



Open Letter

Ratification of the Minamata-Convention

reduce mercury emission and cut down mercury containing products

the proposal of the ratification-treaty was published by the European Commission on 02. February 2016.

From the European Commission an **amalgam ban** had been contemplated in the current ratification of the global Minamata Convention but was not included in the proposal "for reasons of cost." Which costs? There are cost calculations that come to a different conclusion and further good reasons that should be taken into account for this decision!

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Introduction

The Minamata Convention is a global treaty to protect human health and the environment from the adverse effects of mercury initiated by the United Nation Environmental Programs (UNEP). It was agreed in 2013. (Extracts see Annex I)

Mercury is a highly toxic substance for humans, animals and the ecosystems. High doses can be fatal, but even relatively low doses can lead to serious health effects. Mercury and its compounds harm the central nervous system, kidney, liver, thyroid, eyes, gums, skin and disturb the immune system. It can cause tremors, paralysis, insomnia, headaches and emotional fluctuations. A recent study has even demonstrated cardiovascular effects caused by mercury (McKelvey and Oken, 2012). The individuals most at risk are pregnant women, newborns and infants. Mercury accumulates in the body and crosses the placental barrier as well as the blood-brain barrier. It is especially toxic to the developing central nervous system of children. The possible consequences include mental retardation, seizures, vision and hearing loss, developmental delay, speech disorders, memory loss and decreased intelligence.¹

The Convention had been signed in 2013 by more than 90 countries, including the European Union. The entry into force of the convention will take place after the ratification by at least 50 states. Meanwhile, the convention was signed by 128 states and ratified by 23 states. Signatories are left with considerable leeways regarding the ratification of the treaty with binding measures. For European Countries the European Union is drafting an all-european treaty which will serve as guideline for the ratification by the single member states which will turn into action right after the deposition by the EU (possibly including certain national deviations).

The DG Environment of the European Commission has published on Februar 2nd 2016 a draft version of the ratification treaty, which, however, must still be agree by the European Parliament and the EU Member States. After all the proposal is now submitted to the European Parliament for revision.

The regulation of Amalgam

The European Commission concluded in its opinion²:

The IA concludes, in the light of the available scientific information, that a prohibition of the use of dental amalgam would not be proportionate as the health risks of dental amalgam are not clearly demonstrated and the cost of a prohibition would be high.

Which high costs? Aren't the calculations including the costs for the pollution caused by dental amalgams? According to a recent study (see below) adding these costs, amalgam fillings are already significantly more expensive than alternative filling materials. (They are even more expensive, of course, including the health costs for of chronic diseases which are associated with amalgam fillings. Despite the Commission's assessment, there are numerous scientific studies which proof a relation of amalgam fillings to diseases such as Alzheimer's or multiple sclerosis.^{3 4 5 6 7 8 9 10})

In addition, alternative filling materials as such are not more expensive than amalgam fillings. The cost, the durability and the quality of composite fillings (with good processing) nowadays correspond to the properties of amalgam. The example of the amalgam ban in Sweden in 2009 has shown, that an amalgam ban without a significant increase of costs is possible. Patients only had to pay in the first years a surcharge of about 10% for composite fillings compared to amalgams. The expenses in the health system did not even increase.

Expenses for dental care in Sweden in billion of SK. (Landstingen).

2007	2008	2009	2010	2011	2012	2013
4,8	5,0	4,9	5,0	5,1	5,3	5,2

It is further stated in the text of the European Commission:

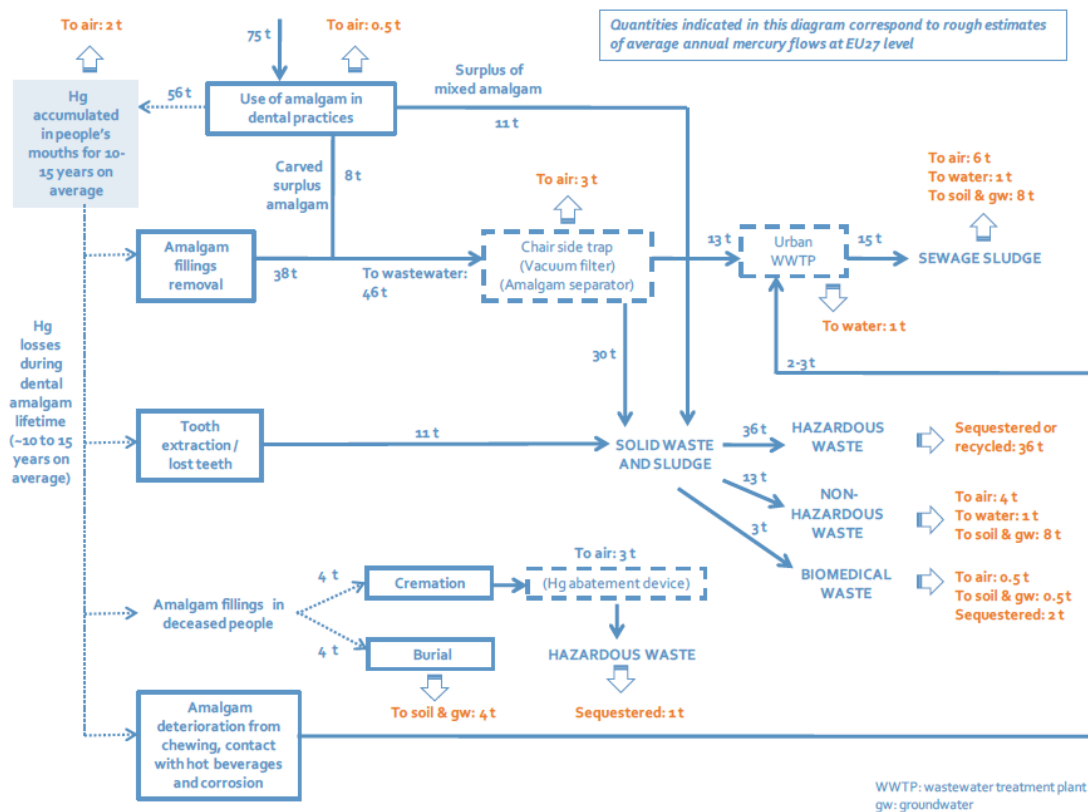
Furthermore, the assessment shows that two measures included in the list of measures proposed in the Convention (ANNEX II), and from which Parties should take at least two, would deliver environmental and health benefits at a low cost, i.e. the restriction of the use of dental amalgam to its encapsulated form and the promotion of the use of best environmental practices in dental facilities... Finally, the requirement to use amalgam in an encapsulated form would not cause any additional burden to dentists who have opted out from using dental amalgam.

The Commission proposes the following two measures:

1. From 1 January 2019 onwards dental amalgam shall only be used in an encapsulated form.
2. From 1 January 2019 onwards dental facilities shall be equipped with amalgam separators aimed at retaining and collecting amalgam particles. Those separators shall be maintained as required to ensure a high level of retention.

These measures do not restrict the use of mercury in dental amalgam (75t / year) at all and the toxic environmental and health burden is likely to stay unchanged (see Figure below). The environmental impact would only be shifted and amalgam fillings will keep being the main source of direct mercury exposure for consumers. !!!¹¹

Main mercury flows associated with dental amalgam use (t Hg / year)¹²



For your Information:

The European Union is the largest consumer of dental mercury in the world - consuming at least 90 tons in 2010.¹³ The amount of mercury used for dental fillings is currently about a quarter of the total consumption of pure mercury in the EU. But in the near future the amalgam preparation will become by far the highest consumer of mercury, since other uses are already replaced by mercury-free products and productions(AnnexI). Well over half of the total mercury waste of Europe is located in amalgam fillings of our society(1300t - 2200t). Amalgam remains, as SCHER stated, "a secondary poisoning" for the children of Europe.

The European Commission has given in the past five years a specialized attention to amalgam engaging the consultant BIOIS for a study, having hearings, re-referring the issue to SCHER, and SCENIHR, and consulting publically on whether to "phase out" or "phase down" amalgam (the choice was seven-to- one in favour of "phase out", with a total number of respondents double that of other issues).

In the EU mercury strategie of 2005¹⁴ the EU promised to aim for a reduction of mercury levels in the environment and a reduction of the humen exposure. Now the EU has the chance to achieve their goal of 2005 by implementing a "phase out" of Dental Amalgam.

The following facts are showing clearly that it's the right time now to decide for an amalgam ban even if it would containe temporary exemptions like in the danish model (Annex II). At least, however, measures of the list in the ratification contract should be taken to decrease the use of dental amalgam: by discouraging insurance policies and programmes that favour dental amalgam use over mercury-free dental restoration (vi) or by encouraging insurance policies and programmes that favour the use of quality alternatives to dental amalgam for dental restoration(vii).

However, we call for an amalgam ban (with only minimal exceptions¹⁵) as it has already been applied since 2009 in Sweden .. !!!

The Commision itself ordered a study on the EU implementation of the Minamata Convention which highlighted the benefits of an amalgam-ban in a draft version 2014¹⁶:

Signal-effect: "The implementation of a Union-wide ban on dental amalgam would be signaling a high-ambition implementation towards other Parties of the Minamata Convention and would have potentially significant environmental benefits"¹⁷

Environment: "By introducing a ban on dental amalgam, a large part of the remaining consumption of mercury in the EU- around 90-110 tonnes/year - would be eliminated from circulation in the EU. No precise data are available for the actual releases of mercury from this activity, but the potential for releases is significant " ¹⁸

Economy: "As most suppliers of dental fillings materials market both amalgam fillings and the slightly more expensive alternative filling materials, most suppliers will benefit from a forced substitution (amalgam ban). A global movement towards mercury-free filling materials will benefit EU based producers of filling materials."¹⁹

Health: "Dental amalgam is the key source of direct consumer exposure to metallic mercury, and eliminating this exposure may lead to reduced health effects from this exposure." ²⁰

A **phase down**, however, according to the proposals of the Minamata Convention (ANNEX III), would have only minimal benefits to the environment, producers/suppliers and consumers. This minimal implementation of the Minamata convention as regards dental amalgam does not involve legal changes but relies only on encouragement, studies and promotion.

Independent consultant urged an amalgam ban already in 2012:

The European Commission's independent consultant BIOIS has examined all the policy options and urged the EU to "ban the use of mercury in dentistry" because – among other reasons – it is "necessary to achieve mercury-related requirements of EU legislation on water quality."²¹

SCHER confirmed that amalgam poses environmental risks:

SCHER has confirmed that dental amalgam in the environment can methylate (forming the most toxic form of mercury, methylmercury), and that as a result "the acceptable level in fish is exceeded" under some circumstances, and "a risk for secondary poisoning due to methylation cannot be excluded."²²

SCENIHR recommends amalgam restrictions: ".....To reduce the use of mercury-added products in line with the intentions of the Minamata Convention (reduction of mercury in the environment) and under the above mentioned precautions, it can be recommended that for the first treatment of primary teeth in children and for pregnant patients, alternative materials to amalgam should be the first choice."²³ Furthermore, SCENIHR **withdrew the claim that amalgam is safe**. SCENIHR's 2015 final opinion states that amalgam is merely "an effective restorative material"²⁴, a clear downgrading from its prior 2014 draft statement that amalgam is a "safe and effective restorative material."²⁵

In addition to the EC's own studies, public support for phasing out amalgam use is overwhelming:

The public supports phasing out amalgam use: As part of its public consultation on the Minamata Convention, the European Commission asked EU citizens: Should amalgam use be phased down...or phased out? Of the respondents, 86% favoured the phase OUT of amalgam.²⁶

Mercury-free fillings are increasingly preferred by dentists: As a European dental researcher explains, the "tooth-friendly featur which has provided an invaluable service but which, we believe, now should be considered *outdated for use in operative dentistry*."²⁷

Experts show phasing out amalgam use will lower costs: As one study explains, due to the high costs of dental mercury pollution, amalgam is now recognized as "more expensive than most, possibly all, other fillings when including environmental costs."²⁸ Another study, conducted by Concorde East/West, concludes that an amalgam filling can cost up to \$87 more than a composite filling after environmental costs are taken into account.²⁹

Member states are already phasing out amalgam use: Already amalgam is used for 0% of fillings in Sweden, 3% in Finland, 5% in Denmark, and less than 10% in the Netherlands.³⁰³¹ These nations have successfully implemented restrictions and bans on amalgam use, demonstrating that other EU countries can too. Many have already expressed their willingness to do so. For example, the United Kingdom has announced that it can "support a ban on the use of dental amalgam from 2016 with agreed exemptions"³² (essentially the narrow exemptions used in Denmark(ANNEX II).

Thank you very much for your support.

Florian Schulze

Berlin, 08. February 2016

ANNEX I :

BASIC ELEMENTS OF THE MINAMATA-CONVENTION:

- New mercury mines will be prohibited and existing mercury mines will be limited to a maximum use of 15 years after the Convention entered into force.
- Mercury-containing products, for which there are already existing equivalent alternatives will be prohibited from 2020. For example this applies to mercury-containing batteries, switches and relays, certain types of lamps and measuring devices such as barometers, manometers, thermometers but also soaps and cosmetics.
- Processes where mercury is used, are also regulated. This applies to plants using the mercury-cell process for the chloralkali electrolysis from 2025 on and the acetaldehyde production with mercury (-components) as a catalyst from 2018 on.
- The international trade of mercury will be limited to the permitted purposes of the convention or for disposal.
- Reduction measures for the main sources of emissions have been set; this affects coal power plants, coal-fired industrial boilers, production of non-ferrous metals, cement clinker production and waste incineration plants
- Countries with small-scaled gold mining are committed to reduce the use of mercury in this sector, and where possible to completely eliminate it.
- The use of dental amalgam, which contains 50% mercury, should be reduced by measures
- The use of mercury in vaccines was not limited by the agreement!

ANNEX II:

POSSIBLE EXEMPTIONS CONSIDERED BY THE EU (danish model) ³³

Dental amalgam can be used in staying molars in cases where it is clear that this material will last longer. These cases are limited to restorations where:

- the cavity cannot be dried
- the access to the cavity is difficult
- the cavity is particularly large, or
- there is a large distance to the next tooth.

ANNEX III:

PHASE DOWN OF AMALGAM

Measures to be taken by a Party to phase down the use of dental amalgam shall take into account the Party's domestic circumstances and relevant international guidance and shall include two or more of the measures from the following list:³⁴

- (i) Setting national objectives aiming at dental caries prevention and health promotion, thereby minimizing the need for dental restoration;
- (ii) Setting national objectives aiming at minimizing its use;

- (iii) Promoting the use of cost-effective and clinically effective mercury-free alternatives for dental restoration;
- (iv) Promoting research and development of quality mercury-free materials for dental restoration;
- (v) Encouraging representative professional organizations and dental schools to educate and train dental professionals and students on the use of mercury-free dental restoration alternatives and on promoting best management practices;
- (vi) Discouraging insurance policies and programmes that favour dental amalgam use over mercury-free dental restoration;
- (vii) Encouraging insurance policies and programmes that favour the use of quality alternatives to dental amalgam for dental restoration;
- (viii) Restricting the use of dental amalgam to its encapsulated form;
- (ix) Promoting the use of best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land.

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 - ¹² BIO Intelligence Service (2012), *Study on the potential for reducing mercury pollution from dental amalgam and batteries*, Final report prepared for the European Commission-DG ENV, <http://bookshop.europa.eu/en/study-on-the-potential-for-reducing-mercury-pollution-from-dental-amalgam-and-batteries-pbKH3013440/?CatalogCategoryID=znMKABstX5IAAAEjs5AY4e5L>, page 153
 - ¹³ AMAP/UNEP, *Technical Report for the Global Mercury Assessment* (2013), <http://www.amap.no/documents/doc/technical-background-report-for-the-global-mercury-assessment-2013/848>, p.103
 - ¹⁴ EU mercury strategie 2005 <http://eur-lex.europa.eu/legal-content/DE/TXT/?uri=URISERV:l28155>

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