey and the United States.
- These countries have facilities which could be used for extracting mercury from mercury compounds or mercury containing wastes. Therefore on the basis of the current regulation there is still a loophole where mercury can still be exported indirectly from the EU. This loophole needs to therefore be closed.

<sup>i</sup> Environmental NGOS include

The **European Environmental Bureau, (EEB)**, [www.eeb.org](http://www.eeb.org), is a federation of more than 140 environmental citizens' organisations based in all EU Member States and most Accession Countries, as well as in a few neighbouring countries. These organisations range from local and national, to European and international. The aim of the EEB is to protect and improve the environment of Europe and to enable the citizens of Europe to play their part in achieving that goal.

The **Zero Mercury Working group**, [www.zeromercury.org](http://www.zeromercury.org), is an international coalition of more than 48 public interest non-governmental organizations from around the world formed in 2005 by the European Environmental Bureau and the Mercury Policy Project/Ban Mercury Working Group. The aim of the group is to reach 'Zero' emissions, demand and supply of mercury, from all sources we can control, towards eliminating mercury in the environment at EU level and globally."

**Health and Environment Alliance (HEAL)**, <http://www.env-health.org/> is an international non-governmental organisation advocating environmental protection as a means to improving health and well-being. Member groups and organisations represent health, environment, women, health professionals and others. The group has a diverse membership of over 50 groups including non-governmental organisations, professional bodies representative of doctors, nurses and other healthcare workers, academic institutions and other not-for-profit organisations.

**Health Care Without Harm Europe (HCWH)**, [www.noharm.org](http://www.noharm.org), is an international coalition of hospitals and health care systems, medical and nursing professionals, community groups, health-affected constituencies, labour unions, and environmental. HCWH is dedicated to transforming the health care industry worldwide, without compromising patient safety or care, so that it is ecologically sustainable and no longer a source of harm to public health and the environment.

<sup>ii</sup> As originally proposed in earlier Commission drafts but also by the Luxembourg Presidency <http://register.consilium.eu.int/pdf/en/05/st07/st07986.en05.pdf>

<sup>iii</sup> A recent report prepared for the European Commission indicates the mercury compound 'calomel' is generated in significant quantities in the EU, most commonly in emission control systems at metal smelters. Calomel can readily be processed into commodity mercury at locations outside the EU, thus the ability and experience needed to process and trade calomel for this purpose already exists, Concorde East/West, Mercury Flows and Safe Storage of Surplus Mercury, August 2006, pp. 30-31.

<sup>27</sup> P Maxson personal communication with B Lawrence, President, Bethlehem Apparatus mercury recyclers, 2005

<sup>28</sup> OECD countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.