

Mercury

Aligning EU legislation with Minamata

SUMMARY

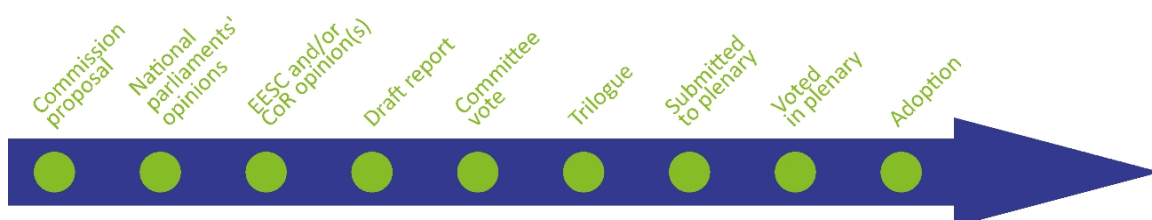
The United Nations' Minamata Convention on mercury was agreed in 2013 with a view to protecting human health and the environment from the adverse effects of mercury. Although mercury use has declined significantly in recent decades, mercury released into the air, water and land remains a serious threat to human health and the environment.

EU policy banned exports of mercury, provided for the storage of mercury waste, restricted the use of mercury in various products and sought to address pollution caused by it. However, there were some regulatory gaps between EU legislation and the Minamata Convention. In February 2016, the European Commission submitted a legislative proposal aiming to align this legislation with the Convention in view of its ratification.

After completion of the legislative procedure at first reading in the European Parliament and the Council, the presidents of the co-legislators signed the final act on 17 May 2017. The regulation will apply from 1 January 2018.

Proposal for a regulation of the European Parliament and of the Council on mercury, and repealing Regulation (EC) No 1102/2008

<i>Committee responsible:</i>	Environment, Public Health and Food Safety (ENVI)	COM(2015) 39 of 2.2.2016
<i>Rapporteur:</i>	Stefan Eck (GUE/NGL, Germany)	<i>procedure ref.:</i> 2016/0023(COD)
<i>Procedure completed</i>	Regulation (EU) 2017/852 OJ L 137, 24.5.2017, p. 1	Ordinary legislative procedure



This further updates an earlier edition, of October 2016: [PE 593.488](#).

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Introduction

In 2013, the United Nations' [Minamata Convention](#) on mercury was agreed with a view to protecting human health and the environment from the adverse effects of this toxic metal. On 2 February 2016, the European Commission presented a [Minamata ratification package](#) containing two proposals: a [proposal for a Council decision](#) ratifying the Convention on behalf of the EU, and a legislative proposal for [a new regulation on mercury](#), which is the subject of this briefing. The legislative proposal responds to a legal obligation of the Commission to propose a revision of the Mercury Export Ban Regulation by 15 March 2013.

Context

Mercury is a heavy silvery-white metal which is liquid at room temperature and evaporates easily.¹ In nature, elemental ('metallic') mercury is mostly found in deposits of [cinnabar](#), but also of other metals such as lead and zinc. In smaller amounts, it is also found in rocks, including coal and limestone. Due to its unique properties, mercury has been used in a variety of **applications**, including healthcare and measuring equipment, electrical and electronic devices, and industrial processes. Outside Europe, mercury is also widely used in artisanal and small-scale gold mining.

In 2005, the United Nations Environment Programme ([UNEP](#)) estimated global **mercury demand** at 3 000 to 3 900 tonnes a year (t/y), about half of which was consumed in Asia and about 12% in Europe. Global consumption of mercury has declined from about 9 000 tonnes a year in the 1960s, which UNEP attributes to the growing understanding of the risks posed by mercury toxicity (see below), the availability of alternatives and international action. The [Commission](#) estimates current EU mercury demand at 260-400 t/y and forecasts consumption at 40-220 t/y in 2025-2030, mainly due to the [phasing out](#) of mercury use in the EU chlor-alkali industry by 2017.

With current demand estimated at 75 t/y, **dental amalgam** is expected to become the largest mercury use in the EU. A 2008 [study](#) for the Commission estimated that 70% of dental amalgam used in the EU in 2007 was in encapsulated form and 30% in bulk form. The use of pre-dosed capsules (instead of bulk mercury) contributes to reducing both releases during amalgam storage and preparation, and exposure of dental personnel to mercury vapours. The [Commission](#) indicates that, according to a 2010 survey by the Council of European Dentists in 26 European countries, encapsulated dental amalgam is required by law in 12 countries and highly recommended in another two, while the use of mercury-containing amalgam is prohibited in two countries and not regulated in another nine. The Commission estimates that 69% of waste produced from dental amalgam is managed as hazardous waste.

Besides **natural release** of mercury from volcanic activity and rock weathering, mercury may be released from a range of **anthropogenic sources**, including: energy production (in particular, from coal combustion); industrial processes (such as cement production, metallurgical processes, and processes using mercury as a catalyst); waste management (in particular, incineration and landfilling); and artisanal and small-scale gold mining. **Europe** accounts for about 6% of global mercury emissions from human activities.

[Data](#) published in 2015 by the European Environment Agency (EEA) indicate that, in 2013, EU-28 **mercury emissions had declined** by 74% since 1990. The main contributors to EU mercury emissions are Poland (17.2%), Germany (17.0%), Italy (13.4%), the United Kingdom (10.1%) and Spain (8.9%).

In 2013, the categories 'public electricity and heat production' and 'iron and steel production' accounted for 51% of total mercury emissions in the EU. For an overview of EU-28 emissions by sector, see Figure 1.

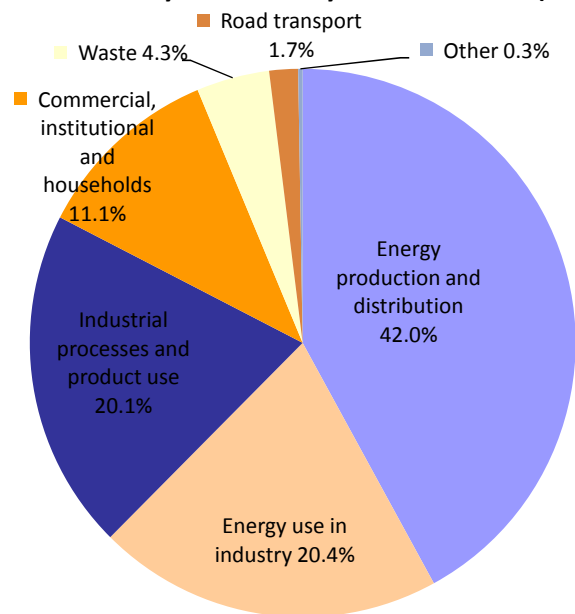
Once emitted into the air or water, mercury can **travel over long distances across borders** and world regions, and thereby turn into a global problem. This is illustrated by the fact that, in Europe, mercury deposits come in equal proportion from European and non-European emissions, according to a 2015 UNEP [report](#).

Mercury **deposition in the environment** is a problem for a number of reasons. Mercury is a **persistent** pollutant (that is, it does not break down in the environment). In Europe, elevated levels of mercury can be found in sediments in estuarine and coastal waters of the Baltic Sea and the North Sea, according to the EEA. Once deposited in soil or sediments, elemental mercury may change its chemical form, mainly as a result of bacteria-assisted metabolic processes, and become methylmercury. In marine animals, methylmercury is subject to **bioaccumulation** (whereby its concentration in organisms builds up to levels higher than those of the surroundings) and **biomagnification** (whereby its concentration increases in animals higher up the food chain).

Mercury can cause **adverse effects on the environment**, especially on marine species and ecosystems. In 2014, the [EEA](#) pointed out that atmospheric deposits of mercury exceed critical loads across 54% of EU ecosystems. According to a [review](#) of research published in 2000, a wide variety of physiological, reproductive and biochemical abnormalities have been reported in fish exposed to sub-lethal mercury concentrations.

Mercury can also cause **adverse effects on human health**. UNEP and the World Health Organization (WHO) list mercury among the 'ten chemicals of major public health concern.' Mercury may produce harmful effects on the central nervous system, thyroid, kidneys, lungs, immune system, eyes, gums and skin. **Exposure** to mercury occurs mainly through the consumption of seafood containing methylmercury and through inhalation of elemental mercury vapours in industrial processes or in artisanal and small-scale gold mining. Although all humans are exposed to mercury to some degree, some groups are

Figure 1 – Mercury emissions by sector in EU-28 (2013)



Data source: [EEA](#), 2015.

at a higher risk, in particular foetuses, breast-fed babies and infants exposed through seafood consumption, either directly or through their mother,² and people who are chronically exposed to high levels of mercury, for instance due to subsistence fishing or work.³ [Research](#) published in 2013 suggests that preventing pre-natal exposure to methylmercury in the EU could avoid the loss of over 600 000 IQ points a year, corresponding to an estimated total economic benefit of €8 billion to €9 billion a year.

Existing situation

The EU's policy on mercury is outlined in the 2005 [Mercury strategy](#), addressing mercury use and pollution. It lists 20 actions that aim to reduce emissions, cut supply and demand, manage products in use or in storage, protect against exposure, improve understanding about the mercury problem, and promote international actions. The Commission published a [review of the strategy](#) in 2010.

The 2008 [Mercury Export Ban Regulation](#) is one of the main legal acts on the topic. It **banned exports of mercury** (and mixtures containing at least 95% mercury) from the EU as of 15 March 2011. The Regulation requires companies collecting mercury waste from de-commissioned chlor-alkali cells, natural gas cleaning or non-ferrous mining and smelting operations to provide the Commission with information on the quantities sent to storage facilities. In addition, it provides for the **storage of mercury waste** and requires Member States to report to the Commission on the permits delivered to mercury-waste storage facilities. A 2011 [Council Directive](#) amending the 1999 [Landfill Directive](#) sets criteria for the temporary storage of mercury waste.

Several [legal acts](#) restrict or prohibit the **use of mercury in products**, in particular in batteries and accumulators, electrical and electronic equipment, measuring devices, and phenylmercury compounds (used mainly in coatings, adhesives and sealants). The use of mercury in dental amalgam is currently not addressed in EU legislation. Other legal acts seek to address **mercury pollution**.⁴

At **international level**, the 1998 Aarhus [Protocol on heavy metals](#) to the Geneva Convention on Long-range Transboundary Air Pollution (CLRTAP), which came into force in 2003, requires its parties to reduce mercury emissions to below 1990 levels. It sets limit values and suggests best available techniques for emissions from stationary sources, with a view to cutting emissions from industrial sources and combustion.

The changes the proposal would bring

The [proposal](#) put forward by the Commission would repeal the 2008 Mercury Export Ban Regulation while generally incorporating its provisions. It aims to fully align EU legislation with the Minamata Convention with a view to its ratification. The proposal has a double legal basis: environment (Art. 192 of the Treaty on the functioning of the European Union - TFEU) and trade (Art. 207 TFEU).

Minamata Convention

The United Nations Minamata Convention on mercury, named after a Japanese town where the worst recorded case of mercury pollution ran from the 1930s until the 1960s, aims to protect human health and the environment from the adverse effects of mercury. The Convention addressing the whole life cycle of mercury enters into force on 16 August 2017.

The proposal introduces a series of **additional provisions** seeking to address certain 'regulatory gaps' identified by the Commission, between EU legislation and the Minamata Convention:

- **ban on mercury imports**, in particular, for use in artisanal and small-scale gold mining. However, the ban does not apply to imports for final disposal as waste; imports from Minamata Convention parties which do not come from primary mining sources; and imports from non-Minamata Convention parties which have been certified as not coming from primary mining sources or from the chlor-alkali industry;
- **ban on the export, import and manufacturing of a range of products** containing certain levels of mercury, as of 1 January 2021. However, the restrictions set here, which transpose provisions of the Minamata Convention, are in part less strict than provisions in existing EU legal acts on the use of mercury in products;⁵
- **restrictions on the use of mercury in certain manufacturing processes**. As of 1 January 2019, the use of mercury and its compounds is to be prohibited in acetaldehyde and vinyl chloride monomer production. In addition, the production of sodium or potassium methylate or ethylate (used, among other things, as a catalyst in biofuels production) shall be subject to the following restrictions: no use of mercury from primary mining; a 50% reduction in mercury releases into air, water and land by 2020 compared to 2010 levels; and no increase in production capacities;
- **ban on new mercury uses in products and manufacturing processes** as of 1 January 2018. However, the possibility of exemptions is foreseen for new products or processes providing significant environmental and health benefits in the absence of technically and economically feasible mercury-free alternatives;
- **steps to reduce mercury use in artisanal and small-scale gold mining**, with a view to eliminating it, if possible. The proposal requires Member States with 'more than insignificant' artisanal and small-scale gold mining on their territory to draw up a national plan. According to the Commission, France is the only Member State concerned and it has already taken measures to prohibit this use of mercury;
- **restrictions on the use of mercury in dental amalgam**. As of 1 January 2019, dental amalgam shall only be used in encapsulated form, and dental facilities shall be equipped with amalgam separators to retain and collect amalgam residues.

In addition, the proposal sets requirements for the **permanent storage of mercury waste**. Based on the criteria for the temporary storage of mercury waste under the 2011 Council Directive mentioned above, it specifies which criteria shall apply to all cases involving the permanent storage of mercury waste⁶ and which shall apply only where deemed appropriate by the Member States.⁷

The proposed regulation confers on the Commission the power to adopt **delegated acts** supplementing or amending non-essential elements of the regulation.⁸ Delegated acts may be vetoed by Parliament or Council, which also have the right to withdraw these delegated powers at any time. The proposed regulation also confers on the Commission the power to adopt **implementing acts** on other elements contained in it,⁹ after obtaining the approval of a committee made up of Member State representatives.

According to Commission estimates, the total **cost** of the proposal is €13-135 million a year, expected mainly in the chemicals-production sector (€3-77 million a year)¹⁰ and dental practices (€10-58 million a year). Among the expected **benefits** of the proposal, the Commission lists a reduction in global mercury emissions and, in the longer term, in food-chain contamination at global and EU level; the creation of a global level playing field for businesses which could benefit European companies already applying best available techniques; and job creation in activities related to mercury waste management. There are no implications expected for the EU budget.

Preparation of the proposal

In 2014, the Commission consulted **stakeholders** on the implementation of the Minamata Convention: it held a [stakeholder meeting](#) in July and organised an online [public consultation](#) in the autumn. It also commissioned two **studies** which were published in 2015: one on [EU implementation of the Minamata Convention](#), and the other assessing the [mercury export ban](#) in view of the ratification of the Minamata Convention by the EU.

On the specific question of **dental amalgam**, the Commission commissioned a [study](#), published in 2012, on the potential for reducing mercury pollution from dental amalgam and batteries. It also relied on opinions of EU scientific committees on the [environmental risks and indirect health effects](#) of mercury from dental amalgam (updated in 2014) and on the [safety](#) of dental amalgam and alternative dental restoration materials for patients and users (published in 2015), with the latter concluding that 'current evidence does not preclude the use of either amalgam or alternative materials in dental restorative treatment.'

The Commission carried out an **impact assessment** on the ratification and implementation of the Minamata Convention by the EU (see [conclusions](#) and [executive summary](#)). The European Parliamentary Research Service (EPRS) has published an initial [appraisal](#) of the impact assessment.

Parliament's starting position

In its resolution of 14 March 2006 on the EU [Mercury strategy](#), Parliament urged the Commission to put forward a proposal restricting the use of mercury in dental amalgam, as well as an instrument setting emission limit values for mercury from all relevant activities (in particular coal combustion processes), among other things. During the [adoption procedure](#) of the 2008 Mercury Export Ban Regulation, Parliament advocated an extension of the scope of the export ban to compounds with considerably lower mercury concentrations, as well as the introduction of a mercury import ban.

Stakeholders' views

[Eurochlor](#), representing the chlor-alkali industry, underlined the need for safe permanent storage of decommissioned mercury, and called for criteria for storage facilities and requirements.

The [Council of European Dentists](#) advocates the use of amalgam separators and encapsulated dental amalgams as good practice. In addition, it stresses the importance of dental caries prevention and other measures seeking to minimise amalgam use.

The [European Environmental Bureau](#) - a non-governmental organisation - criticised the Commission, saying that it set a low ambition level for the proposal and did not incorporate the results of the public consultation and findings of its own impact assessment in it. It called, among other things, for strengthening the requirements regarding the mercury-added products export ban and the phasing out of mercury use in dentistry and industrial processes.

Advisory committees

In its [opinion](#) of 25 May 2016, the **European Economic and Social Committee** 'unreservedly recommended' the adoption of the proposal as a first step towards ratification of the Minamata Convention and called for adequate research on alternatives.

National parliaments

Two [national parliaments](#) have submitted comments on the proposal. The [German Bundesrat](#) called among other things for tightening import restrictions and for including provisions on mercury emissions from coal power plants. The [Italian Senate](#) issued generally positive comments on the legal basis, subsidiarity and proportionality.

Parliamentary analysis

As mentioned above, EPRS published an initial [appraisal](#) of the Commission impact assessment in April 2016.

Legislative process

The European Parliament Committee on the Environment, Public Health and Food Safety (ENVI) adopted its [report](#) on 20 October 2016, which proposed among other things to phase out dental amalgam by 2022, to require stabilisation and solidification treatment of mercury waste before permanent storage, to address mercury-contaminated sites, and to widen the scope of bans on mercury export/import and on uses in products and manufacturing processes. In its general approach agreed on 28 October 2016, the Council proposed among other things to allow the temporary storage of liquid mercury waste in an environmentally sound manner.

On 14 December 2016, Commission, Council and Parliament reached a compromise agreement in interinstitutional trilogue negotiations, which was subsequently endorsed by the European Parliament on 14 March 2017 and by the Council on 25 April 2017.

The main elements of the final act include:

- setting a **single legal basis** (environment);
- widening the scope of the **mercury export and import bans**, with limited exemptions, in particular as regards the import of mercury for disposal as waste;
- introducing limited exemptions to the **ban on mercury uses in products and manufacturing processes**, while tightening conditions regarding the authorisation of new products and processes;
- on **dental amalgam**, prohibiting its general use on children under 15 and pregnant or breastfeeding women (by July 2018); requiring Member States to draft national plans to phase down the use of dental amalgam (by July 2019); and requiring dental facilities to be equipped with amalgam separators able to retain and collect amalgam particles (by 2019), with a retention level of at least 95 % of amalgam particles (by 2021);
- tightening requirements for the **treatment and storage of mercury waste**, in particular requiring stabilisation treatment before permanent storage, with a five-year transition period which may be extended by a further three years through a delegated act;
- requiring the Commission to set up an inventory of **mercury-contaminated sites** based on information gathered from Member States;
- requiring the Commission to carry out two **reviews**: one by 2020 to consider regulating mercury emissions from crematoria, phasing out dental amalgam by 2030, and tightening limit values for products; and a second review by 2024 to focus on the implementation of the regulation.

The final act was signed by the presidents of the co-legislators on 17 May 2017. It was published in the Official Journal as [Regulation \(EU\) 2017/852](#) and applies from 1 January 2018.

References

[Mercury](#), European Parliament, Legislative Observatory (OEL).

Dossi, S., [Regulation on Mercury Aligning EU legislation with the Minamata Convention: Initial Appraisal of a European Commission Impact Assessment](#), EPRS, European Parliament, 2016.

Lassen, C. et al., [Options for reducing mercury use in products and applications, and the fate of mercury already circulating in society](#), COWI and Concorde East/West, 2008.

United Nations Environment Programme, [Mercury: Time to Act](#), 2013.

Endnotes

- ¹ Mercury melts at -38.8°C and boils at 356.6°C.
- ² High pre-natal or infant exposure may adversely affect an infant's growing brain and nervous system. Possible consequences include mental retardation, seizures, vision and hearing loss, delayed development, language disorders and memory loss (source: [WHO](#) and [European Commission](#)).
- ³ Among selected subsistence fishing populations (in Brazil, Canada, China, Columbia and Greenland), between 1.5/1000 and 17/1000 children show mild mental retardation caused by the consumption of fish containing methylmercury (source: [WHO](#)).
- ⁴ Among them, the 2004 [Directive on mercury and other pollutants in ambient air](#) defines a common methodology for measuring concentrations and ensures public access to information on concentration and deposition; the 2010 [Industrial Emissions Directive](#) provides for monitoring of emissions from coal combustion plants and sets limits as regards emissions from waste incinerators and waste water discharges; the 2000 [Water Framework Directive](#) lists mercury as a priority substance in the field of water policy; and the 2008 [Environmental Quality Standards Directive](#) sets standards for mercury content in water.
- ⁵ For instance, while the proposal prohibits batteries (except for button zinc silver oxide batteries) with mercury content over 2%, the 2006 [Batteries Directive](#) prohibits batteries with mercury content over 0.0005%. It is understood that the stricter requirements would continue to apply.
- ⁶ These criteria include: separate storage; presence of natural or engineered barriers to protect the environment and presence of an adequate containment volume; fire protection system; requirements for the composition of mercury waste, its containment, acceptance procedures and issuance of certificates.
- ⁷ These criteria include: storing containers in collecting basins; covering storage-site floors with mercury-resistant sealants; ensuring that all containers are easily retrievable; meeting monitoring, inspection and emergency requirements; record-keeping.
- ⁸ The Commission proposes that delegated acts may be adopted regarding the following: 1) list of mercury compounds and characteristics of mercury mixtures subject to an export and import ban (Annex I); 2) list of products (including maximum mercury content) subject to a ban on exports, imports and manufacturing (Annex II); 3) restrictions on the use of mercury in certain manufacturing processes (Annex III); 4) content of national plans on artisanal and small-scale gold mining (Annex IV); 5) transposition of decisions adopted by the Conference of the Parties to the Minamata Convention which have been supported by the Union.
- ⁹ The Commission proposes that implementing acts may be adopted regarding the following: 1) adoption of forms for authorising import and export; 2) decisions allowing the introduction of a new product or process that uses mercury and provides significant environmental and health benefits; 3) adoption of a template for questionnaires to be used in reporting by Member States.
- ¹⁰ The wide-range estimate for the chemical sector depends mainly on options for the conversion of two German plants to mercury-free processes.

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