

## IMERC Fact Sheet

### Formulated Mercury-Added Products

This Fact Sheet summarizes the use of mercury-added chemical products that are sold as a consistent mixture of chemicals. These include laboratory chemicals, cleaning products, coating materials, acids, alkalis, bleach, stains, reagents, preservatives, fixatives, buffers, and dyes.<sup>1</sup> It includes information on the total amount of mercury in all chemical products that were sold in the U.S. in 2001, 2004, 2007, 2010, 2013, and 2016.

The information in the Fact Sheet is based on data submitted to the state members of the [Interstate Mercury Education and Reduction Clearinghouse \(IMERC\)](#), including Connecticut, Louisiana, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. The data is available online through the [IMERC Mercury-Added Products Database](#).

#### Types of Formulated Mercury Products

A formulated mercury-added product is a chemical product, including but not limited to laboratory chemicals, cleaning products, cosmetics, pharmaceuticals, and coating materials that are sold as a consistent mixture of chemicals. Biological products, prescription drugs, and over-the-counter drugs regulated by the United States Food and Drug Administration (FDA) are not included under the states' notification requirements.

Unlike the other categories of mercury-added products, which are considered *fabricated products* and reported in milligrams, manufacturers report on the mercury content of their *formulated products* as a concentration in parts per million (ppm). The state agencies permit them to report the mercury amount in individual formulated products as an exact number or as a range.



Thimerosal-Preserved Vaccine

Photo Source: Centers for Disease Control & Prevention



Mercury Compounds

Photo Source: Cuoco & Cormier

Mercury content for preservatives and reagents and mercury compounds typically ranges from greater than 0 to greater than 250 ppm, with some chemical products containing a mercury concentration of greater than 100,000 ppm.

---

<sup>1</sup> This Fact Sheet does not cover mercury-added pharmaceuticals and personal care products that are regulated by the Food and Drug Administration (FDA).

## Mercury Use in Formulated Products

Formulated mercury-added products can be grouped into two categories: preservatives and reagents (i.e., thimerosal); and mercury compounds (i.e., mercuric chloride, mercuric nitrate, mercuric oxide, and others).<sup>2</sup>

Thimerosal is a mercury-added organic compound that is widely used as a preservative in pharmaceuticals, including vaccines, and other formulated products to prevent bacterial contamination.<sup>3</sup> Mercury compounds, such as mercury chloride and mercuric nitrate, are used in chemical reagents, in the leather tanning process, as a catalyst for vinyl chloride, in electroplating, and in various laboratory experiments and applications. Mercury compounds may also be found in school science laboratories and are sometimes used in chemistry experiments in high schools and colleges/universities.

Table 1 presents the amount of mercury sold in formulated products in 2001, 2004, 2007, 2010, 2013, and 2016.<sup>4</sup> Forty-eight manufacturers have reported mercury use in their formulated products to the IMERC-member states for one or more reporting years. However, at least 16 companies have since phased out their use of mercury, and therefore, no longer report to IMERC. As of December 2018, two companies have not yet submitted required 2016 data; and one manufacturer submitted 2016 data that had not done so for previous reporting years. In total, 27 companies correctly submitted their 2016 triennial notification reports.

<b>Table 1: Data on Mercury Sold in Formulated Products in the U.S.</b>						
<b>Triennial Year</b>	<b>2001</b>	<b>2004</b>	<b>2007</b>	<b>2010</b>	<b>2013</b>	<b>2016</b>
<b>Total lbs. Mercury</b>	2,287 (1.14 tons)	2,048 (1.02 tons)	2,907 (1.45 tons)	2,739 (1.37 tons)	1,043 (0.52 tons)	1,539 (0.77 tons)
<b>Companies Reporting</b>	38	42	38	35	30	27
<b>Companies Out of Compliance</b>	0	0	3	0	1	2
<b>Companies Phased-Out</b>	0	0	6	4	3	3

[Note: 453.6 grams = 1 pound; 2,000 pounds = 1 ton. All numbers are rounded to the nearest whole number.]

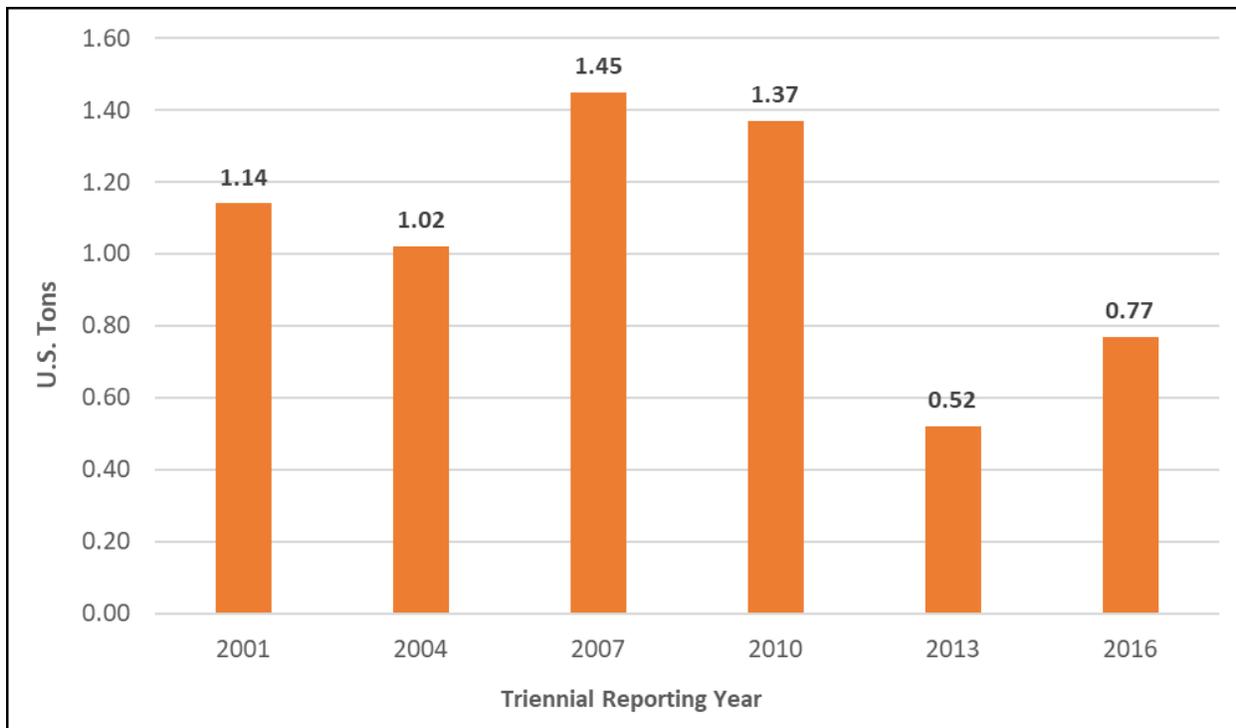
<sup>2</sup> Manufacturers are not required to notify their total bulk elemental mercury sales to IMERC under the IMERC-member state notification requirements because it is not classified as a mercury-added product. Data on the use of elemental mercury is not included in this Fact Sheet.

<sup>3</sup> Vaccines are pharmaceutical products regulated by the U.S. Food and Drug Administration (FDA). The IMERC-member states exclude these products from their Notification requirements. Therefore, data on mercury use in thimerosal in vaccines is not included in this Fact Sheet.

<sup>4</sup> More detailed information on the 2001 and 2004 data can be found in the report, *Trends in Mercury Use in Products: Summary of the IMERC Mercury-added Products Database*, June 2008. ([www.newmoa.org/prevention/mercury/imerc/pubs/reports.cfm](http://www.newmoa.org/prevention/mercury/imerc/pubs/reports.cfm))

The 2016 data analysis includes data from 29 companies. IMERC included the two companies that are out of compliance and did not report for 2016 in the 2016 estimated total use of mercury column, by adding in their totals data from their most recently reported year. It is also important to note that the one “new” reporter is included only in the 2016 total presented above and not incorporated into the previous reporting cycles.

In 2001, approximately 1.14 tons of mercury was sold in formulated products, which decreased approximately 32.5 percent to 0.77 tons in 2016. This product category is among the smallest in total mercury use of any tracked by IMERC.



Since 2001, the total use of mercury in this product category has varied from one reporting period to the next, even though the overall use is relatively low. If pharmaceutical and chemical manufacturers continue efforts to eliminate thimerosal use as a preservative and educational institutions discontinue use of elemental mercury and mercury compounds in teaching experiments due to state restrictions, mercury use in this product category may decline in the future.

### Phase-Outs & Bans on the Sale of Formulated Mercury-added Products

The following IMERC-member states [restrict the sale and/or distribution of formulated mercury-added products](#) based on their mercury content: Connecticut, (> 50 ppm), Louisiana (> 10 ppm), and Rhode Island (> 10 ppm). Minnesota bans the sale and distribution of over-the-counter pharmaceutical products and cosmetics (including toiletries and fragrances) that contain mercury. Minnesota’s listed metals law also bans the use of mercury in inks, dyes, pigments, and paints. Illinois bans the sale of mercury-added cosmetics.

In addition, 15 states including California, Colorado, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New York, Oregon, Rhode Island, Vermont, Washington, and Wisconsin restrict or prohibit the use or purchase of mercury in primary and secondary public schools. The state laws vary, but they all restrict or prohibit elemental mercury, mercury compounds, and/or mercury-containing equipment used for instructional purposes.

### Data Caveats

A number of important caveats must be considered when reviewing the data summarized in this Fact Sheet:

- The information may not represent the entire universe of mercury-added formulated products sold in the U.S. The IMERC-member states continuously receive new information from mercury-added product manufacturers, and as a result, the data presented in this Fact Sheet may underestimate the total amount of mercury sold in this product category.
- In contrast, the data presented in this Fact Sheet may overestimate the total amount of mercury sold in this product category. In some cases, manufacturers supplied data for earlier reporting years but are out of compliance for one or more years. Rather than assuming that this non-reporting is a result of a company phasing-out its mercury-added formulated products, IMERC takes a more conservative approach and assumes that the mercury total for non-reporters for 2016 is the same as its most recently reported year.
- The Notification requirement only applies to manufacturers and distributors of mercury-added formulated products that are allowed to sell into one or more of the IMERC Notification States: Connecticut, Louisiana, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.
- The information summarizes mercury use in formulated products sold nationwide since 2001. It does not include products sold prior to January 1, 2001 or exported outside of the U.S., or products sold in-between triennial reporting years.
- Reported data includes only mercury that is used in the product, and does not include mercury emitted during mining, manufacturing, or other points in the product's life cycle.