

FIRST FULL NATIONAL REPORTS OF THE MINAMATA CONVENTION ON MERCURY 2021



REPORTING PERIOD:

16 August 2017 to 31 December 2020

▼ INFORMATION ON THE PARTY

1. Information on the party

Name of party

Switzerland

Date on which its instrument of ratification, accession, approval or acceptance was deposited

25 May 2016

Date of entry into force of the Convention for the party

16 August 2017

2. Information on the national focal point

Full name of the institution

Federal Office for the Environment FOEN

Title of National Focal Point

Dr.

Name of National Focal Point

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3. Information about the contact officer submitting the reporting format if different from the above

Focal Point is submitting the national report

- ☒ Information is submitted by the national focal point
- ☐ Information is submitted through the national focal point by the contact officer

▼ ART. 3: MERCURY SUPPLY SOURCES AND TRADE

3.1. Does the party have any primary mercury mines that were operating within its territory at the date of entry into force of the Convention for the party?

- ☐ Yes
- ☒ No

Additional information on this question if needed

{Empty}

3.2. Does the party have any primary mercury mines that are now in operation that were not in operation at the time of entry into force of the Convention for the party?

- ☐ Yes
- ☒ No

3.3. Has the party endeavoured to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons and sources of mercury supply generating stocks exceeding 10 metric tons per year that are located within its territory?

- ☒ Yes
- ☐ No

ba34_subsection

*If the party answered Yes to Question 3 above:

i. Please attach the results of your endeavor or indicate where it is available on the internet, unless unchanged from a previous reporting round.

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i. Please attach the results of your endeavor or indicate where it is available on the internet, unless unchanged from a previous reporting round.

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ii. Supplemental: Please provide any related information, for example on the use or disposal of mercury from such stocks and sources.

Stocks of mercury or mercury compounds located within the territory of Switzerland could exceed temporarily 50 metric tons. The stored mercury and mercury sulphide originate exclusively from the treatment of mercury wastes according to paragraph 2 of article 11.

Switzerland has measures in place to ensure that all mercury and mercury sulphide is managed in an

environmentally sound manner and is either re-used for a use allowed under the Minamata Convention or exported for environmentally sound disposal according the provisions of paragraph 3 of article 11 of the Minamata Convention and the Basel Convention. Each export of mercury for re-use must be authorised by the FOEN. Authorisations are granted only if the mercury is not excess mercury from the decommissioning of chloralkali facilities and if the importing country has provided its written consent to the import of the mercury for a use allowed under the Minamata Convention and the national legislation of the importing country. Based on the Swiss legislation an authorisation for the export of mercury shall only be granted on application for the following uses:

- (i) analysis and research purposes;
- (ii) manufacture of pre-dosed capsules for dental amalgam fillings.

3.4. Does the party have excess mercury available from the decommissioning of chlor-alkali facilities?

☐ Yes

☒ No

3.5. *Has the party received consent, or relied on a general notification of consent, in accordance with article 3, including any required certification from importing non-parties, for all exports of mercury from the party's territory in the reporting period?

☒ Yes, exports to parties

☒ Yes, exports to non-parties

☐ No

ba35_subsection

If yes, a. and the party has submitted copies of the consent forms to the secretariat, then no further information is needed. If the party has not previously provided such copies, it is recommended that it do so.

a. and the party has submitted copies of the consent forms to the secretariat, then no further information is needed.

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Otherwise, please provide other suitable information showing that the relevant requirements of paragraph 6 of article 3 have been met.

For all exports of mercury to non-Parties we received certification from the importing countries demonstrating that the requirements of paragraph 6 letter b of article 3 have been met.

Supplemental: please provide information on the use of the exported mercury.

Exported mercury is exclusively used for:

- (i) analysis and research purposes (e.g. porosimetry); or
- (ii) manufacture of pre-dosed capsules for dental amalgam fillings.

Kindly attach all relevant information

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b. If exports were based on a general notification in accordance with article 3, paragraph 7, please indicate, if available, the total amount exported and any relevant terms or conditions in the general notification related to use.

{Empty}

Relevant terms or conditions in the general notification related to use

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3.6. Has the party allowed the import of mercury from a non-party?

- ☒ No
- ☐ Yes
- ☐ The importing party has relied on paragraph 7 of article 3

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 4: MERCURY-ADDED PRODUCTS

4.1. Has the party taken any appropriate measures to not allow the manufacture, import or export of mercury-added products listed in Part I of Annex A of the Convention after the phase-out date specified for those products?

- ☒ Yes
- ☐ No
- ☐ Yes (implementing paragraph 2 of article 4)

If yes, please provide information on the measures.

In Switzerland, restrictions on the use of mercury in products and processes have been in place for over 30 years. In 2005, the chemicals legislation was completely revised and the regulations on mercury were transferred to the Chemical Risk Reduction Ordinance (ORRChem, SR 814.81). The last amendments to the regulations on mercury were made in 2015 and 2017. The most recent amendment in 2017 introduced restrictions and control measures for the import and export of mercury and mercury compounds. These adjustments were necessary to meet the requirements of the Minamata Convention (see Mercury supply sources and trade).

In addition to the rules on transboundary trade in mercury and mercury compounds, bans apply to the manufacture and placing on the market, including import, of mercury-added products which are listed in Part I of Annex A to the Convention.

Batteries:

Batteries, including those installed in electrical and electronic appliances, may not be placed on the market if they contain more than 5 mg of mercury (Annex 2.15 ORRChem).

Switches and relays:

Switches and relays, including those installed in electrical and electronic appliances, may not be placed on the market if they contain more than 0.1% of mercury within a homogeneous material (Annex 1.7 and Annex 2.18 ORRChem).

Discharge lamps:

Discharge lamps are electrical and electronic equipment. Examples include fluorescent lamps (tubular and non-tubular), compact fluorescent lamps (with pin or screw base) and high-pressure discharge lamps (sodium-vapour lamps, mercury vapour lamps and metal-halide lamps).

It is prohibited to place on the market electrical and electronic equipment that contains more than 0.1% of mercury within a homogeneous material (Annex 2.18 ORRChem). The prohibition does not apply to discharge lamps (individually or as part of other electrical and electronic equipment) which do not exceed the maximum mercury concentrations specified in the Directive 2011/65/EU.

Cosmetic products:

Cosmetic products may not be placed on the market if they contain mercury compounds (Annex 1.7 ORRChem).

Plant protection products, biocides, and topical antiseptic products:
Placing on the market of plant protection products, biocides, and topical antiseptic products containing mercury is prohibited (Annex 1.7 ORRChem).

Measuring Devices:

Placing on the market of clinical thermometers and other measurement instruments that contain mercury and are intended for use by the general public is prohibited (Annex 1.7 ORRChem).

Placing on the market of the following measurement instruments that contain mercury and are intended for professional or commercial use, is prohibited (Annex 1.7 ORRChem):

- Barometers,
- Manometers,
- Sphygmomanometers,
- Strain gauges for use in plethysmographs,
- Thermometers and other non-electrical thermometric applications,
- Hygrometers,
- Tensiometers,
- Pyknometers, and
- Instruments for the determination of the softening point.

The use of mercury (CAS RN 7439-97-6), mercury compounds and preparations containing mercury for the manufacture of products mentioned above is prohibited (Annex 1.7 ORRChem). In addition the export of measuring instruments, switches and relays is prohibited unless their placing on the market is permitted.

Link to the ORRChem:

<https://www.fedlex.admin.ch/eli/cc/2005/478/en>

4.3. Has the party taken two or more measures for the mercury-added products listed in Part II of Annex A in accordance with the provisions set out therein?

☒ Yes

☐ No

If yes, please provide information on the measures.

According to the obligations of the Chemical Risk Reduction Ordinance (ORRChem) the use of dental amalgam is prohibited, if priority can be given to a different filling material for medical reasons (Annex 1.7 ORRChem). An obligation to install amalgam separators in dental practices is stipulated in the Waters Protection Ordinance (WPO, SR 814.201). Treatment units in which amalgam is processed, shall be equipped with an amalgam separator with a removal efficiency of at least 95%.

Link to the ORRChem:

<https://www.fedlex.admin.ch/eli/cc/2005/478/en>

Link to the WPO:

https://www.fedlex.admin.ch/eli/cc/1998/2863_2863_2863/en

4.4. Has the party taken measures to prevent the incorporation into assembled products of mercury-added products whose manufacture, import and export are not allowed under article 4?

☒ Yes

☐ No

If yes, please provide information on the measures.

Prohibitions on the manufacture and placing on the market, including the import, of the following articles, which may contain mercury-added products listed in Part I of Annex A of the Convention, are laid down in the Chemical Risk Reduction Ordinance (ORRChem, SR 814.81):

1) It is prohibited to place on the market electrical and electronic appliances which contain batteries with more than 5 mg of mercury (Annex 2.15 ORRChem).

2) It is prohibited to place electrical and electronic equipment on the market that contains more than 0.1% of mercury within a homogeneous material (Annex 2.18 ORRChem).

3) It is prohibited to place on the market new vehicles (passenger cars and light commercial vehicles) and new vehicle components which contain more than 0.1% of mercury per homogeneous material (Annex 2.16 Number 5 ORRChem).

4) It is prohibited to place on the market phenylmercury compounds or other mercury compounds intended for the manufacture of polyurethanes or preparations or articles containing 0.1% or more of such compounds (Annex 1.7 ORRChem).

Link to the ORRChem:

<https://www.fedlex.admin.ch/eli/cc/2005/478/en>

4.5. Has the party discouraged the manufacture and the distribution in commerce of mercury-added products not covered by any known use in accordance with article 4, paragraph 6?

☒ Yes

☐ No

If yes, please provide information on the measures.

According to the obligations of the Chemical Risk Reduction Ordinance (ORRChem) it is prohibited to place on the market, including the import, preparations or articles containing mercury or mercury compounds for uses unknown before 1 January 2018. The use of mercury (CAS RN 7439-97-6), mercury compounds and preparations containing mercury for the manufacture of such products mentioned is also prohibited (Annex 1.7 ORRChem).

Link to the ORRChem:

<https://www.fedlex.admin.ch/eli/cc/2005/478/en>

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 5: MANUFACTURING PROCESSES IN WHICH MERCURY OR MERCURY COMPOUNDS ARE USED

5.1. Are there facilities within the territory of the party that use mercury or mercury compounds for the processes listed in Annex B of the Minamata Convention in accordance with paragraph 5 of article 5 of the Convention?

☐ Yes

☒ No

☐ I do not know

5.2. Are measures in place to not allow the use of mercury or mercury compounds in manufacturing processes listed in Part I of Annex B after the phase-out date specified in that Annex for the individual process?

CHLOR-ALKALI PRODUCTION

- ☒ Yes
- ☐ No
- ☐ Not applicable (do not have these facilities)

If yes, please provide information on these measures.

According to the legal provisions (Annex 1.7 Number 3.1 Letter c of the Chemical Risk Reduction Ordinance, ORRChem) the use of mercury (CAS RN 7439-97-6), mercury compounds and mercury-containing preparations as auxiliary materials in industrial manufacturing processes is prohibited. Therefore the use of mercury in chlor-alkali production is prohibited. This regulation is in force since January 1, 2018.

ACETALDEHYDE PRODUCTION IN WHICH MERCURY OR MERCURY COMPOUNDS ARE USED AS A CATALYST

- ☒ Yes
- ☐ No
- ☐ Not applicable (do not have these facilities)

If yes, please provide information on these measures.

According to the legal provisions (Annex 1.7 Number 3.1 Letter c of the Chemical Risk Reduction Ordinance, ORRChem) the use of mercury (CAS RN 7439-97-6), mercury compounds and mercury-containing preparations as auxiliary materials in industrial manufacturing processes is prohibited. Therefore the use of mercury or mercury compounds as catalyst in acetaldehyde production is prohibited. This regulation is in force since January 1, 2018.

5.3. Are measures in place to restrict the use of mercury or mercury compounds in the processes listed in Part II of Annex B in accordance with the provisions set out therein?

VINYL CHLORIDE MONOMER PRODUCTION

- ☒ Yes
- ☐ No
- ☐ Not applicable (do not have these facilities)

If yes, please provide information on these measures.

According to the legal provisions (Annex 1.7 Number 3.1 Letter c of the Chemical Risk Reduction Ordinance, ORRChem) the use of mercury (CAS RN 7439-97-6), mercury compounds and mercury-containing preparations as auxiliary materials in industrial manufacturing processes is prohibited. Therefore the use of mercury in vinyl chloride monomer production is prohibited. This regulation is in force since January 1, 2018.

SODIUM OR POTASSIUM METHYLATE OR ETHYLATE

- ☒ Yes
- ☐ No
- ☐ Not applicable (do not have these facilities)

If yes, please provide information on these measures.

According to the legal provisions (Annex 1.7 Number 3.1 Letter c of the Chemical Risk Reduction Ordinance, ORRChem) the use of mercury (CAS RN 7439-97-6), mercury compounds and mercury-containing preparations as auxiliary materials in industrial manufacturing processes is prohibited. Therefore the use of mercury in the production of sodium or potassium methylate or ethylate is prohibited. This regulation is in force since January 1, 2018.

PRODUCTION OF POLYURETHANE USING MERCURY-CONTAINING CATALYSTS

- ☒ Yes
- ☐ No
- ☐ Not applicable (do not have these facilities)

If yes, please provide information on these measures.

According to the legal provisions (Annex 1.7 Number 3.1 Letter c of the Chemical Risk Reduction Ordinance, ORRChem) the use of mercury (CAS RN 7439-97-6), mercury compounds and mercury-containing preparations as auxiliary materials in industrial manufacturing processes is prohibited. Therefore the use of mercury-containing catalysts in polyurethane production is prohibited. This regulation is in force since January 1, 2018.

5.4. Is there any use of mercury or mercury compounds in a facility using the manufacturing processes listed in Annex B that did not exist prior to the date of entry into force of the Convention for the party?

- ☐ Yes
- ☒ No

5.5. Is there any facility that has been developed using any other manufacturing process in which mercury or mercury compounds are intentionally used that did not exist prior to the date of entry into force of the Convention?

- ☐ Yes
- ☒ No

Part E – Additional comments on the article in free text if the party chooses to do so

Mercury was used as a cathode in chlor-alkali electrolysis at a Swiss plant until 2016. The average annual consumption to offset mercury losses was around 960 kg. The lost mercury ended up in the various waste products from the process. This was processed in Switzerland and the mercury was recovered. A small portion of the mercury also ended up in the environment via the air and wastewater. At the end of 2016, chlor-alkali electrolysis was switched from the amalgam process to

the mercury-free diaphragm process. Until 2013, mercury was also used as a catalyst in a chemical synthesis. The mercury was then fully regenerated by the user on site, so no extra mercury was purchased between 2008 and 2013. The use of mercury as an auxiliary substance in industrial manufacturing processes is banned since 2018.

▼ ART. 7: ARTISANAL AND SMALL-SCALE GOLD MINING

7.1. Have steps been taken to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, artisanal and small-scale gold mining and processing subject to article 7 within your territory?

- ☐ Yes
- ☐ No
- ☒ There is no artisanal and small-scale gold mining and processing subject to article 7 in which mercury amalgamation is used in the territory

7.2. Has the party determined and notified the secretariat that artisanal and small-scale gold mining and processing within its territory is more than insignificant?

- ☐ Yes
- ☒ No

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 8: EMISSIONS

8.1. Identify any Annex D source categories for which there are new sources of emissions of mercury or mercury compounds as defined in paragraph 2 (c) of article 8.

For each of those source categories describe the measures in place, including the effectiveness of such measures, to implement the requirements of paragraph 4 of article 8.

- ☐ Coal-fired power plants
- ☐ Coal-fired industrial boilers
- ☐ Smelting and roasting processes used in the production of non-ferrous metals
- ☐ Waste incineration facilities
- ☐ Cement clinker production facilities

Has the party required the use of best available techniques or best environmental practices (BAT/BEP) to control and where feasible reduce emissions for new sources no later than 5 years after the date of entry into force of the Convention for the party?

- ☐ Yes
- ☒ No

Please explain

Between 2017 and 2019 the amount of waste (municipal solid waste, hazardous waste, sewage sludge) that has been incinerated in Swiss facilities remains stable at 4.4 mio tons p.a. About 4 mio tons of combustible waste has been incinerated in the 30 municipal solid waste incinerators plants. No new plant has been built since 2017.

In the time period from 2017 to 2019 the consumption of coal (bituminous coal and lignite) as fuel in industrial processes amounted between 3710 (2019) and 4510 (2017) terajoules which corresponds to 150'000 to 185'000 tons. The quantity used in the manufacture of cement was between 2950 (2019) and 3630 (2017) terajoules (120'000 – 150'000 tons). There were no new sources within the category coal-fired industrial boilers in this period of time.

Attach relevant documentation

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8.2. Identify any Annex D source categories for which there are existing sources of emissions of mercury or mercury compounds as defined in paragraph 2 (e) of article 8.

For each of those source categories, select and provide details on the measures implemented under paragraph 5 of article 8 and explain the progress that these applied measures have achieved in reducing emissions over time in your territory:

▼ COAL-FIRED POWER PLANTS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☐ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

{Empty}

Progress

{Empty}

▼ COAL-FIRED INDUSTRIAL BOILERS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☐ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

According to the provisions of the Ordinance on Air Pollution Control (OAPC, SR 814.318.142.1) the concentration of mercury (expressed as total mercury) in the exhaust air of stationary installations shall not exceed 0.2 mg/m³ at a mass flow rate ≥ 1 g/h (preventive emission limitation). If it is established that an individual existing installation is causing excessive ambient air pollution levels, even if this emission limit value is not exceeded, the enforcement authorities of the Canton shall impose a stricter emission limit value for the installation concerned.

Link to the OAPC:

https://www.fedlex.admin.ch/eli/cc/1986/208_208_208/en

Progress

Compared with the total mercury air emissions in Switzerland the share of emissions of coal fired industrial boilers is of less importance.

▼ SMELTING AND ROASTING PROCESSES USED IN THE PRODUCTION OF NON-FERROUS METALS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☐ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

{Empty}

Progress

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▼ WASTE INCINERATION FACILITIES

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☐ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

According to the provisions of the Ordinance on Air Pollution Control (OAPC, SR 814.318.142.1) the concentration of mercury (expressed as total mercury) in the exhaust air of municipal waste incinerations plants or hazardous waste incineration plants shall not exceed 0.05 mg/m³.

Link to the OAPC:

https://www.fedlex.admin.ch/eli/cc/1986/208_208_208/en

Progress

To ensure that facilities use BAT to control emissions in waste incineration the emission limit value for mercury has been reduced from 0.1 mg/m³ to 0.05 mg/m³ in the year 2015. According to the amendment in December 2012 of the Aarhus Protocol on Heavy Metals, compliance with this value reflects BAT. Swiss municipal waste incinerations plants today achieve lower emission levels for mercury.

▼ CEMENT CLINKER PRODUCTION FACILITIES

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Use of BAT/BEP to control emissions from relevant sources
- ☐ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

According to the provisions of the Ordinance on Air Pollution Control (OAPC, SR 814.318.142.1) the concentration of mercury (expressed as total mercury) in the exhaust air of cement kilns shall not exceed 0.05 mg/m³.

Link to the OAPC:

https://www.fedlex.admin.ch/eli/cc/1986/208_208_208/en

Progress

In Switzerland, there are six plants producing clinker and cement. The Swiss plants are rather small and do not exceed a capacity of 3'000 tonnes of clinker per day. All of them use state of the art dry process technology.

Have the measures for existing sources under paragraph 5 of article 8 been implemented no later than 10 years after the date of entry into force of the Convention for the party?

☒ Yes

☐ No

8.3. Has the party prepared an inventory of emissions from relevant sources within 5 years of entry into force of the Convention for it?

☒ Yes

☐ No

☐ Have not been a party for 5 years

If yes, when was the inventory last updated?

Fri, 02/12/2021 – 00:00

Please indicate where this inventory is available

At an early stage it became clear that the mercury issue could not be effectively tackled through national measures alone. For this reason the Aarhus Protocol on Heavy Metals, a protocol to the Geneva Convention on Air Pollution of 1979, was adopted in 1998. It aims to reduce emissions of the heavy metals lead, cadmium and mercury. When the Protocol was amended in December 2012, the emissions mitigation measures were adapted to reflect state of the art technology. The Protocol applies to the UNECE region, which covers the EU member states, Switzerland, the states of the former Soviet Union, Canada and the United States of America. Since Switzerland has ratified the protocol, it has to establish a emission inventory for mercury, which is updated annually. The reporting follows the rules laid down in the "EMEP/EAA Air Pollutant Emission Inventory Guidebook".

Link to the inventory:

<https://www.ceip.at/status-of-reporting-and-review-results/2021-submission>

Link to the guidebook:

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2019>

Attach

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8.4. Has the party chosen to establish criteria to identify relevant sources covered within a source category?

☐ Yes

☒ No

8.5. Has the party chosen to prepare a national plan setting out the measures to be taken to control emissions from relevant sources and its expected targets, goals and outcomes?

☐ Yes

☒ No

Part E – Additional comments on the article in free text if the party chooses to do so

As a party of the Protocol on Heavy Metals (Aarhus Protocol of 24 June 1998) Switzerland has committed to reduce its mercury emissions into the atmosphere. These emissions have been reduced by 90%, from approximately 6400 kg in 1990 to around 800 kg in 2005. The declining trend continues, although to a lesser extent: emissions were 15% lower in 2019 than in 2005. Today emissions of mercury mainly stem from waste incineration. A significant reduction has been achieved in this source category in the period 1990–2003 by equipping municipal solid waste incineration plants with flue gas treatment systems or improving the technology installed already.

▼ ART. 9: RELEASES

9.1. Are there, within the party's territory, relevant sources of releases as defined in paragraph 2 (b) of article 9?

☐ Yes

☒ No

☐ I do not know

9.2. Has the party established an inventory of releases from relevant sources within 5 years of entry into force of the convention for it?

- ☐ Yes
- ☒ Relevant sources do not exist in the territory
- ☐ Have not been a party for 5 years
- ☐ No

Part E – Additional comments on the article in free text if the party chooses to do so

The Swiss Pollutant Release and Transfer Register (SwissPRTR) provides information on releases of pollutants and transfers of waste from point sources and from diffuse sources. Emissions of mercury must be reported if the inputs to waste water, water or soil exceed 1 kg per year. In the period between 2017 and 2020 no relevant sources of mercury releases have been identified. These findings have been confirmed in a nationwide survey on mercury flows and fluxes from wastewater. The results allowed estimation of a total mercury load (THg) in Swiss wastewater of 130 ± 30 kg THg/year (15.7 mg/capita/y), of which $96 \pm 4\%$ is retained in sewage sludge. About 4.7 ± 0.5 kg THg/year (0.57 mg/capita/y) is discharged with the treated wastewater into surface waters. This corresponds to only 1.5–3% of THg carried by the major Swiss rivers, indicating that >95% of riverine Hg originates from diffuse sources.

Link to SwissPRTR:

<https://www.bafu.admin.ch/bafu/en/home/topics/chemicals/state/swissprtr-pollutant-register.html>

Cited survey:

Suess, E., Berg, M., Bouchet, S., Cayo, L., Hug, S. J., Kaegi, R., ... Buser, A. M. (2020). Mercury loads and fluxes from wastewater: a nationwide survey in Switzerland. *Water Research*, 175, 115708 (10 pp.). <https://doi.org/10.1016/j.watres.2020.115708>

Mercury inputs to soils occurred in the past with the application of sewage sludge for fertiliser purposes. This practice has been completely banned since 2008. In addition, the mercury content of compost and mineral fertilisers containing recovered phosphorus is limited to 1 gram per tonne of dry matter and 2 gram per tonne of phosphorus, respectively (Annex 2.6 ORRChem).

Mercury concentrations in soils that are above the guidance value of $500 \mu\text{g Hg/kg}$, as set out in the Soil Pollution Ordinance (SoilPO, SR 814.12), are sometimes detected in gardens in urban areas; in some soils, concentrations above $2,000 \mu\text{g Hg/kg}$ have been detected due to historical releases of mercury (see contaminated sites).

Link to the ORRChem:

<https://www.fedlex.admin.ch/eli/cc/2005/478/en>

▼ ART. 10: ENVIRONMENTALLY SOUND INTERIM STORAGE OF MERCURY, OTHER THAN WASTE MERCURY

10.1. Has the party taken measures to ensure that the interim storage of non-waste mercury and mercury compounds intended for a use allowed to a party under the Convention is undertaken in an environmentally sound manner?

- ☒ Yes
- ☐ No
- ☐ I do not know

Please indicate the measures taken to ensure that such interim storage is undertaken in an environmentally sound manner and the effectiveness of those measures.

The owners of facilities, where more than 200 kg of mercury or more than 2'000 kg of mercury compounds are stored, are subject to the provisions of the Major Accidents Ordinance (MAO, SR

814.012). Such owners are obliged to take all necessary safety measures to prevent incidents and have to take appropriate precautions should incidents nevertheless happen. The authorities control the compliance of this duty in a two-stage process consisting of two instruments: a summary report (1st stage) and a possible risk assessment (2nd stage). The cantons shall periodically inform the Federal Office for the Environment (FOEN) on the hazard potentials and risks present on their territory and on the measures taken.

Link to the MAO:

https://www.fedlex.admin.ch/eli/cc/1991/748_748_748/en

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 11: MERCURY WASTES

11.1. Have measures outlined in article 11, paragraph 3, been implemented for the party's mercury waste?

☒ Yes

☐ No

Please describe the measures implemented pursuant to paragraph 3, and please also describe the effectiveness of those measures.

With effect from 1. January 2018 the Waste Ordinance (ADWO, SR 814.600) defines mercury waste as follows:

- 1) waste that contains mercury or mercury compounds (which includes waste that is contaminated with mercury or mercury compounds),
- 2) mercury or mercury compounds originating from the treatment of mercury waste in terms of number 1, with exemption of mercury that may be exported with an export licence in accordance with the provisions of the Chemical Risk Reduction Ordinance (ORRChem),
- 3) mercury or mercury compounds that are no longer required as auxiliary substances in industrial processes.

Furthermore the ADWO stipulates the following:

- 1) Waste consisting of mercury or mercury compounds as well as waste that contains mercury or mercury compounds must be handled and disposed of in an environmentally sound manner by using state of the art technology.
- 2) Metallic mercury or mercury compounds derived from the handling of mercury waste remain mercury waste which must be handled and deposited of in an environmentally sound manner, provided the mercury or mercury compounds may not be handed over for a permissible use, or the metal may not be exported with an export licence in accordance with the provisions of the ORRChem.
- 3) Mercury or mercury compounds that are no longer required as auxiliary substances in industrial processes must be treated and deposited in an environmentally sound manner by using state of the art technology. The Placing on the market or use of such mercury or mercury compounds is not allowed.

This means, in other words, that metallic mercury or mercury compounds derived from the treatment of mercury waste remain waste that must be handled and deposited in an environmentally sound manner, provided the mercury or mercury compounds may not be handed over for a permissible use according to national legislation, or the mercury may not be exported with an export licence in accordance with the provisions of the ORRChem. An export licence may be granted only for analysis and research purposes or until end of 2027 for the manufacture of pre-dosed capsules for dental amalgam fillings.

Further provisions of waste legislation, in particular the Waste Movements Ordinance (OMW SR 814.610) and the DETEC Ordinance concerning Lists for the Movements of Waste (LVA, SR 814.610.1) require that mercury waste is handled in an environmentally sound manner. The import and export of waste consisting of mercury or mercury compounds and waste containing mercury or mercury compounds have to take place in accordance with the provisions of the Basel Convention (SR 0.814.05).

Links to waste legislation:

<https://www.fedlex.admin.ch/eli/cc/2015/891/en> (ADWO)

<https://www.fedlex.admin.ch/eli/cc/2005/551/fr> (OMW)

<https://www.fedlex.admin.ch/eli/cc/2005/714/fr> (LVA)

https://www.fedlex.admin.ch/eli/cc/1992/1125_1125_1125/fr (Basel Convention)

11.2. Are there facilities for final disposal of waste consisting of mercury or mercury compounds in the party's territory?

- ☐ Yes
- ☒ No
- ☐ I do not know

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 12: CONTAMINATED SITES

12.1. Has the party endeavoured to develop strategies for identifying and assessing sites contaminated by mercury or mercury compounds in its territory?

- ☒ Yes
- ☐ No

Please elaborate

Definition of "contaminated site":

In Switzerland, a polluted site is a location whose pollution originates either from an operated or closed disposal site (landfill) or a industrial or accident site, where waste was deposited or seeped into the ground. If a polluted site cause harmful effects or nuisances (or where there is a real danger that such effects may arise), it must be remediated. In this case, it is referred to as "contaminated site".

Online availability of the strategy:

The legal basis for the management of contaminated sites in Switzerland is provided by the Environmental Protection Act (EPA, SR 814.01), the Contaminated Sites Ordinance (CSO, SR 814.680) and the Ordinance on the Charge for the Remediation of Contaminated Sites (OCRCS, SR 814.681). In addition, the Federal Office for the Environment FOEN has published various documents that provide guidance on how to comply with legislative requirements on contaminated sites.

Status of implementation:

To date, all registers of polluted sites have been completed by the Cantons and the federal administration. About 70% of all sites requiring further investigation have been investigated (target for completion: 2028) and about 40% of all contaminated sites have been remediated (target for completion: 2040). Around 40 of the 1,500 contaminated sites already remediated were mercury contaminated sites. The largest mercury contaminated site (several km² of soil contaminated with

mercury) is located in the Canton of Valais. The area heavily contaminated with mercury (in residential and agricultural zones) is currently being remediated.

Links:

Environmental Protection Act, EPA:

https://www.fedlex.admin.ch/eli/cc/1984/1122_1122_1122/en#tit_2/chap_4/sec_4

Contaminated Sites Ordinance, CSO:

https://www.fedlex.admin.ch/eli/cc/1998/2261_2261_2261/en

Ordinance on the Charge for the Remediation of Contaminated Sites, OCRCS:

<https://www.fedlex.admin.ch/eli/cc/2008/670/en>

Enforcement aids:

<https://www.bafu.admin.ch/bafu/en/home/topics/contaminated-sites/publications-studies.html>

Part E – Additional comments on the article in free text if the party chooses to do so

Soil decontamination is currently being carried out in settlements in the Canton of Valais (see 12.1). In this area, soils were contaminated with mercury through the deposition of excavated mercury-contaminated material from an industrial area and/or sludge and sediments, which were excavated from a sewer contaminated with mercury-containing industrial wastewater during maintenance work between 1930 and 1990.

Links:

<https://www.vs.ch/web/sen/ausgangslage>

<https://quecksilber.lonza.com/quecksilber/quecksilber-im-grossgrundkanal>

▼ ART. 13: FINANCIAL RESOURCES AND MECHANISM

13.1. Has the party undertaken to provide, within its capabilities, resources in respect of those national activities that are intended to implement the Convention in accordance with its national policies, priorities, plans and programmes?

☒ Yes

☐ No

Please specify

The national implementation and the participation in the further development of the Convention has resource implications on the national level in Switzerland. The personnel expenditure corresponds to about two additional positions in the Federal Office for the Environment (FOEN). These positions are compensated internally by means of adjustments to current administrative tasks.

Please provide comments, if any.

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13.2. Supplemental: Has the party, within its capabilities, contributed to the mechanism referred to in paragraph 5 of article 13?

☒ Yes

☐ No

Please specify

Switzerland contributed to the Global Environment Facility Trust Fund and to the specific international Programme to support capacity-building and technical assistance.

GEF 2017–2021: CHF 149,242,000.–

SIP 22017–2021: CHF 1,100,000.–

Please provide comments, if any.

{Empty}

13.3. Supplemental: Has the party provided financial resources to assist developing-country parties and/or parties with economies in transition in the implementation of the Convention through other bilateral, regional and multilateral sources or channels?

☒ Yes

☐ No

Please specify

Switzerland has provided financial resources to UNIDO and UNITAR for the support of developing countries with regard to the ratification and early implementation of the Minamata Convention.

Please provide comments, if any.

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Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 14: CAPACITY-BUILDING, TECHNICAL ASSISTANCE AND TECHNOLOGY TRANSFER

14.1. Has the party cooperated to provide capacity-building or technical assistance, pursuant to article 14, to another party to the Convention?

☒ Yes

☐ No

Please specify

Switzerland, as the host country of the secretariat, provides 1 million Swiss francs per year to the Convention of which 40 per cent is prioritized for the purpose of supporting the participation of representatives from developing countries in the meetings of the Conference of the Parties. In addition Switzerland has been financially supporting the organization of regional preparatory meetings before conferences of parties and the participation of representatives from developing countries to those meetings.

Moreover, Switzerland has supported capacity building through its economic cooperation and development as well as with its financial support through UNIDO and UNITAR.

14.2. Supplemental: Has the party received capacity-building or technical assistance pursuant to article 14?

☐ Yes

☒ No

Please specify

No capacity-building or technical assistance is needed.

Please provide comments, if any.

{Empty}

14.3. Has the party promoted and facilitated the development, transfer and diffusion of and access to, up-to-date environmentally sound alternative technologies?

- ☒ Yes
- ☐ No
- ☐ Other

Please specify

Switzerland has supported capacity building through its economic cooperation and development as well as with its financial support through UNIDO and UNITAR, including for the topics of ASGM and mercury waste.

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 16: HEALTH ASPECTS

16.1. Have measures been taken to provide information to the public on exposure to mercury in accordance with paragraph 1 of article 16?

- ☒ Yes
- ☐ No

Supplemental: If yes, describe the measures that have been taken.

The general Swiss population may be exposed to mercury through food consumption, inhaled ambient air, dental amalgam fillings or through accidental exposure by broken or damaged mercury containing products. As mercury is now barely used in products marketed in Switzerland and the use of mercury in industrial processes has been phased out, exposure of the general population to mercury occurs mainly through food consumption and workplace-related exposures are rare. Under the auspices of the Federal Office of Public Health (FOPH), Switzerland took part in a human biomonitoring pilot study (DEMOCOPHES) coordinated by the EU between 2010 and 2012 which measured mercury concentrations in the hair of mother-child pairs in 17 countries. Compared with figures from other countries, the mercury levels in hair in the study cohort are unremarkable. Mothers with the highest mercury concentrations in their hair consumed fish and seafood more often. The number of amalgam fillings and the number of broken mercury thermometers or energy-saving lamps had no influence on mercury concentrations in hair. In addition to participation in the DEMOCOPHES study, another biomonitoring study on mercury was conducted in Switzerland by the Department of Occupational and Environmental Medicine at the University of Zurich. The study measured mercury concentrations in the hair and urine of 64 mothers (25 –55 years old) and 107 children (3–12 years old) from Upper Valais. This study cohort lives in an area where some soils contain high levels of mercury. In a survey conducted in parallel, data were collected on the number of amalgam fillings and on the consumption of sea fish and vegetables from contaminated gardens. Compared with the results of the DEMOCOPHES study, the measured concentrations in hair samples are unremarkable. There were strong indications of a link between mercury concentrations in hair and the consumption of sea fish. Furthermore, a strong evidence of a correlation between mercury concentrations in urine samples and the number of amalgam fillings, age and when subjects last consumed sea fish, was observed. No correlation was found between mercury concentrations in hair and urine samples and the consumption of vegetables from contaminated gardens or the occurrence of mercury in soils.

In 2019–2021 another biomonitoring study was conducted with urine and blood sampling in roughly 800 adult participants aged 20–69 (www.schweizer-gesundheitsstudie.ch). Mercury will be analysed in the respective blood samples and the results will be published.

References:

<http://www.eu-hbm.info/democophes>

https://www.ebpi.uzh.ch/en/translational_research/community_and_health/mercury_biomonitoring.html

<https://www.schweizer-gesundheitsstudie.ch>

16.2. Have any other measures been taken to protect human health in accordance with article 16?

☐ Yes

☒ No

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 17: INFORMATION EXCHANGE

17.1. Has the party facilitated the exchange of information referred to in article 17, paragraph 1?

☒ Yes

☐ No

Please provide more information, if any

The Federal Office for Environment (FOEN) has funded scientific work relating to emissions of mercury to land, air and water. Results of the studies had been published in scientific journals.

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 18: PUBLIC INFORMATION, AWARENESS AND EDUCATION

18.1. Have measures been taken to promote and facilitate the provision to the public of the kinds of information listed in article 18, paragraph 1?

☒ Yes

☐ No

If yes, please indicate the measures that have been taken and the effectiveness of those measures

The United Nations Economic Commission for Europe (UNECE)'s convention on access to information, public participation in decision-making processes and access to justice in environmental matters was signed in Aarhus, Denmark in 1998 and came into force in 2001. Switzerland ratified the Convention in March 2014 and has been a party to the agreement since 1 June 2014. There is a protocol to the Aarhus Convention, the Protocol on Pollutant Release and

Transfer Register (PRTR). Switzerland ratified this protocol at the end of 2006. The Swiss PRTR was set up at the beginning of 2009. Emissions of mercury must be reported if the inputs to waste water, water or soil exceed 1 kg per year.

Link to the PRTR:

<https://www.bafu.admin.ch/bafu/en/home/topics/chemicals/state/swissprtr-pollutant-register.html>

In the year 2018 the Federal Office for Environment has published a status report on mercury in Switzerland. The report contains a brief introduction to national and international regulations on mercury, followed by an overview of use, waste volume and disposal of mercury in Switzerland. A further part of the report summarises the state of knowledge on environmental releases and mercury pollution in individual environmental compartments, evaluates these pollution levels and highlights existing knowledge gaps. The last part presents the main sources of mercury exposure in the Swiss population.

Reference: Ritscher A., 2018: Use, disposal and environmental releases of mercury. An overview of the situation in Switzerland. Federal Office for the Environment, Bern. State of the environment no. 1832: 50 p.

Link to the report:

<https://www.bafu.admin.ch/bafu/en/home/topics/chemicals/publications-studies/publications/use-disposal-environmental-releases-mercury.html>

Part E – Additional comments on the article in free text if the party chooses to do so

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▼ ART. 19: RESEARCH, DEVELOPMENT AND MONITORING

19.1. Has the party undertaken any research, development and monitoring in accordance with paragraph 1 of article 19?

☒ Yes

☐ No

If yes, please describe these actions

In Switzerland and other European countries, atmospheric mercury deposition is monitored within the framework of a programme under the 1979 Geneva Convention on Air Pollution by measuring mosses. Mosses are used as indicators because they do not have roots, so they take up water, nutrients and pollutants such as mercury exclusively from the air. The mercury concentrations measured between 1990 and 2015 declined by up to 50% and confirm the results of calculations done by the Meteorological Synthesizing Centre-East (MSC-E) which show a decreasing in atmospheric mercury deposition.

Reference:

Deposition of atmospheric pollutants in Switzerland 1990–2015 (Summary)

<https://www.bafu.admin.ch/bafu/en/home/topics/air/publications-studies/publications/deposition-of-atmospheric-pollutants-in-switzerland-summary.html>

Part E – Additional comments on the article in free text if the party chooses to do so

In Switzerland air mercury concentrations (gaseous elemental mercury, GEM) are not monitored routinely. Within the framework of the European Monitoring and Evaluation Programme (EMEP), a programme under the 1979 Geneva Convention on Air Pollution, the Meteorological Synthesizing Centre-East (MSC-E) uses mercury emission inventories to model the resulting atmospheric mercury

pollution. The comparison of modelling results with observations at nine stations shows a good agreement. The levels calculated for Switzerland were between 1.40 ng/m³ and 1.85 ng/m³ in 2019. These values are comparatively similar to those measured at the urban location Zurich for the period from January 2014 to December 2015. The 10th percentile was 1.6 ng/m³, the 90th percentile 2.1 ng/m³ and the annual median 1.8 ng/m³. In a project funded by the Federal Office for the Environment (FOEN) the data on atmospheric measurements in the city of Zurich have been used to estimate mercury emissions in a top-down approach. This approach amounted to estimated nationwide emissions of 494 to 837 kg mercury per year. Compared to the 658 kg per year of the Swiss CL RTP report, this estimation lies in a well acceptable range. In a further study conducted at the remote high altitude monitoring station Jungfraujoch, European emissions of 89 ± 14 t/a for elemental mercury have been estimated using the top-down approach. This emission estimate was 17% higher than the bottom-up emission inventory, which is within stated uncertainties.

References:

Denzler, B., Bogdal, C., Kern, C., Tobler, A., Huo, J., and Hungerbühler, K.: Urban source term estimation for mercury using a boundary-layer budget method, *Atmos. Chem. Phys.*, 19, 3821–3831, <https://doi.org/10.5194/acp-19-3821-2019>, 2019.

Denzler, B., Bogdal, C., Henne, S., Obrist, D., Steinbacher, M., and Hungerbühler, K.: Inversion Approach to Validate Mercury Emissions Based on Background Air Monitoring at the High Altitude Research Station Jungfraujoch (3580 m), *Environmental Science & Technology* 2017 51 (5), 2846–2853, <https://doi.org/10.1021/acs.est.6b05630>.

▼ COMMENTS

Part C: Comments regarding possible challenges in meeting the objectives of the Convention (Art. 21, para. 1)

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▼ SUPPLEMENTAL – ADDITIONAL COMMENTS

Supplemental: Part D: Comments regarding the reporting format and possible improvements, if any

We have no additional comments.