

#### **About Toxics Link**

Toxics Link is an Indian environmental research and advocacy organization set up in 1996, engaged in disseminating information to help strengthen the campaign against toxics pollution, provide cleaner alternatives and bring together groups and people affected by this problem. Toxics Link's Mission Statement is "Working together for environmental justice and freedom from toxics". We have taken upon ourselves to collect and share both information about the sources and danger of poisons in our environment and bodies, and information about clean and sustainable alternatives for India and the rest of the world.

#### **About EEB**

The European Environmental Bureau (EEB) is the largest network of environmental citizens' organisations in Europe. It currently consists of around 170-member organisations in more than 36 countries (all EU Member States plus some accession and neighbouring countries), including a growing number of European networks, and representing some 30 million individual members and supporters.

#### ZMWG:

The Zero Mercury Working Group (ZMWG) is an international coalition of over 110 public interest environmental and health non-governmental organizations, from more than 55 countries from around the world, formed in 2005 by the European Environmental Bureau and the Mercury Policy Project. ZMWG strives for zero supply, demand, and emissions of mercury from all anthropogenic sources, with the goal of reducing mercury in the global environment to a minimum. The Mission is to now advocate and support the implementation and enforcement of the Minamata Convention on Mercury.

www.zeromercury.org Contact: elena.lymberidi@eeb.org

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#### For further information

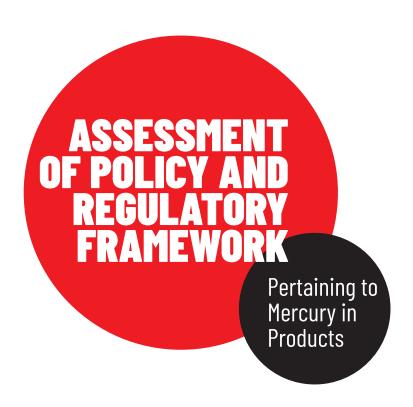
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Mercury is a highly toxic heavy metal (Exposure to Mercury: A Major Public Health Concern - WHO), known neurotoxins, a threat to the development of the child in utero and early in life is at particular risk.

Generally, mercury could not stay up to a year in the atmosphere and transport from one place to another and ultimately settle in the sediments of lakes, rivers, or bays to be transformed into methyl mercury.



# **EXECUTIVE SUMMARY**

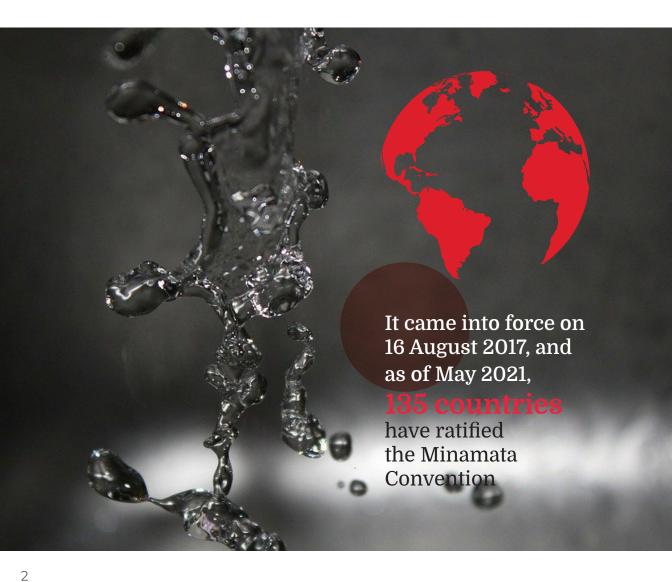


In this report, the current regulations, that are formulated to make India compliant with the Minamata Convention and further the gaps and challenges in current rules and regulations are discussed. It also provides recommendations to fill the regulatory gaps and implementation challenges so that the India can compliance with the provisions of Article 4 of Minamata convention

The ill effects of mercury are well known. Even now, mercury is commonplace in daily life. Electrical and electronic devices, switches (including thermostats) and energy-efficient fluorescent light bulbs, batteries, skin-lightening creams, and other cosmetics which contain mercury, dental fillings, and pesticides across the globe. Considering the health and environmental challenges from mercury, in these products needs to be regulated with strict standards or replaced with mercury-free products to minimize the risks on the environment and human health.

The Minamata Convention (MC) on mercury, which entered into force on August 16, 2017, is a global treaty that aims to protect human health and the environment from anthropogenic emissions of mercury and its compounds. Annexure A, part I, and part II of the Minamata Convention have the provisions for Mercury standards in products and phase-out of dental amalgam and set a deadline till 2020 to comply with these provisions. To minimize India's contribution to global mercury pollution, it signed the MC in September 2014 and ratified it in June 2018.

India has sought five years extension to comply with the mercury-added products up to 2025, though it has also initiated regulatory measures to reduce mercury usage in various products. Before entry into force of the MC, India had implemented several environmental regulations (the term "regulation" is used herein in a generic sense to include different regulatory instruments such as statutes, rules, and regulations) which focus on the use of mercury in various kinds of products.



# 1 INTRODUCTION



#### **About Minamata Convention on Mercury**

Health Concern - WHO), known neurotoxins, a threat to the development of the child in utero and early in life is at particular risk. Generally, mercury could not stay up to a year in the atmosphere and transport from one place to another and ultimately settle in the sediments of lakes, rivers, or bays to be transformed into methyl mercury. Though mercury and its various forms are very toxic, mercury has a wide range of applications including various consumer products and industrial / manufacturing processes. The methyl mercury is considered highly toxic, absorbed by phytoplankton, ingested by zooplankton and fish, and enters the human body through the food chain. The elemental mercury from the products and during usage vaporizes readily (essentially becomes a gas), and once inhaled, can damage the central nervous system, kidneys, and liver. Also, the mercury from cosmetics can be absorbed in the skin which can damage the central nervous system and can also lead to death.

Therefore, considering the environmental and health challenges from mercury, the Minamata Convention on Mercury, an international treaty was adopted in October 2013 to protect human health and the environment. It came into force on 16 August 2017, and as of May 2021, 135 countries have ratified the Minamata Convention.

A mercury-added product is defined by the Convention1 (Article 2(f)) as a "product or product component that contains mercury or a mercury compound that was intentionally added." The definition under the Convention is broad as it aims to cover all products to which mercury was added during the manufacturing process in order to provide a specific function or characteristic. Some of the commonly used day-to-day products where mercury is being used are cosmetics, medical equipment such as thermometers and sphygmomanometers, dental fillings, electric lamps and switches, electronic items, pesticides and drugs, industrial processes such as in the chlor-alkali sector, gold extraction, etc.

Article 4 of the convention has the detailed provisions to phase out or restrict the use of mercury in products. The provisions of the article 4 of the Convention is in Annexure I.

#### What is in Annex A part I

- Batteries
- Switches and relays
- Lamps
  - Compact fluorescent (CFLs)
  - Linear fluorescent
  - High-pressure mercury vapour
  - CCFLs and EEFLs
- Cosmetics including skin lightening soaps and creams
- Pesticides, biocides, and topical antiseptics
- Non-electronic measuring devices
  - Barometers
  - Hygrometers
  - Manometers
  - Thermometers
  - Sphygmomanometers

Annex A is split into two parts: Part I (products to be phased out by 2020) and Part II (products to be phased down, namely dental amalgam)

#### Part II

#### Dental amalgam

The convention proposes measures to be taken by a Party to phase down the use of dental amalgam. Those ones shall take into account the Party's domestic circumstances and relevant international guidance and shall include two or more measures from the list (Annexure-III).

https://www.mercuryconvention.org/en/about



#### India and The Minamata Convention

India has ratified the Minamata Convention on 18 June 2018. However, it has sought a five years extension<sup>2</sup> to comply with the mercury-added products of Article 4 of Paragraph 1 up to 2025 (Annexure I). At the same time, India is among the few developing countries, which have initiated regulatory measures to phase out or restrict the use of mercury from various products even before the Minamata Convention came into force.

India has had a regulation on mercury dosing in lamps since 2011, under E-waste rules 2011. However, the mercury dosing standard was very high.

https://www.mercuryconvention.org/sites/default/files/documents/notification/India%2520exemptions.pdf



# CURRENT REGULATORY PROVISIONS IN INDIA TO RESTRICT THE MERCURY IN PRODUCTS

The Government of India has put regulatory measures on mercury use in various products before the Minamata Convention in place. Further, there are also a few regulations that came into force after signing the Minamata Convention in 2014.

Products	Before	After
Lamps	India has had a regulation on mercury dosing in lamps since 2011, under E-waste rules 2011.  However, the mercury dosing standard was very high.  The Central Pollution Control Board Guideline 2008, mentioned ongoing efforts to reduce mercury dosing in CFLs to an optimum level using internationally best available technology, had not prescribed any upper limit.	E-Waste (Management) Rules, 20163: for mercury content in Compact fluorescent lamps (CFLs), Linear fluorescent lamps (LFLs), High-pressure mercury vapor lamps (HPMV), and Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) are stringent in line with Minamata convention.
Cosmetics	Rule 38 The Drugs and Cosmetic Rules 1945 had a total prohibition of mercury use in cosmetics.	The Drugs and Cosmetics (2nd Amendment) Rules 2017, 135A & 145D: Regulations of Cosmetics Rules 2020 Sets limit of 1 ppm unintentional mercury in cosmetics.
Pesticides	The import of mercury-based agro-chemicals is prohibited in India under the Central Insecticides Act, 1968	S.O 3951(E) dated 8th August, 2018: Mercury- based pesticides & insecticides are covered under the list of pesticides that are banned, refused registration and restricted in use.

https://cpcb.nic.in/displaypdf.php?id=RS1XYXNoZS9FLVdhc3RlTV9SdWxlc18yMDE2LnBkZg==



# REGULATORY AND INSTITUTIONAL MECHANISM TO REGULATE MERCURY IN PRODUCTS IN INDIA

#### Regulatory and Institutional Mechanism to regulate mercury in Products in India

The analysis has allowed an evaluation of Indian regulatory measures and institutional mechanisms concerning Article 4 of the Minamata Convention and the extent to which obligations can be implemented.



#### **Mercury in Lamps**

India complies with the provision of Minamata convention on mercury dosing in lamps. The manufacturers and importers have to comply with the provisions of the E-waste management rules, 2016 to manufacture and import mercury bearing lamps in India.

#### E-Waste Management Rules, 2016-Regulations on Mercury dosing in lamps

In India, mercury dosing has been restricted gradually in all types of mercury lamps. The E-waste Management Rules which has been promulgated in 2016 has a very stringent mercury standard for mercury-bearing lamps which is in line with the EU-WEEE regulation as well as complying with the provisions of the Minamata Convention. Detailed provisions are in Annexure II.

#### Role and responsibilities Implementing Agency

The E-waste rules 2016 have bestowed the responsibility with the Central Pollution Control Board (CPCB) to monitor the standards on the dosing of mercury prescribed in the rules 16 of the E-Waste Rules 2016<sup>4</sup>.

- The Central Pollution Control Board shall conduct random sampling of electrical and electronic equipment placed on the market to monitor and verify the compliance of Reduction of Hazardous Substances provisions and the cost for sample and testing shall be borne by the Producer. The random sampling shall be as per the quidelines of the Central Pollution Control Board. (10)
- Further, schedule 2 of the E-waste Rules 2016 sets limits for the usage of certain toxic chemicals in electronic products. Mercury in lamps has been covered extensively under this; the restrictions are similar to the European RoHS directive.
- If the product does not comply with Reduction of Hazardous Substances provisions, the Producers shall take corrective measures to bring the product into compliance and withdraw or recall the product from the market, within a reasonable period as per the guidelines of the Central Pollution Control Board.

The Central Pollution Control Board shall publish the methods for sampling and analysis of Hazardous Substances as listed in sub-rule (1) of rule 16 for the items listed in Schedule I and II of the E-waste Rules 2016 and also enlist the labs for this purpose.

#### **Gaps and Challenges:**



The CPCB has not prescribed any standards for testing the mercury in lamps.



In India, there is hardly any laboratory facility to conduct the test on mercury in lamps.



There is no system in place to check the mercury lamps that are being imported to India.



In India, there is no recent study in mercury dosing in lamps. In 2011, Toxics Link did a study "Toxics in that glow" to assess the total quantity of mercury present in CFLs to reduce mercury levels in lighting products and flag the issue of its end-of-life management. The average mercury content per unit (CFL) has been found to be 21.21mg.

http://toxicslink.org/docs/Mercury\_in\_CFL-Booklet-Toxics-in-That-Glow.pdf

<sup>4</sup> https://cpcb.nic.in/displaypdf.php?id=RS1XYXNoZS9FLVdhc3RlTV9SdWxlc18yMDE2LnBkZg==

#### Trend: Growth of LED Lighting (%)





During the end of the last decade, the emergence of the LED lighting market has taken the centre stage. With the government's support, the market share for LEDs grew from 0.3% to 46%, with sales surpassing those of incandescent, CFL, and tubular fluorescent lamps. This rapid surge in demand for LED lights is driven by government initiatives, adoption in metro cities because of better awareness and higher socio-economic growth. The ELCOMA vison 2024 document has shown the exponential growth of LEDs during these years and the CFL has been phased out the with the LED very fast.

Supported by ongoing government initiatives to promote LED lighting as well as changing consumer preferences, the Lighting market will grow at an average rate of 7.7% to 11.5 % by the year 2024 the vision document has stated. <sup>5</sup>

http://www.elcomaindia.com/wp-content/uploads/ELCOMA-Vission-2024.pdf



#### Mercury in Cosmetics

Mercury in cosmetics is being used in two forms: inorganic and organic. Inorganic mercury is used in skin whitening creams and soaps. India complies with Minamata convention on presence of mercury in cosmetics. In India, the manufacture, import and export of cosmetics are regulated and India was among the few countries across the globe that restricted the use of mercury in cosmetics including skin whitening cream and completely prohibited it under the Drug and Cosmetics Rules, 1940 and the Cosmetics Rules 2020.

#### Regulations

- The Act has the mandatory provisions to mention the ingredients on the cosmetics container besides all the other details like manufacturing date, site, manufacturer name, etc.
- The Act also has the provisions for the safe disposal of corrosive or dangerous products by neutralisation or deactivation and of the need for complete disposal of mercury and its salts.
- Rule 38 The Drugs and Cosmetic Rules<sup>6</sup> 1945 had a total prohibition of mercury use in cosmetics. However, there was an amendment made to the rules in 2017 and mercury use was limited to 1 ppm and subsequently new Cosmetics Rules 2020 came into force.
- The specific provisions in the rules on mercury use are:
  - Rule 39 (5) (b): Cosmetics imported or manufactured in the country shall contain mercury in the following
    proportions, namely, (a) in cosmetics intended for use only in the area of the eye, the level of mercury
    not exceeding seventy parts per million (0.007 per cent.) of mercury, calculated, however, there was an

<sup>6</sup> https://cdsco.gov.in/opencms/export/sites/CDSCO\_WEB/Pdf-documents/acts\_rules/2016DrugsandCosmeticsAct1940Rules1945.pdf

- amendment made to the rules in 2017 and mercury use was limited to 1 ppm and subsequently new Cosmetics Rules 2020 came into force.
- Moreover, the BIS standard of IS 4707 for cosmetic raw materials and adjuncts<sup>7</sup>: Part 2 lists the raw materials
  generally not recognized as safe for use in cosmetics. This standard prohibits the use of mercury and its
  compound as an ingredient.

#### Role and responsibilities Implementing Agency

- The Drugs and Cosmetics Act 1940 and the Rules 1945 have bestowed power with the central government and state government departments to enforce the Drugs and Cosmetic Act. The following agencies, Central Drugs Standard Control Organisation (CDSCO), the Ministry of Health and Family Welfare, Govt of India, the State FDA and the Bureau of Indian Standards have been entrusted power to comply and monitor the various provisions of the Drugs and Cosmetic Act and Rules.
- Further, there is a role of the custom department which is to check the entry of these illegal cosmetics to India.



#### Gaps and Challenges:



The implementation of the rules is the key challenges in the country, as the studies have shown that high mercury-laden cosmetics are being sold in India.



There is also no system in place to check the illegal import of mercury laden cosmetics to India



No regulation on e-commerce marketing platforms is exposing the public to mercuryladen cosmetics in every state of the country.



Mercury-laden creams are prevalent in the country despite the strict regulations in place to limit mercury levels to 1 ppm in cosmetics. Toxics Link study "Dark truth of skin whitening creams: Presence of Mercury in skin whitening creams" detected mercury in six out of 15 samples. Five samples had alarming levels of mercury ranging from 4000 to 14000 ppm. Only one out of six samples had mercury concentration below 1 ppm i.e., 0.3 ppm. It is clear that mercury-laden creams are easily available in the country and are being sold both in offline shops and on online portals despite the strict regulations in place to contain mercury in cosmetics.

http://toxicslink.org/docs/MERCURY%20CREAM%20REPORT.pdf

https://law.resource.org/pub/in/bis/S11/is.4707.2.2009.pdf



#### Mercury in Pesticides and Insecticides

In India consumption of pesticides has increased manifolds after the adoption of the green revolution in 1962. At the same time, the import, registration process, manufacture, sale, transport, distribution and use of insecticides (pesticides) are regulated under the Insecticides Act, 1968 and Insecticides Rules, 1971. All the pesticides to be used and manufactured in India have to register with the Central Insecticide Board and Registration Committee (CIB&RC) of the Ministry of Agriculture and family welfare, Govt of India. India complies with Minamata convention on mercury usage in pesticides.

#### Regulation

In India, few mercury-containing pesticides and insecticides are banned and some are regulated. In a significant development as per the provisions of the Insecticides Act, 1968 and Insecticides Rules, 1971, in its order<sup>8</sup> of S.O 3951(E) dated 8th August 2018 by the Ministry of Agriculture and family welfare, Govt of India completely banned the registrations, import, manufacture, formulation, transport, sale of Methoxy Ethyl Mercury Chloride, Methyl Parathion.

<sup>8</sup> http://ppqs.gov.in/sites/default/files/list\_of\_pesticides\_which\_are\_banned\_refused\_registration\_and\_restricted\_in\_use.pdf

#### Role and responsibilities of Implementing Agency

The Central Insecticide Board & Registration Committee (CIB&RC) of Directorate of Plant Protection, Quarantine & Storage (PPQS) under the Ministry of Agriculture & Farmers Welfare, the Government of India is responsible for the registration and advice to the Central and State governments on technical matters related to registration of insecticides. The CIB&RC also brings out the list of pesticides that are banned, refused registration and restricted in use. The Insecticides Act gives state governments limited powers to regulate pesticides. They may issue licenses to companies to manufacture, sell, stock or exhibit for sale or distribute pesticides through application licensing officers.



#### **Gaps and Challenges:**



In India, the management of the pesticides is the responsibility of the Central and state government agencies. The Central Government issued an order to ban the pesticides under the provisions of the Insecticides Act 1962 whereas, compliance with the regulation lies with the state government. However, there are sporadic reports of the availability of banned pesticides in India<sup>9</sup>. Considering the length and breadth of the country monitoring the banned pesticides is a challenge in the country. Moreover, The Insecticides Act does not provide for regular review of registered pesticides.



# Mercury in batteries, button cells and switches

The Minamata convention has set a limit for mercury in batteries except for button zinc silver oxide batteries with a mercury content < 2% and button zinc air batteries with a mercury content < 2%. Further Batteries and button cells: Similar for the switches and relays, except very high accuracy capacitance and loss measurement bridges and high frequency radio frequency switches and relays in monitoring and control instruments with a maximum mercury content of 20 mg per bridge, switch or relay

There are no national regulations on mercury content, in batteries their manufacture and trade, in India and therefore lack of data available on the extent of the use of the mercury in various batteries. However, Toxics Link market survey reports have reiterated that mercury has been voluntarily phased out from the button cell batteries.



#### **Button Cell battery**

In the market study conducted in New Delhi (Jungpura and Kalkaji) markets we couldn't find mercury-containing button cell batteries. The interviewed retailers asserted, "They no longer sell mercury-containing button cell battery; it used to be available before but now most of the shops sell mercury-free battery as the cost of both the batteries is almost the same" (as per retailers from Kalkaji). In these markets mostly Alkaline and Lithium button cell batteries were available. What emerged during the discussions with end-users in India was that mercury-free button cell batteries are used in key application areas, such as watches, hearing aids, healthcare instruments, children's toys, etc. The cell batteries are mainly composed of common materials—steel, zinc and manganese – that do not pose any health or environmental risk in normal use or disposal.

http://toxicslink.org/docs/Mercury%20alternative%20products%20Report.pdf

Mercury Use in Switches and Relays" summarizes the use of mercury in switches and relays sold as individual components and within final products, such as automobiles, space heaters, or pumps. In India, there are no regulations for these products. Available data<sup>11</sup> indicates that imported as well as locally manufactured mercury-containing switches are being sold in India.



### Mercury in Healthcare Industry

#### Mercury in measuring Instruments

Mercury has been used in medical instruments, such as clinical thermometers and sphygmomanometers, because of its unique physical and chemical properties. These instruments are largely manufactured in India though some of the demand is also met through imports. Fever thermometers are usually manufactured by the small-scale sector, whereas sphygmomanometers are manufactured by comparatively larger agencies.

In India, as such, there is no regulatory restriction on the use of mercury-based healthcare measuring instruments. However, some voluntary measures have been taken by some organisations like All Indian Medical

o http://www.newmoa.org/prevention/mercury/imerc/FactSheets/switches.cfm

<sup>11</sup> https://tradestat.commerce.gov.in/eidb/Default.asp

Association (IMA) Hospitals and health centers are advised to phase out mercury-containing equipments (thermometer, BP instruments etc.) under IMA mercury phase out policy and replace them with good quality non-mercury equipments<sup>12</sup>.

During last two decades the key developments<sup>13</sup> in mercury phaseout from health care measuring instruments in India are:

- Delhi Government issued instructions for procurement of only non-mercury measuring instruments for the hospitals in 2007;
- The Directorate General of Health Services (DGHS) of the Central Government issued guidelines for shifting to non-mercury-based measuring instruments in their hospitals;
- States of Punjab and Manipur also issued instructions for phasing out of mercury-based healthcare instruments in 2011 and 2012;

#### Regulation

Medical Devices are defined and provided under the definition of Section 3(b)(iv) of the Drugs & Cosmetics Act, 1940, which are specified by the Central Government through notifications. Furthermore, the Drugs & Cosmetics Act, 1940 and rules, thereunder, apart from regulating the manufacturing of medicines and cosmetics, also specify specific provisions relating to regulating and streamlining the manufacturing process of medical devices. Significantly, for better regulation of the standards of medical devices, the Central Government notified the Medical Devices Rules, 2017, with the purpose of regulating Clinical investigations, manufacturing, import, sale and distribution of Medical Devices.

#### Roles and Responsibilities of the Implementing Agency

Central Drugs Standard Control Organization is the Central Drug Authority for discharging functions assigned to the Central Government under the Drugs and Cosmetics Act. Bureau of Indian Standard (BIS) is the standard-setting body for products that creates standards for products that replace mercury-based products, such as digital thermometers, sphygmomanometers, etc. The creation of necessary standards for products will be an important responsibility of this agency.

- A notification<sup>14</sup> has been issued by the Central Drugs Standard Control Organization CDSCO that has made it mandatory for importers and manufacturers to take a necessary license from Central Licensing Authority or State Licencing Authority for manufacturing or importing BP monitoring machines, digital thermometer and glucometer.
- S.O. 648(E), from April 1, 2020, all medical devices 15. CDSCO is the approving authority for import, manufacturing and sale of devices like mercury-free thermometers and BP monitoring equipment under the purview of the Drugs and Cosmetics Act. 1940.
- BIS is making fixed standard for making mercury-free alternatives, it has already brought Sphygmomanometers (Aneroid type) under certification as per IS 7652: 1988 though it is not mandatory

<sup>12</sup> https://www.ima-india.org/ima/free-way-page.php?pid=445

<sup>13</sup> http://toxicslink.org/docs/Mercury-Free-India.pdf

<sup>14</sup> https://medicaldialogues.in/news/industry/medical-devices/cdsco-mandates-license-for-import-manufacture-of-nebulizers-bp-monitoring-devices-digital-thermometers-glucometer-72941

<sup>15</sup> http://nkgabc.com/lighthouse-blog/regulatory-requirements-for-digital-thermometer-india-medical-devices-regulatory-services/



#### Gaps and Challenges:



In India, as such, there are no regulations in place to restrict the production and use of the mercury-based health care instrument therefore mercury thermometers and sphygmomanometers are still widely used by clinicians in India.



There are issues of quality and accuracy with the mercury-free healthcare measuring instruments in India. Therefore, the mercury free instruments must be brought under the mandatory standards.

#### Mercury in Dental Amalgam

The Minamata convention addresses mercury-added products, including dental amalgam, which is made of approximately 50% of elemental mercury weight, and proposes nine measures to phase down the use of dental amalgam (Annexure-III). India doesn't comply with Minamata convention on presence mercury in dental amalgam. In India, mercurybased dental amalgam is very commonly used and currently there is no regulation to restrict the use of dental amalgam. However,



there has been a gradual shift happening in the country on the use of mercury dental fillings in the country during these years. The Indian Dental Association is preparing guidelines to phase out mercury from Dental amalgam.

The report "An Insight of Mercury-Free Products" revealed there has been a considerable shift in the use of dental fillings in the country, over the years people have moved away from mercury fillings to composites, owing to aesthetic reasons. The analysis of data and interviews with the dentist shows that the reduced cost discrepancies between the two materials, increased life and stability of alternate fillings and awareness among the people about mercury toxicity have been the reason for the resulting shift in the use of mercury-free alternatives. However, there is much to do at the policy level to consolidate these achievements and bring consistency in the dental practices in the country.

#### Major successes<sup>16</sup> of mercury-free dentistry movement in India:

- In India PG (postgraduate) Dental curriculum changes have been approved by the Ministry of Health Government of India and legal documents are being prepared. Amalgam usage in final year and second year of the dental curriculum will also change.
- The Armed Forces Dental Services of the defence force in India declared the ban on amalgam use in 2016.
   This will lead to phase-out the dental amalgam completely from the defence sector.
- The Indian Railway Hospitals have scaled down the use of dental amalgam by 90%.
- Odisha has been established as the first State in India to practice mercury-free dentistry. Recently four institutes including 2 dental colleges have agreed to practice mercury-free dentistry. Over 500 dentists pledged themselves to practice mercury-free dentistry in Odisha state. Odisha State Commission for Protection of Child Rights (OSCPCR), the Government of Odisha has initiated a policy for the complete ban of mercury amalgam uses on children.

#### Mercury in other measuring devices

In India, mercury-containing other measuring devices like hygrometer, manometer, and barometer are widely available and at present, there is no standards or restrictions on these mercury-containing products. So there is a need to regulate these devices.

Now a days mercury-free (digital or aneroid) products are also available in the market though these products also need to be standardized with suitable regulation.

#### Issue of HS code:

All products exported and imported globally are subject to an international classification adopted by the World Customs Organization (WCO), namely the Harmonized System (HS) Codes.

This classification system is also applicable to mercury-added and mercury-free products being traded in India. The assigned HS codes emanate from the Customs Tariff Schedules (CTS): Integrated Tariff, an internationally used document devised by the WCO, whose member states are expected to implement their respective requirements. In the WCO classification system, traded commodities are grouped according to pre-defined Chapters (with HS code headings), with subheadings for more limited categories of commodities, and sub-sub headings for specific types of products.

Thus a certain type of product would be identified in shipping documents by its eight- or ten-digit HS code. However, since the HS code system was in place long before the Minamata Convention took effect, for many product categories it does not differentiate between mercury-added and mercury-free versions of the same product. This adds to the challenges of interpreting the data obtained from the trade data for purposes of identifying mercury-added and mercury-free products.

<sup>16</sup> https://s3-us-west-2.amazonaws.com/ungc-production/attachments/cop\_2017/433651/original/Final-Regional\_report. pdf?1509431317

### **WAY FORWARD**

The study findings have revealed that India has done fair progress to regulate mercury in products barring a few products, where the country needs to promulgate new rules and regulations. Moreover, implementation of the existing rules and regulations are evolved as the key challenge for the country.

Some of the key take away of the study is;

- 1. In India, some of the mercury-containing products are regulated however the present regulations are not strictly implemented and obstacle in complete phase-out of mercury in products.
- 2. Another challenge is the absence of regulations for some of the mercury-containing products in meeting these product related convention obligations.
- 3. There is a need to improve information collection and monitoring of imported Article 4 products in India through online portals.
- 4. The current data is inadequate as the data available at the local Customs authorities often do not differentiate between mercury-added and mercury-free products.
- 5. The is an urgent need for revised HS code<sup>17</sup> to regulate the products to be imported to India because not all mercury-added or mercury-free products have been assigned a specific HS code. For example, the mercury-filled thermometer, a product listed in Annex A of the Convention, falls under HS Code 902511.

Figure 1: The description for this HS code reads, 'Liquid-filled thermometer for direct reading', and is also applicable to other liquid-filled thermometers (for instance, alcohol or spirit-filled thermometers, which are acceptable alternatives to the mercury-added thermometer).

#### Department of Commerce Export Import Data Bank

Import :: Commodity-wise

Dated: 26/12/2021 Values in Rs. Lacs

*1	TTC HS Code of the Commodity is either dropped or re-allocated and the unit of the commodity may be changed from April 2021.								
	S.No.	HSCode	Commodity	2020-2021	%Share	2021-2022(Apr-Oct)	%Share	%Growth	HS Code digit level option
	1.	902511	THERMOMETERS,LIQUID-FILLED,FOR DIRECT RDNG	4,062.85	0.0014	1,227.21	0.0005		8
			India's Total Import	291,595,770.04		243,417,004.89			

Accordingly, more than one specific product may possess the same HS code if its intended use is similar.

<sup>17</sup> https://tradestat.commerce.gov.in/eidb/Default.asp

Figure 2: HS Code 853932 'mercury or sodium vapour lamps; metal halide lamps'

#### Department of Commerce Export Import Data Bank Import :: Commodity-wise

Dated: 26/12/2021 Values in Rs. Lacs

* ITC I	TIC HS Code of the Commodity is either dropped or re-allocated and the unit of the commodity may be changed from April 2021.							
S.		HSCode	Commodity	2020-2021	%Share	2021-2022(Apr-Oct)		HS Code digit level option
1.		853932	MERCURY OR SODIUM VAPOUR LAMPS; METAL HALIDE LAMPS.	2,169.87	0.0007	729.18	0.0003	8
			India's Total Import	291,595,770.04		243,417,004.89		

6. The stakeholders even the key regulators have limited information and awareness on this issue of mercury in products. Therefore, capacity building of stakeholders is very critical to have a better regulation in place.

India has sound regulatory provisions on some mercury-containing products as directed in Article 4 of the Minamata Convention. However, some of the products are not regulated, and there are yet some steps needed to fully comply with the Minamata convention on Mercury. Promulgation of mandatory regulations and strict implementation will be key to making India mercury-free by 2025.

#### References

http://toxicslink.org/docs/Mercury%20Amalgam\_vulnerable%20population.pdf http://toxicslink.org/docs/Impacts%20of%20Dentistry.pdf http://toxicslink.org/docs/Mercury\_in\_CFL-Booklet-Toxics-in-That-Glow.pdf

# **ANNEXURE I**

#### Legal regulations for products in Annex A

S.No.	Mercury-added products	Phase out date	Duration of Exemption given to India <sup>18</sup> for manufacture, import and export	Status in India
1.	Batteries, except for button zinc silver oxide batteries with a mercury content < 2% and button zinc air batteries with a mercury content < 2%	2020	2025	There is no regulation in India however the product is voluntarily phased out of the market.
2.	Switches and relays, except very high accuracy capacitance and loss measurement bridges and high frequency radio frequency switches and relays in monitoring and control instruments with a maximum mercury content of 20 mg per bridge, switch or relay	2020	2025	No regulation
3.	Compact fluorescent lamps (CFLs) for general lighting purposes that are ≤ 30 watts with a mercury content exceeding 5 mg per lamp burner	2020	2025	E-Waste (Management) Rules, 2016 <sup>19</sup> : For general lighting purposes < 30 W max mercury content allowed is 2.5 mg
			2025	The Bureau of Indian Standards has finalized the Standard for CFL in April, 2014, wherein mercury content of individual lamp has been prescribed to be limited to 2.5 mg per CFL

https://www.mercuryconvention.org/Portals/11/documents/Notifications/India%20exemptions.pdf https://cpcb.nic.in/displaypdf.php?id=RS1XYXNoZS9FLVdhc3RlTV9SdWxlc18yMDE2LnBkZg==

S.No.	Mercury-added products	Phase out date	Duration of Exemption given to India <sup>20</sup> for manufacture, import and export	Status in India
4.	Linear fluorescent lamps (LFLs) for general lighting purposes: (a) Triband phosphor < 60 watts with a mercury content exceeding 5 mg per lamp;	2020	2025	E-Waste (Management) Rules, 2016: max mercury content is 3-5 mg (depending upon tube diameter)
	(b) Halo phosphate phosphor ≤ 40 watts with a mercury content exceeding 10 mg per lamp	2020	2025	E-Waste (Management) Rules, 2016: max mercury content is 10 mg
5.	High pressure mercury vapour lamps (HPMV) for general lighting purposes	2020	2025	No regulation. Products are available from big brands like Phillips as well.
6.	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for electronic displays: (a) short length (≤ 500 mm) with mercury content exceeding 3.5 mg per lamp (b) medium length (> 500 mm and ≤ 1 500 mm) with mercury content exceeding 5 mg per lamp (c) long length (> 1 500 mm) with mercury content exceeding 13 mg per lamp	2020	2025	Under E-Waste (Management) Rules, 2016 exemption is given to these products for special purposes if mercury is not exceeding (per lamp) <sup>21</sup> : Short length (≤500 mm): 3.5mg Medium length (>500mm and ≤ 1500 mm): 5mg (c)Long length (>1500 mm): 13mg
7.	Cosmetics (with mercury content above 1ppm), including skin lightening soaps and creams, and not including eye area cosmetics where mercury is used as a preservative and no effective and safe substitute preservatives are available	2020	2025	Although import registration certificates issued under the Cosmetics Rules 2020 will be valid for life, a fee will still have to be paid every 5 years by the importer. In the event of a change, for example in labelling or composition, a certificate of compliance must be sent to the Indian authorities. <sup>22</sup>

 $<sup>{\</sup>tt 20} \quad https://www.mercuryconvention.org/Portals/11/documents/Notifications/India%20exemptions.pdf$ 

<sup>21</sup> https://www.tsijournals.com/articles/environmentally-sustainable-management-of-fluorescent-lamp-sector-in-india-drivers-and-barriers.html

<sup>22</sup> https://cdsco.gov.in/opencms/opencms/system/modules/CDSCO.WEB/elements/download\_file\_division.jsp?num\_id=Njc3NA==

S.No.	Mercury-added products	Phase out date	Duration of Exemption given to India <sup>20</sup> for manufacture, import and export	Status in India
8.	Pesticides, biocides and topical antiseptics	2020	2025	Few mercury containing pesticides and insecticides are banned such as, Methoxy Ethyl Mercury Chloride (vide S.O 3951(E) dated 8th August, 2018), Phenyl Mercury Acetate, Ethyl Mercury Chloride <sup>23</sup>
9.	The following non-electronic measuring devices except non-electronic measuring devices installed in large-scale equipment or those used for high precision measurement, where no suitable mercury-free alternative is available:  (a) barometers; (b) hygrometers; (c) manometers; (d) thermometers; (e) sphygmomanometers	2020	2025	No regulations in place on mercury in these measuring devices. However, digital and alcohol based products are also available in the market.

http://ppqs.gov.in/sites/default/files/banned\_restricted\_phased\_out\_31.10.2019.pdf

# **ANNEXURE II:**

E-waste (Management) Rules - Applications, which are exempted from the requirement sub-rule (I) of Rule 16

	Substance
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):
1(a)	For general lighting purposes <30 W: 2.5 mg
1(b)	For general lighting purposes ≥ 30 W and <50 W: 3.5mg
1(c)	For general lighting purposes ≥ 50 W and <150 W:5mg
1(d)	For general lighting purposes ≥150 W: 15 mg
1(e)	For general lighting purposes with circular or square structural shape and tube diameter ≤17 mm: 7mg
1(f)	For special purposes:5 mg
2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):
2(a)(1)	Tri-band phosphor with normal life time and a tube diameter < 9mm (e.g. T2): 4mg
	Tri-band phosphor with normal life time and a tube diameter $\geq$ 9 mm and
2(a)(2)	111-band phosphor with normal life time and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 3 mg
2(a)(3)	Tri- band phosphor with normal life time and a tube diameter >17 mm and ≤ 28 mm(e.g. T8): 3.5 mg
2(a)(4)	Tri-band phosphor with normal life time and a tube diameter >28 mm (e.g. T 12):3.5 mg
2(a)(5)	Tri-band phosphor with long life time (≥25000 h):5mg
2(b)	Mercury in other fluorescent lamps not exceeding (per lamp):
2(b)(1)	Linear halophosphate lamps with tube >28 mm (e.g. T 10 and T12):10 mg
2(b)(2)	Non-linear halophosphate lamps (all diameters):15mg
2(b)(3)	Non-linear tri-band phosphor lamps with tube diameter >17 mm (e.g.T9): 15 mg
2(b)(4)	Lamps for other general lighting and special purposes (e.g. induction lamps):15mg
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):
3(a)	Short length(<500 mm):3.5mg
3(p)	Medium length(>500 mm and<1500 mm): 5mg
3(c)	Long length(>1500 mm): 13mg
4(a)	Mercury in other low pressure discharge lamps (per lamp): 15mg
4(b)	Mercury in High Pressure Sodium(vapour) lamps for general lighting purposes not exceeding (per burner)in lamps with improved colour rendering index Ra>60:
4(b)-I	P ≤155 W : 30 mg
4(b)-II	155 W < P <405 W : 40 mg
4(b)-III	P]>405 W: 40 mg
4(c)	Mercury in other High Pressure Sodium(vapour)lamps for general lighting purposes not exceeding (per burner):
4(c)-I	P<155 W:25mg
4(c)-II	155 W < P < 405 W:30 mg
4(c)-III	P >405 W:40 mg
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)
4(e)	Mercury in metal halide lamps (MH)
4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in this Schedule

## **ANNEXURE III**

#### Minamata Convention, Annex A, Part II

#### Nine measures to phase down the use of dental amalgam<sup>24</sup>

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

## **ANNEXURE IV**

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7031890/table/Tab1/?report=objectonly



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