

MINAMATA CONVENTION ON MERCURY

INFORMATION ON EUROPEAN UNION LEGISLATION RELATING TO THE CONTROL OF MERCURY RELEASES FROM RELEVANT SOURCES

WRITTEN SUBMISSION FROM THE EU

By means of Decision MC-4/5, Parties to the Minamata Convention on Mercury (hereafter, ‘the Convention’) have adopted guidance on the methodology for preparing inventories of releases pursuant to Art. 9 of the Convention. Parties are invited to consider the list of potentially relevant point source release categories (hereafter, ‘relevant point sources’) established in the appendix to Annex III to the Secretariat’s note on the report on the intersessional work on mercury releases¹. This Decision requests also the existing group of technical experts on the development of guidance in relation to mercury releases to work electronically between COP4 and COP5 to develop guidance on best available techniques (BAT) and best environmental practices (BEP) to control releases from relevant sources.

In this context, the Secretariat of the Convention has launched a call for information inviting Parties and stakeholders to submit existing information on national regulations or industry practices relating to the control of releases of mercury and mercury compounds (hereafter, ‘total mercury’) from relevant point sources.

Accordingly, this submission from the European Union (EU) provides information on the applicable legal instruments under EU law and their provisions on the control of releases of total mercury to water and land bearing in mind the list of relevant point sources. In doing so, this submission refers to EU legislation setting specific control measures on mercury releases, including (i) Directive 2010/75/EU on industrial emissions (hereafter, ‘the IED’)² and Decisions adopted under it setting emission levels and conclusions on the BAT, (ii) Regulation (EU) 2017/852 on mercury³, (iii) Directive 1999/31/EC on the landfill of waste⁴ and (iv) Directive 2000/53/EC on end-of life vehicles.⁵

Additionally, this submission informs on EU water legislation that sets environmental quality standards (hereafter, ‘EQS’) regarding allowable maximum concentrations of total mercury in freshwater bodies considering their potential impact on permit conditions applicable to industrial installations as far as the prevention or reduction of releases of mercury are concerned.

¹ UNEP/MC/COP.4/CRP.8

² Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (OJ L 334, 17.12.2010, p. 17). Available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32010L0075&qid=1652866293709>

³ Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008 (OJ L 137, 24.5.2017, p. 1–21). Available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R0852&qid=1652977596735>

⁴ Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (OJ L 182 16.7.1999, p. 1). Available here: [EUR-Lex - 01999L0031-20180704 - EN - EUR-Lex \(europa.eu\)](EUR-Lex - 01999L0031-20180704 - EN - EUR-Lex (europa.eu)).

⁵ Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles (OJ L 269 21.10.2000, p. 34). Available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02000L0053-20200306>

This submission contains two parts, including a general section informing on the main rules set out in above-cited legal instruments and an Annex containing a table providing data and references on applicable emission limit values, BAT and other types of control measures.

1. EUROPEAN UNION LAW ON THE CONTROL OF RELEASES OF MERCURY AND MERCURY COMPOUNDS FROM INDUSTRIAL INSTALLATIONS

Many relevant point sources are covered by the IED, which is the landmark instrument of EU law on the control of emissions and releases of pollutants from industrial installations (hereafter, ‘IED installations’). As specified in its Art. 1 and with a view to achieve a high level of protection of the environment taken as a whole, the objective and subject-matter of the IED are to lay down rules on integrated prevention and control of pollution arising from industrial activities designed to prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste.

The main provisions and requirements regarding the prevention and control of releases of pollutants, including in particular of mercury, to water and soil are as follows:

- 1) As general obligations, the IED (Art. 11) requires operators of IED installations to ***make use of BAT***⁶ and to implement all ***appropriate preventive measures against pollution***. Those general obligations apply also to activities that are directly associated with the ‘main’ IED installation.

Art. 3(10) of the IED defines BAT as follows:

The most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole:

(a) ‘techniques’ includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;

(b) ‘available techniques’ means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;

(c) ‘best’ means most effective in achieving a high general level of protection of the environment as a whole;

As explained below, whilst specific Decisions identify applicable BAT per industrial activity, operators remain free to choose what BAT to implement in their IED installations.

⁶ Art. 3(3) of Directive 2010/75/EU defines ‘installation’ as a stationary technical unit within which one or more activities listed (in particular in Annex I to the IED) are carried out, and any other directly associated activities on the same site which have a technical connection with (these) activities and which could have an effect on emissions and pollution.

- 2) The competent authorities of the Member States must ensure that IED installations operate based upon a *permit* (Art. 4).

In establishing *permit conditions*, those authorities must set requirements and measures (Art. 14(1)), which include at least (i) emission limit values ('ELVs') for pollutants such as mercury that are likely to be emitted from the concerned installation in significant quantities having regard to their nature and potential to transfer pollution from one medium to another and (ii) requirements ensuring the protection of the soil and groundwater, the regular maintenance and surveillance of measures taken to prevent releases to soil and groundwater and the periodic monitoring of soil and groundwater in relation to relevant hazardous substances likely to be found on site and having regard to the possibility of soil and groundwater contamination.

- 3) In order to assist relevant competent authorities to set permit conditions and ensure a level playing field across the EU, *legally binding Implementing Decisions on BAT conclusions* are adopted by the European Commission per IED industrial activity.⁷ Art. 14(3) of the IED specifies that those conclusions '*shall be the reference for setting permit conditions*'. In particular, such conclusions identify and describe BAT and assess their applicability, lay down *emission levels associated with BAT ('BAT-AELs')* and establish associated monitoring measures (Art. 3(12)).

Art. 3(13) of the IED defines BAT-AELs as follows:

'emission levels associated with the best available techniques' means the range of emission levels obtained under normal operating conditions using a best available technique or a combination of best available techniques, as described in BAT conclusions, expressed as an average over a given period of time, under specified reference conditions.

In this respect, whereas operators freely choose which BAT to implement in their installations (BAT identified in BAT conclusions or other BAT), the permit for each IED installation must set ELVs that ensure compliance with the applicable BAT-AELs (Art. 15(2)).

- 4) Regarding the *monitoring requirements* referred to in above point 2), the IED specifies that they are to be based upon the conclusions on monitoring set out in the applicable BAT conclusions above (Art. 16). Monitoring frequencies are established by the permitting competent authorities in the permit of each IED installation or by means of general binding rules. In any case, periodic monitoring must be carried out at least every 5 years for groundwater and 10 years for soil, unless such monitoring is based upon a systematic appraisal of the risk of contamination.

⁷ For access to the BAT conclusions: <https://ec.europa.eu/environment/industry/stationary/ied/legislation.htm> and <https://eippcb.jrc.ec.europa.eu/reference>

- 5) There may be instances where the use of the BAT in an IED installation is not sufficient to achieve the objectives of the IED. More specifically, when an EQS established in EU law requires stricter conditions than those achievable by the use of BAT, additional measures must be included in the permit of the concerned IED installation. (Art. 18). As explained below, this may prove to be the case, for instance, where compliance with an EQS set out in EU water law is at risk.

The table contained in the Annex to this submission provides references to BAT conclusions applicable to most of the relevant point sources. Yet, it is to be noted that those references are not exhaustive and that other applicable BAT conclusions may be relevant for the industrial activity concerned. One should also highlight that some BAT conclusions refer to BAT statements on the reduction of mercury emissions to air that may concomitantly result in releases to water. Furthermore, it is worth mentioning that not only the existing BAT conclusions, including those regulating mercury releases, are subject to periodic review, but additional BAT conclusions potentially addressing such releases will also be developed over the months and year to come (e.g. future BAT conclusions covering the **Smitheries and Foundries Industry**).

2. EUROPEAN LAW DEDICATED TO MERCURY AND MERCURY COMPOUNDS

Some selected relevant point sources are regulated under Regulation (EU) 2017/852 on mercury alone or in combination with other instruments of EU law. This is particularly the case of (i) mercury (primary) mining and mineral processing, (ii) chlor-alkali production using mercury cell technology, (iii) dental facilities and (iv) controlled municipal/general waste landfills. As shown in the table in the Annex to this submission, this Regulation sets requirements which aim at preventing at source mercury releases into the environment either by prohibiting mercury use (use of mercury from primary mercury mining, chlor-alkali production) or by setting very stringent control and management measures (e.g. use of amalgam separators in dental facilities, final disposal of mercury waste in strict confined conditions).

3. EUROPEAN UNION LAW ON THE MANAGEMENT OF MERCURY WASTE

As noted in the table in the Annex to this submission, the management of mercury waste and its disposal in controlled municipal/general waste landfills are subject to strict confinement conditions to prevent releases to water and soil. Whereas Regulation (EU) 2017/852 on mercury requires mercury waste⁸ to be converted into powdery mercury sulphide and solidified prior to final disposal (no disposal of mercury waste in liquid form) in an above ground or underground facility, Directive 1999/31/EC on the landfill of waste establishes the operational requirements aiming at ensuring that no release to water and soil take place once the mercury waste is disposed of. In this respect, it is noted that, in the EU, most of the mercury waste is permanently disposed of in salt mines or other underground hard rock facilities guaranteeing the same level of confinement and protection.

Regarding the specific case of the dismantling and treatment of end-of-life vehicle that may contain mercury-added products or spare parts, reference is made to Directive 2000/53/EC on end-of life vehicles. This Directive sets strict requirements for the protection of the environment, including in terms of sites for storage and treatment (e.g. impermeable surfaces,

⁸ 'Mercury waste' is defined under Article 2(5) as metallic mercury that qualifies as waste, i.e. any substance or object which the holder discards or intends or is required to discard;

spillage collection) and requires *inter alia* the removal, as far as feasible, of all components identified as containing mercury, prior to the crushing of the vehicles.

4. EUROPEAN UNION LAW ON THE PROTECTION OF SURFACE WATER FROM MERCURY AND MERCURY COMPOUNDS – SETTING ENVIRONMENTAL QUALITY STANDARDS

The above-mentioned instruments of EU law setting control measures on mercury releases must also be considered in the light of the EU legislation on the protection of surface water bodies. The key EU legal instruments in this matter are Directive 2000/60/EC establishing a framework for Community action in the field of water policy⁹ and Directive 2008/105/EU establishing environmental quality standards in the field of water policy¹⁰.

Directive 2000/60/EC seeks to ensure *inter alia* that all EU surface water bodies achieve a ‘good status’, including a ‘good chemical status’. Such a status is met in particular when concentrations of pollutants do not exceed the applicable EQS established under EU law. Regarding mercury, it is considered under Directive 2000/60/EC as a ‘priority hazardous substance’ and Directive 2008/105/EU sets the following EQS in terms of maximum allowable concentrations:

- Mercury in surface waters (e.g. lake, reservoir, stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water): **0,07 µg/l**
- Mercury in biota/fish: **20 µg/kg wet weight**

As specified above under point 5) of above Section 1), where compliance with those EQS require stricter controls on releases than those achievable by the use of the BAT, additional measures must then be included in the permit of the concerned IED installations (Art. 18 IED).

⁹ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1). Available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02000L0060-20141120&qid=1652802234248>

¹⁰ Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (OJ L 348, 24.12.2008, p.84). Available here: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0105-20130913&qid=1652802795670>

ANNEX

CONTROL OF RELEASES OF MERCURY AND MERCURY COMPOUNDS TO WATER AND LAND UNDER EU LAW

LIST OF POTENTIALLY RELEVANT POINT SOURCE RELEASE CATEGORIES	EU LEGAL INSTRUMENTS	BAT-AELS AND BAT ON CONTROL OF MERCURY RELEASES OR OTHER CONTROL MEASURES
<p>Coal combustion in power plants and in coal-fired industrial boilers</p> <p><i>(Releases to land and water from coal storage, coal washing and air-pollution-control systems).</i></p> <p>Biomass-fired power and heat production</p> <p><i>(Releases to land and water from air-pollution-control systems.)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (OJ L 469, 30.12.2021, p. 1.): Available here: https://eippcb.jrc.ec.europa.eu/reference 	<ul style="list-style-type: none"> - Applicable Emission levels associated with the best available techniques (BAT-AELs) for direct discharges to a receiving water body from flue-gas treatment: 0,2–3 µg/l <ul style="list-style-type: none"> ✓ Concentrations, expressed as mass of emitted substance per volume of water. ✓ BAT-AELs refer to daily averages, i.e. 24-hour flow-proportional composite samples. Time-proportional composite samples can be used if sufficient flow stability can be demonstrated. - Applicable BAT: <ul style="list-style-type: none"> ✓ BAT 15 <i>In order to reduce emissions to water from flue-gas treatment, BAT is to use an appropriate combination of the techniques given below, and to use secondary techniques as close as possible to the source in order to avoid dilution.</i> ✓ See also Section 8.6 <i>Techniques to reduce emissions to water</i>
<p>Other coal use</p> <p><i>(Releases to land and water from coal storage, coal washing and air-pollution-control systems)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision (EU) 2021/2326 of 30 November 2021 	<ul style="list-style-type: none"> - Not an activity listed in Directive 2010/75/EU in its own right. However, such an activity may qualify as being ‘directly associated’ to other activities, especially coal combustion, and therefore be subject to the applicable environmental protection and BAT requirements, including the mandatory use of BAT for this activity.

	<p>establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (OJ L 469, 30.12.2021, p. 1.)</p> <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	
<p>Extraction, refining and use of petroleum</p> <p><i>(Releases to land and water from oil extraction, oil refining and air-pollution-control systems)</i></p> <p>Extraction, refining and use of natural gas</p> <p><i>(Releases to land and water from natural-gas extraction and refining)</i></p>	<p>1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions</p> <p>2. Commission Implementing Decision 2014/738/EU of 9 October 2014 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the refining of mineral oil and gas (OJ L 307, 28.10.2014, p. 38)</p> <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>- Applicable Emission levels associated with the best available techniques (BAT-AELs) for direct waste water discharges: 0,0001 - 0,001 mg/l</p> <ul style="list-style-type: none"> ✓ Concentrations, expressed as mass of emitted substance per volume of water. ✓ Averaging periods associated with the BAT-AELs are defined as follows: <ul style="list-style-type: none"> ➤ daily average: average over a sampling period of 24 hours taken as a flow-proportional composite sample or, provided that sufficient flow stability is demonstrated, from a time-proportional sample; ➤ yearly/monthly average: average of all daily averages obtained within a year/month, weighted according to the daily flows; <p>- Applicable BAT:</p> <ul style="list-style-type: none"> ✓ BAT 12 <i>In order to reduce the emission load of pollutants in the wastewater discharge to the receiving water body, BAT is to remove insoluble and soluble polluting substances by using all of the techniques given below.</i> ✓ BAT 51 <i>In order to prevent or reduce emissions to soil and groundwater from the storage of liquid hydrocarbon compounds, BAT is to use one or a combination of the techniques given below</i> ✓ See also Section 1.21 <i>Descriptions of techniques for the prevention and control of emissions to water</i>

<p>Mercury (primary) mining and mineral processing</p> <p><i>(Releases to land and water from mining and mineral processing.)</i></p>	<p>Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008</p>	<p>Primary mercury mining has ceased in the EU. Regulation (EU) 2017/852 (Art. 11) specifies that mercury extracted from cinnabar ore in the EU qualifies as waste that must be subject to final disposal (no re-use, no recycling, no reclamation).</p>
<p>Mining, mineral processing, smelting and roasting of non-ferrous metals other than mercury</p> <p><i>(Releases to land and water from collected mine drainage, mineral processing, air-pollution-control systems, associated smelting and roasting and process residues)</i></p>	<p>1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions</p> <p>2. Commission Implementing Decision (EU) 2016/1032 of 13 June 2016 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the non-ferrous metals industries (OJ L 174, 30.6.2016, p. 32)</p> <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>- Applicable Emission levels associated with the best available techniques (BAT-AELs) as a daily average for direct emissions to a receiving water body from the production of copper, lead, tin, zinc (including the waste water from the washing stage in the Waelz kiln process), cadmium, precious metals, nickel, cobalt and ferro-alloys:</p> <ul style="list-style-type: none"> ✓ Copper production: 0,005–0,02 mg/l ✓ lead, tin, zinc, cadmium, precious metals, nickel, cobalt and ferro-alloys: ≤ 0,05 mg/l <p>- Applicable BAT:</p> <ul style="list-style-type: none"> ✓ BAT 15 <i>In order to prevent the contamination of water and to reduce emissions to water, BAT is to segregate uncontaminated wastewater streams from wastewater streams requiring treatment.</i> ✓ BAT 16 <i>BAT is to use ISO 5667 for water sampling and to monitor the emissions to water at the point where the emission leaves the installation at least once per month and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</i> ✓ BAT 17 <i>In order to reduce emissions to water, BAT is to treat the leakages from the storage of liquids and the waste water from non-ferrous metals production, including from the washing stage in the Waelz kiln process, and to remove metals and sulphates by using a combination of the techniques given below</i>

		<ul style="list-style-type: none"> ✓ BAT 51 <i>In order to prevent soil and groundwater contamination from copper recovery in the slag concentrator, BAT is to use a drainage system in cooling areas and a correct design of the final slag storage area to collect overflow water and avoid fluid leakage.</i> ✓ BAT 52. <i>In order to prevent soil and groundwater contamination from the electrolysis in primary and secondary copper production, BAT is to use a combination of the techniques given below.</i> ✓ BAT 101. <i>In order to prevent the contamination of soil and groundwater from battery storage, crushing, screening and classifying operations, BAT is to use an acid-resistant floor surface and a system for the collection of acid spillages.</i> ✓ BAT 103. <i>In order to reduce emissions to water from battery preparation when the acid mist is sent to the wastewater treatment plant, BAT is to operate an adequately designed waste water treatment plant to abate the pollutants contained in this stream.</i> ✓ BAT 115. <i>In order to prevent soil and groundwater contamination, BAT is to use a watertight bunded area for tanks used during leaching or purification and a secondary containment system of the cell houses.</i> ✓ See also Section 1.10.2 <i>Water emissions</i>
<p>Primary ferrous-metal production</p> <p><i>(Releases to land and water from air-pollution-control systems associated with coke production, coal-tar processing, pig-iron</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision 2012/135/EU of 28 February 2012 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament 	<p>- For effluent water, applicable Emission levels associated with the best available techniques (BAT-AELs) based on a qualified random sample or a 24-hour composite sample and expressed as mass of emitted substances per volume of waste water:</p> <ul style="list-style-type: none"> ✓ < 0,1 mg/l (linked to BAT 28) ✓ < 0,55 mg/l (linked to BAT 39) <p style="text-align: center;">As sum of arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), mercury (Hg), nickel (Ni), lead (Pb), and zinc (Zn)</p>

<p><i>production and process residues)</i></p>	<p>and of the Council on industrial emissions for iron and steel production (OJ L 70, 8.3.2012, p. 63).</p> <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>- Applicable BAT:</p> <ul style="list-style-type: none"> ✓ BAT 7 <i>In order to achieve low emission levels for relevant pollutants, BAT is to select appropriate scrap qualities and other raw materials. Regarding scrap, BAT is to undertake an appropriate inspection for visible contaminants, which might contain heavy metals, in particular mercury, or might lead to the formation of polychlorinated dibenzodioxins/furans (PCDD/F) and polychlorinated biphenyls (PCB).</i> ✓ BAT 28. <i>BAT is to treat the effluent water from sinter plants where rinsing water is used or where a wet waste gas treatment system is applied, with the exception of cooling water prior to discharge by using a combination of the following techniques.</i> ✓ BAT 39 <i>BAT for pelletisation plants is to treat the effluent water prior to discharge by using a combination of the following techniques</i>
<p>Cement clinker production</p> <p><i>(Releases to land and water from air-pollution-control systems; possible releases to land from disposal of process residues such as cement-kiln dust.)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision 2013/163/EU of 26 March 2013 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the production of cement, lime and magnesium oxide (OJ L 100, 9.4.2013, p. 1) <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>Releases of mercury and mercury compounds to water and soil are not covered in the BAT conclusions for the production of cement, lime and magnesium oxide. However, the competent authorities of the Member States may decide to set controls on such releases in IED permits under Art. 14(1) and 18 of Directive 2010/75/EU, should they pose a risk to the environment and human health and/or jeopardize compliance with an environmental quality standard.</p>

<p>Pulp and paper production</p> <p><i>(Releases to land and water from air-pollution-control systems and from process residues.)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision 2014/687/EU of 26 September 2014 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the production of pulp, paper and board (OJ L 284, 30.9.2014, p. 76). <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>Releases of mercury and mercury compounds to water and soil are not covered in the BAT conclusions for the production of pulp, paper and board. However, the competent authorities of the Member States may decide to set controls on such releases in IED permits in accordance with Art. 14(1) of Directive 2010/75/EU, should they pose a risk to the environment and human health.</p>
<p>Production of other chemicals, minerals and materials</p> <p><i>(Releases to land and water from fertilizer production, dyes, pigments and other chemicals)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision (EU) 2017/2117 of 21 November 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the production of large volume organic chemicals (OJ L 323, 7.12.2017, p. 1) <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>- Applicable BAT:</p> <ul style="list-style-type: none"> ✓ BAT 14: <i>In order to reduce the waste water volume, the pollutant loads discharged to a suitable final treatment (typically biological treatment), and emissions to water, BAT is to use an integrated waste water management and treatment strategy that includes an appropriate combination of process-integrated techniques, techniques to recover pollutants at source, and pre-treatment techniques.</i> ✓ See also Section 12.2: <i>Waste water treatment techniques: All of the techniques listed below can also be used to purify water streams in order to enable reuse/recycling of water. Most of them are also used to recover organic compounds from process water streams.</i>

<p>Chlor-alkali production using mercury cell technology</p> <p><i>(Releases to land and water from the production process and from contaminated plants.)</i></p>	<ol style="list-style-type: none"> 1. Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008 2. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 3. Commission Implementing Decision 2013/732/EU of 9 December 2013 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the production of chlor-alkali (OJ L 332, 11.12.2013, p. 34–48) <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<p>The use of mercury or mercury compounds for chlor-alkali production is prohibited in the EU since 17 December 2017. BAT-AELs and BAT have been developed concerning the decommissioning of chlor-alkali plants.</p> <ul style="list-style-type: none"> - Applicable BAT-AELs for mercury emissions to water, expressed as Hg, at the outlet of the mercury treatment unit during decommissioning or conversion: 3 – 15 µg/l in 24-hour flow-proportional composite samples taken daily. - Applicable BAT to the decommissioning or conversion of mercury cell plants: <ul style="list-style-type: none"> ✓ <i>BAT 2: In order to reduce emissions of mercury and to reduce the generation of waste contaminated with mercury during the decommissioning or conversion of mercury cell plants, BAT is to elaborate and implement a decommissioning plan that incorporates all of the following features:</i> ✓ <i>BAT 3: In order to reduce emissions of mercury to water during the decommissioning or conversion of mercury cell plants, BAT is to use one or a combination of the techniques given below....</i> ✓ <i>BAT 7: BAT is to monitor emissions to air and water by using monitoring techniques in accordance with EN standards with at least the minimum frequency given below. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</i>
<p>Dental</p> <p><i>(Releases to water, such as from new fillings or from the drilling of old fillings in dental clinics.</i></p>	<p>Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008</p>	<p>Regulation (EU) 2017/852 require since 1 January 2019 operators of dental facilities in which dental amalgam is used or dental amalgam fillings or teeth containing such fillings are removed, to ensure that their facilities are equipped with amalgam separators for the retention and collection of amalgam particles, including those contained in used water. Separators must ensure a retention level of amalgam particles of at least 95 % and must be maintained in accordance with the manufacturer's instructions to ensure the highest practicable level of retention. Separators complying with European standards (e.g. EN ISO 11143:2008) or with other national or international standards that provide an equivalent level of quality and retention shall be presumed to satisfy these requirements.</p>

		<p>Regulation (EU) 2017/852 require also dental practitioners in the EU to ensure that their amalgam waste, including amalgam residues, particles and fillings, and teeth, or parts thereof, contaminated by dental amalgam, is handled and collected by an authorised waste management establishment or undertaking. Those practitioners have the obligation to prevent the direct or indirect release of such amalgam waste into the environment under all circumstances.</p>
<p>Production of recycled mercury (secondary production)</p> <p><i>(Releases to land and water from air-pollution-control systems.)</i></p> <p>Production of recycled ferrous metals (iron and steel). (This includes the recycling of scrap vehicles.)</p> <p><i>(Releases to land and water from air-pollution-control systems.)</i></p> <p>Reuse or recycling of used industrial equipment</p> <p><i>(Releases may take place during the dismantling of factories, oil rigs, etc. where mercury-contaminated</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (OJ L 208, 17.8.2018, p. 38) <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p> <ol style="list-style-type: none"> 3. Directive 2000/53/EC of 18 September 2000 on end-of life vehicles 	<ul style="list-style-type: none"> - Applicable BAT-AELs for direct discharges to a receiving water body: 1-10 µg/l (treatment of water-based liquid waste) expressed as mass of emitted substances per volume of water. <ul style="list-style-type: none"> ✓ Averaging periods associated with the BAT-AELs refer to either of the following two cases: <ul style="list-style-type: none"> ➤ Case of continuous discharge: daily average values, i.e. 24-hour flow-proportional composite samples; ➤ Case of batch discharge: average values over the release duration taken as flow-proportional composite samples, or, provided that the effluent is appropriately mixed and homogeneous, a spot sample taken before discharge. Time-proportional composite samples can be used provided that sufficient flow stability is demonstrated. ✓ All BAT-AELs for emissions to water apply at the point where the emission leaves the installation. - Applicable BAT: <ul style="list-style-type: none"> ✓ BAT 20. <i>In order to reduce emissions to water, BAT is to treat wastewater using an appropriate combination of the techniques given below.</i> ✓ See also Section 6.3. <i>Emissions to water</i>

<p><i>equipment e.g., pipelines, tanks, heat exchangers is recycled.)</i></p>		<ul style="list-style-type: none"> - Regarding the activity consisting in the recycling and dismantling of scrap vehicles, Directive 2000/53/EC requires that sites destined for the storage and treatment of vehicles be equipped among others with impermeable surfaces and spillage collection infrastructure and that all components identified as containing mercury are safely removed prior to further vehicle treatment and recycling.
<p>Waste incineration <i>(Releases to land and water from air-pollution-control systems associated with hazardous waste, medical waste, municipal waste/industrial waste, and sewage sludge incinerators.)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (OJ L 312, 3.12.2019, p. 55) <p>Available here: https://eippcb.jrc.ec.europa.eu/reference</p>	<ul style="list-style-type: none"> - Applicable BAT-AELs for emissions to water: 0.001–0.01 mg/l expressed mass of emitted substances per volume of wastewater. <ul style="list-style-type: none"> ✓ Wastewater from flue-gas cleaning (FGC): BAT-AELs refer either to spot sampling (for TSS only) or to daily averages, i.e. 24-hour flow-proportional composite samples. Time-proportional composite sampling can be used provided that sufficient flow stability is demonstrated. ✓ Wastewater from bottom ash treatment: BAT-AELs refer to either of the following two cases: <ul style="list-style-type: none"> ➤ Case of continuous discharges: daily average values, i.e. 24-hour flow-proportional composite samples; ➤ Case of batch discharges: average values over the release duration taken as flow-proportional composite samples, or, provided that the effluent is appropriately mixed and homogeneous, a spot sample taken before discharge. ✓ BAT-AELs for emissions to water apply at the point where the emission leaves the installation. <p>To note that, in case where an operator demonstrates that the achievement of above-mentioned BAT-AELs would lead to disproportionately higher costs compared to the environmental benefits due, e.g. to the technical characteristics of the installation concerned (Art. 15(4) IED), the applicable emission limit value for discharges of waste water from the cleaning of natural gas is, as far as mercury is concerned, 0,03 mg/l, in accordance with Annex VI to the IED</p> <ul style="list-style-type: none"> - Applicable BAT:

		<ul style="list-style-type: none"> ✓ BAT 32. <i>In order to prevent the contamination of uncontaminated water, to reduce emissions to water, and to increase resource efficiency, BAT is to segregate waste water streams and to treat them separately, depending on their characteristics</i> ✓ BAT 34. <i>In order to reduce emissions to water from FGC and/or from the storage and treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below, and to use secondary techniques as close as possible to the source in order to avoid dilution</i> ✓ See also Section 2.3. <i>Techniques to reduce emissions to water</i>
<p>Controlled municipal/general waste landfills</p> <p><i>(Releases to water from landfill leachate.)</i></p>	<ol style="list-style-type: none"> 1. Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions 2. Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008 (OJ L 137, 24.5.2017, p. 1–21) 3. Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (OJ L 182 16.7.1999, p. 1) <p>Available here: EUR-Lex - 01999L0031-20180704 - EN - EUR-Lex (europa.eu)</p>	<ol style="list-style-type: none"> 1. The 2010/75/EU Industrial Emissions Directive applies to landfills receiving more than 10 tonnes of waste per day or with a total capacity exceeding 25 000 tonnes, excluding landfills of inert waste. Under its Art. 10, operators, as general obligations, must make use of BAT and take preventive measures against pollution and must not cause significant pollution. Under its Art. 14, the permit conditions must include at least appropriate requirements ensuring protection of the soil and groundwater. Those requirements are specified further in the 2017/852/EU Mercury Regulation and the 1999/31/EC Landfill Directive. 2. The 2017/852/EU Mercury Regulation provides as follows: <ul style="list-style-type: none"> - The final disposal of mercury waste can take place in an underground facility¹¹ or in an above ground landfill.¹² - Mercury waste cannot be finally disposed of in liquid form. For final disposal, such waste must first be converted into (powdery) mercury sulphide and, if landfilled in an above ground facility, solidified.

¹¹ Underground facility: Salt mines adapted for the permanent storage of such waste or deep underground hard rock formations providing a level of safety and confinement equivalent to or higher than that of such salt mines.

¹² Above ground facility: dedicated to and equipped for the permanent storage of such waste and that provides a level of safety and confinement equivalent to an underground facility.

		<ul style="list-style-type: none">- Operators of concerned final disposal facilities shall ensure that mercury waste is stored separately from other waste and in disposal batches in a storage chamber that is sealed. Those operators shall further ensure that the applicable specific requirements set out in Directive 1999/31/EC. <p>3. The 1999/31/EC Landfills Directive: The specific requirements for permanent storage of mercury waste include as follows:</p> <ul style="list-style-type: none">- Storage site provided with engineered or natural barriers that are adequate to protect the environment against mercury emissions and a containment volume adequate for the total quantity of mercury stored.- Storage site equipped with a fire protection system.- Continuous mercury vapour monitoring system with a sensitivity of at least 0,02 mg mercury/m³ installed in the storage site.- Storage site and containers visually inspected at least once a month.- Where leaks are detected, the operator shall immediately take all necessary action to avoid any emission of mercury to the environment and restore the safety of the storage of the mercury.
--	--	--