

# IMERC Fact Sheet

## Mercury Use in Dental Amalgam

Latest Update: June 2010

“Mercury Use in Dental Amalgam” summarizes the use of mercury in dental amalgam, including the total amount of mercury amalgam sold in the U.S. in 2001, 2004, and 2007.

The information in the Fact Sheet is based on data submitted to the state members of the Interstate Mercury Education and Reduction Clearinghouse (IMERC)<sup>1</sup> 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.<sup>2</sup>

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 dental amalgam sold in the U.S. The IMERC-member states continuously receive new information from mercury-added product manufacturers, and the data presented in this Fact Sheet may underestimate the total amount of mercury sold in this product category.
- The information summarizes mercury use in dental amalgam sold nationwide since 2001. It does not include mercury amalgam sold prior to January 1, 2001 or exported outside of the U.S.
- 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 products’ life cycle.

### Mercury Use in Dental Amalgam

Dental amalgam, used in restorative work for filling teeth, is an alloy that contains silver, tin, copper, other metallic elements, and mercury, which typically makes up about 50 percent of the amalgam. Historically, dentists mixed amalgam on-site using bulk liquid mercury and metal powders, but today dental amalgam is purchased in pre-dosed amalgam capsules that come in different sizes. The mercury content of each capsule can vary from 100 to 1,000 milligrams of mercury.

Table 1 presents the total amount of mercury sold in dental amalgam in 2001, 2004, and 2007. Five dental amalgam manufacturers have submitted Mercury-added Product Notification Forms to IMERC-member states. 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*

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<sup>1</sup> IMERC: [www.newmoa.org/prevention/mercury/imerc/about.cfm](http://www.newmoa.org/prevention/mercury/imerc/about.cfm)

<sup>2</sup> Mercury-Added Products Database: [www.newmoa.org/prevention/mercury/imerc/notification/index.cfm](http://www.newmoa.org/prevention/mercury/imerc/notification/index.cfm)

*Products Database*, June 2008.<sup>3</sup> The 2007 data is taken from a NEWMOA presentation, *Trends in Mercury Use in Products: Analysis of the IMERC Mercury-added Products Database*, November 17, 2009.<sup>4</sup> The 2004 and 2007 totals were updated in June 2010 based on revised data submitted to IMERC by one of the dental amalgam manufacturers and differ slightly from the totals noted in the reports referenced above.

<b>Table 1: Total Mercury Sold in Dental Amalgam (pounds)</b>			
<b>Product</b>	<b>Total Mercury 2001</b>	<b>Total Mercury 2004</b>	<b>Total Mercury 2007</b>
Dental Amalgam	61,537 (30.8 tons)	53,213 (26.6 tons)	32,874 (16.4 tons)

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

Reported use of mercury in dental amalgam sold in the U.S. in 2001 was approximately 30.8 tons, decreasing to 26.6 tons in 2004, or by about 14 percent. The decrease in the use of mercury in dental amalgam from 2004 to 2007 was 10.2 tons, or approximately 38 percent. Increased consumer awareness of mercury use in fillings may drive future declines in mercury amalgam use; however, non-mercury fillings are more expensive, which can affect the preferences of patients for dental restorative materials.

Dental amalgam remains the second largest category of mercury use in products for all three IMERC reporting years (behind the category of switches and relays). Unlike other mercury-added products, there are no state restrictions on the sale or distribution of dental amalgam.

### Disposal & Recycling

Over the past five years, many states have introduced best management practices (BMPs)<sup>5</sup> for dental amalgam waste so that dental offices capture and recycle this waste. These BMPs include requirements for installing amalgam separators, properly managing solid waste with amalgam, and amalgam recycling. These practices can prevent mercury from dental amalgam entering wastewater, wastewater sludge, and solid waste and, therefore, help to reduce the environmental impact of dental amalgam wastes and discharges.

The U.S. Food and Drug Administration (FDA) is currently evaluating its regulatory oversight of mercury dental amalgam. Since publishing the original proposed rule in 2002, the Agency has reopened the public comment period twice, in an effort to provide reasonable assurance of the

<sup>3</sup> Trends in Mercury Use in Products: Summary of the IMERC Mercury-Added Products Database: [www.newmoa.org/prevention/mercury/imerc/pubs/reports.cfm](http://www.newmoa.org/prevention/mercury/imerc/pubs/reports.cfm)

<sup>4</sup> Trends in Mercury Use in Products: Analysis of the IMERC Mercury-added Products Database: [www.newmoa.org/prevention/mercury/conferences/sciandpolicy/presentations/Wienert\\_Session3B.pdf](http://www.newmoa.org/prevention/mercury/conferences/sciandpolicy/presentations/Wienert_Session3B.pdf)

<sup>5</sup> American Dental Association BMPs: [www.ada.org/prof/resources/topics/amalgam\\_bmp.asp](http://www.ada.org/prof/resources/topics/amalgam_bmp.asp)

safety and effectiveness of dental amalgam. As of December 2009, the FDA is still in the process of analyzing the comments submitted.<sup>6</sup>

### Non-Mercury Alternatives

Non-mercury resin and composite materials are substitutes for mercury dental amalgam fillings. These include glass ionomer, gold foil, cast gold alloy, porcelain, and metal ceramic restorative fillings and crowns. These alternatives are usually more costly than traditional amalgam fillings.

Composite resins are tooth-colored, plastic materials (made of glass and resin) that are used both as fillings and to repair defects in the teeth. Composites are often used on the front teeth where a natural appearance is important, but they can be used on the back teeth as well depending on the location and extent of the tooth decay.

Metal alloys include gold, copper, and other metals. They are very strong, making them effective for use in crowns, fixed bridges, and partial dentures. However, because of their metal color (gold or silver), they do not have the appearance of normal teeth.

For more information on the different types of dental fillings, visit:  
[www.ada.org/public/topics/fillings.asp#restoring](http://www.ada.org/public/topics/fillings.asp#restoring).

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<sup>6</sup> Regulation of Dental Amalgams:  
[www.fda.gov/NewsEvents/Testimony/ucm115161.htm](http://www.fda.gov/NewsEvents/Testimony/ucm115161.htm)