

## United States of America

### Notification Under Article 4, Paragraph 2, of Information on Domestic Measures and Strategies Implemented to Address Mercury-Added Products, Including those in Part I of Annex A to the Minamata Convention on Mercury

The United States remains committed to reducing the use of mercury in products. The purpose of this notification is to demonstrate, consistent with Article 4, paragraph 2, of the Minamata Convention on Mercury, that the United States has already reduced to a *de minimis* level the manufacture, import, and export of a large majority of the products listed in Part I of Annex A and that it has implemented measures and strategies to reduce the use of mercury in additional products not listed in Part I of Annex A.

#### 1. Products Listed in Part I of Annex A

Through a multifaceted approach, including federal and state legislation, regulation, and public-private partnerships, use of mercury in products in the United States has been dramatically reduced by over 97% between 1980 and 2007, and the projected demand for and use of mercury in products remains in decline. Data<sup>1</sup> on domestic and global use of mercury in products support the conclusion that the United States has already reduced to a *de minimis* level the manufacture, import, and export of at least eight of the nine covered product categories, specifically: batteries; compact fluorescent lamps; linear fluorescent lamps; high pressure mercury vapor lamps; cold cathode fluorescent lamps and external electrode fluorescent lamps; cosmetics; pesticides, biocides, and topical antiseptics; and listed non-electronic measuring devices. A variety of domestic measures have been employed to reduce mercury use in the ninth category – switches and relays – and the most recent data available from 2007 estimated that the use of mercury in the manufacture of all switches and relays in the United States had fallen by more than 50% from 2001 to 2007. While significant domestic reductions have been made in this ninth category, there are insufficient data available to us at this time to fully assess whether U.S. manufacture, import, and export of covered switches and relays is or is not *de minimis*.

Specific measures and strategies the United States has employed for products listed under the Convention include federal regulatory action under the Toxic Substances Control Act (automobile switches, barometers, hygrometers, manometers), 15 U.S.C. § 2604(a), 40 C.F.R. § 721.10068; the Mercury-Containing and Rechargeable Battery Act of 1996 (batteries), Pub. L. 104-142; the Federal Insecticide, Fungicide, and Rodenticide Act (paint, pesticides), 7 U.S.C. § 136a; the Energy Independence and Security Act of 2007 (lamps), Pub. L. 110-140, 16 C.F.R. § 305.15; the Energy Policy and Conservation Act (lamps), 42 U.S.C. § 6291, 10 C.F.R. Part 430, 74 Fed. Reg. 34080, 34170 (2009); the Energy Policy Act of 2005 (lamps), 42 U.S.C. § 6295(ee); and the Federal Food, Drug, and Cosmetic Act (skin-bleaching agents and other non-eye area cosmetics, topical antiseptics), 21 U.S.C. §§ 352, 355, 361(a), 21 C.F.R. §§ 310.545 and 700.13. Other measures to address mercury use in products have included voluntary programs such as the Energy Star Program co-sponsored by the Environmental Protection Agency and the Department of Energy, under which participating manufacturers agree to limit the mercury content of lamps, and the National Vehicle Mercury Switch Recovery Program and follow-on

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<sup>1</sup> Unless otherwise indicated, the domestic use numbers in this notification are based on data compiled by the Interstate Mercury Education and Reduction Clearinghouse and the global use numbers are based on data compiled by the UN Environment Program.

initiatives, under which more than 5 million mercury switches have been removed from the environment. The Environmental Protection Agency also leads initiatives such as one to phase out use of mercury in industrial and laboratory thermometers. See <http://epa.gov/mercury/thermometer.htm>

The following product-by-product description lays out in additional detail U.S. actions and statistics with respect to individual product categories:

#### Batteries

In the United States, the Mercury-Containing and Rechargeable Battery Act of 1996 has prohibited all domestic sale of a range of mercury-containing batteries, which in practical effect also eliminates imports. In addition, state laws whose objectives are reducing availability of mercury-containing batteries and steps taken by U.S. industry in the context of a voluntary commitment to phase out manufacture in the United States have led to further reductions. By 2007, U.S. use of mercury in mercury-added batteries was estimated at 1.9 metric tons of mercury, which was less than 1% of global use in the category, and much of that was in batteries excluded from the Convention, namely silver oxide and zinc air batteries with less than 2% mercury content and batteries for civil protection and military uses. The National Electrical Manufacturers Association, whose members include the major U.S. battery producers, indicates that a full transition to non-mercury battery manufacture is feasible and on track for 2016.

#### Compact fluorescent lamps (CFLs)

CFLs are among many products included in the U.S. “Energy Star” program. This program, established under the authority of the Clean Air Act in 1992 and codified by the U.S. Congress in the Energy Policy Act of 2005, is a voluntary program backed by the Environmental Protection Agency and the Department of Energy. With respect to CFLs, the program requires participating manufacturers to commit to reduce mercury content of lamps below certain thresholds in order to qualify for a label. Energy Star labels are a lucrative, value-added mark that both manufacturers and consumers recognize. Consequently, there is a significant and market-driven incentive for manufacturers to conform to Energy Star standards. The required content limits under the program are already below the thresholds established in the Convention – 4mg of mercury for lamps up to 25 watts and 5mg of mercury for lamps from 25-40 watts. On August 28, 2013, new standards requiring greater efficiency were announced under which lamps up to 23 watts would be limited to no more than 2.5mg of mercury and lamps of higher wattage would be limited to no more than 3mg of mercury. Manufacturers seeking certification of their products under the Energy Star program after September 30, 2014, must meet this new standard.

Market research shows that at least 77% of the U.S. market in CFLs is now Energy Star-qualified. That percentage is expected to continue under the new standards, as many U.S. manufacturers already meet the tougher standards and major U.S. retailers such as Wal-Mart have committed to only selling Energy Star-qualified CFLs.

The Energy Star content limits are similar to those required by the European Union in its Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (the “RoHS Directive”), Directive 2011/65/EU (June 8, 2011). Some U.S. states have restricted the sale of lamps that do not meet RoHS content standards. See, e.g., California Health and Safety Code § 25210.9. This has further reduced the use of mercury in CFLs in the United States.

The vast majority of mercury use for CFLs in the United States, therefore, is not only consistent with, but well below Convention requirements. The United

States estimates that mercury use in CFLs covered by the Convention is at most less than half a ton of mercury and 1.6% of global use in this category, and likely far less.

#### Linear fluorescent lamps (LFLs)

The Convention addresses two types of LFLs – halophosphate phosphor and triband phosphor. Halophosphate phosphor technology, which is older, is used mostly in large, long fluorescent lamps (of the size T12) and requires significant amounts of mercury. Department of Energy regulations implementing the Energy Policy and Conservation Act, 42 U.S.C. § 6291, have resulted in the phase-out of these lamps in favor of new, more efficient triband phosphor lamps. Moreover, in meeting these Department of Energy standards, manufacturers have reduced the size (now mostly T5 and T8) and mercury content of their lamps. The mercury content standards targeted by U.S. manufacturers are consistent with those required by the European Union in the RoHS Directive, which also meet the Convention’s requirements, and, as noted above, some U.S. states have restricted the sale of lamps that do not meet RoHS content standards. See, e.g., California Health and Safety Code § 25210.9.

According to the most recent estimates available from the U.S. Geological Survey, prior to the effective date of the Department of Energy regulations, 63% of mercury use in the United States in the LFL category was in size T12 lamps. The remaining uses would amount to no more than 2.6% of global use in this category, but in any event those uses – in size T5 and T8 lamps – are for lamps with an average mercury content of 3.5 mg, well under the limits established in the Convention. Thus, with the implementation of the regulations mentioned above, the United States is not aware of any mercury use in lamps in this category that exceed the content limits established in the Convention.

#### High pressure mercury vapor lamps

Mercury vapor lamps are one type of “high intensity discharge” lamp, a category that includes metal halide and high pressure sodium lamps, both of which also use mercury (although they are not covered by the Convention). The Energy Policy Act of 2005 prohibited the manufacture or import of mercury vapor lamp ballasts—the piece of equipment that regulates the current to mercury vapor lamps and provides sufficient voltage to start the lamps – as of January 1, 2008. Without such ballasts, mercury vapor lamps cannot function, and the lamps will no longer be manufactured as equipment is replaced.

Among all high intensity discharge lamps, prior to the effective date of the mercury vapor lamp ballast prohibition, mercury vapor lamps accounted for less than 7% of mercury use in this category in the United States. Figures from the U.S. Geological Survey show that mercury use in the entire category was 1.8 tons. Mercury use in covered lamps, therefore, can be estimated at one-eighth of a ton, a fraction that is already *de minimis* and, in light of the statutory prohibition on the ballasts, is itself in rapid decline.

#### Cold cathode and external electrode fluorescent lamps

With respect to cold cathode and external electrode fluorescent lamps (CCFLs and EEFLs) for electronic displays, reporting from the National Electrical Manufacturers Association confirms that these lamps make up such a small and declining percentage of the U.S. lamp market that production and use of them is no longer tracked separately. Rather, in the U.S. Geological Survey reporting, they fall within a category of “miscellaneous” mercury-containing lamps. By the most recent estimates, the entire “miscellaneous” category – which was distinguished from the other categories of lamps already described above, and by definition includes far more than just these CCFLs and EEFLs - consumed

eight-tenths of a metric ton of mercury in the United States. Moreover, these estimates preceded the rise of light-emitting diode (LED) technology as the dominant technology in this sector. LEDs moved from 1% of the market in 2007 to 44% of the market in 2010, all at the expense of CCFLs and EEFLs. Information and experience from EPA's Energy Star program indicate that CCFLs and EEFLs are now obsolete for common applications such as TVs and computers, having been replaced with LED technology. Thus, CCFLs and EEFLs make up no more than a trivial fraction of the already *de minimis* miscellaneous category.

#### Cosmetics

Regulations promulgated by the Food and Drug Administration prohibit the marketing of cosmetics, including skin lightening soaps and creams, containing mercury, with certain exceptions. Those exceptions mirror the exceptions in the Convention - eye area cosmetics in which mercury is used as a preservative and no effective and safe substitute preservatives are available, and cosmetics with trace contaminants of mercury (i.e., under 1ppm mercury content). See 21 C.F.R. § 700.13. Covered cosmetic products containing mercury would be deemed to be "adulterated" or "misbranded," and the Food and Drug Administration has the authority to enjoin and criminally prosecute offenses relating to such products. See 21 U.S.C. §§ 331(a), 332, 333. There are no such products registered in the Voluntary Cosmetic Registration Program operated by the Food and Drug Administration.

#### Pesticides, Biocides, and Topical Antiseptics

Mercury is not registered in the United States for sale and distribution as a pesticide. By 1995, all U.S. registrations for mercury-containing pesticides, including for use as a preservative in paint (e.g., as a biocide), were cancelled. It is therefore unlawful to sell or distribute such a product in the United States, and a recent search of pesticide production reports has not revealed evidence of mercury pesticides being produced for export. EPA has the authority to take action to deny a proposed registration, were an application for registration to be made in the future, if the pesticide would result in unreasonable adverse effects on the environment, taking into account economic, social, and environmental costs. See 7 U.S.C. § 136a.

For topical antiseptics, which are regulated as pharmaceuticals, the Food and Drug Administration issued a rule determining that mercury and mercury compounds that had been used as active ingredients in such products are not generally recognized as safe and effective. 21 C.F.R. § 310.545(a)(27). It is therefore unlawful to market a topical antiseptic containing such a mercury compound in the United States.

For this entire category, therefore, the United States is not aware of any manufacture, import, or export, let alone any over a *de minimis* level.

#### Measuring Devices

The Convention covers five types of measuring devices – barometers, hygrometers, manometers, thermometers, and sphygmomanometers – except when installed in large-scale equipment or when used for high precision measurement. Generally applicable exclusions in Annex A are also particularly relevant to this category. Thus, products for civil protection and military uses, products for research, calibration, or reference standard, and products for which no feasible mercury-free alternative for replacement is available are all excluded as well.

Use of mercury in measuring devices has declined dramatically in the United States over the recent past. Mercury use in new barometers, hygrometers, or

manometers is non-existent and prohibited without prior notification to the Environmental Protection Agency. *See* 40 C.F.R. § 721.10068. Numerous states have prohibited the sale of mercury-containing thermometers and sphygmomanometers, and the United States participates in a partnership – Hospitals for a Healthy Environment, now administered by the NGO Practice Greenhealth – to encourage the healthcare industry generally to reduce and eliminate reliance on mercury-containing devices. Thousands of hospitals, pharmacies, and medical device purchasers have eliminated use of mercury-containing thermometers and sphygmomanometers. The National Institutes of Health have established a policy restricting procurement of mercury-added products with its funds and requiring elimination of mercury-containing devices previously in use in its facilities. EPA has worked in partnership with ASTM International to update some of its ASTM standards that previously required use of mercury-containing thermometers to allow for alternatives to mercury-containing thermometers in certain field and laboratory applications and has updated its own regulations accordingly. Further, the National Institute of Standards and Technology has ceased providing calibration services for mercury thermometers, further accelerating the transition to non-mercury alternatives. An October 2012 report by the Environmental Council of the States, a coalition of U.S. state environmental agencies, indicates that mercury-containing thermometers are close to being entirely phased out nationwide. *See* Quicksilver Caucus, Third Compendium of States' Mercury Activities (2012) (“Third Compendium”), at 199, available at [http://www.ecos.org/section/committees/cross\\_media/quick\\_silver/third\\_compendium\\_of\\_states\\_mercury\\_activities/](http://www.ecos.org/section/committees/cross_media/quick_silver/third_compendium_of_states_mercury_activities/).

According to the most recent estimates, U.S. production of measuring devices (including not only those covered by the Convention but also those excluded or otherwise not addressed) used approximately 1 metric ton of mercury, less than a third of one percent of global consumption.

#### Switches and Relays

As mentioned above, the United States does not currently have sufficient data to demonstrate *de minimis* qualification in this category. In the United States, however, a variety of measures have been employed to reduce mercury use in switches and relays. The most recent estimates – from 2007 – suggest that the use of mercury in the manufacture of switches and relays in the United States dropped by more than 50% from 2001 to 2007. Comparison of domestic and global use figures does not allow for a conclusive determination of *de minimis* because the figures are calculated including products excluded from the scope of the Convention, namely products for use in refurbishment and replacement parts and other excluded uses from the Convention. While data are currently insufficient, additional information in the future may confirm that the United States can also meet the *de minimis* standard for switches and relays. The United States will continue to work with industry to further reduce or eliminate the use of mercury in switches and relays and will report on these measures to the Conference of the Parties as required in the Convention.

#### 2. Products Not Listed in Part I of Annex A

In addition to measures and strategies implemented for products covered by the Convention, the United States has implemented a variety of regulatory and other measures to address mercury demand, availability, and use in other products not covered by the Convention. Mercury use in specific products has been regulated federally under the Toxic Substances Control Act (e.g., flow meters, pyrometers), 15 U.S.C. § 2604(a), 40 C.F.R. § 721.10068; the Federal Hazardous Substances Act (toys, fireworks), 15 U.S.C. § 1261(q)(1); the Consumer Product Safety Act (toys, children's jewelry), 15 U.S.C. § 2051; and the Federal Food, Drug, and Cosmetics Act (food additives, color additives), 21

U.S.C. §§ 348, 379e; e.g., 21 C.F.R. §§ 73.35, 73.125, 73.350, 172.105. At the state level, mercury use in specific products has also been prohibited or otherwise regulated. Many states, for example, have prohibited the sale, limited the mercury content, or required the phase-out of mercury-added thermostats, medical devices, measuring devices, balancers and wheel weights, novelty items, toys, and cosmetics. See Third Compendium at 63-64.