Industry Sector Profiles

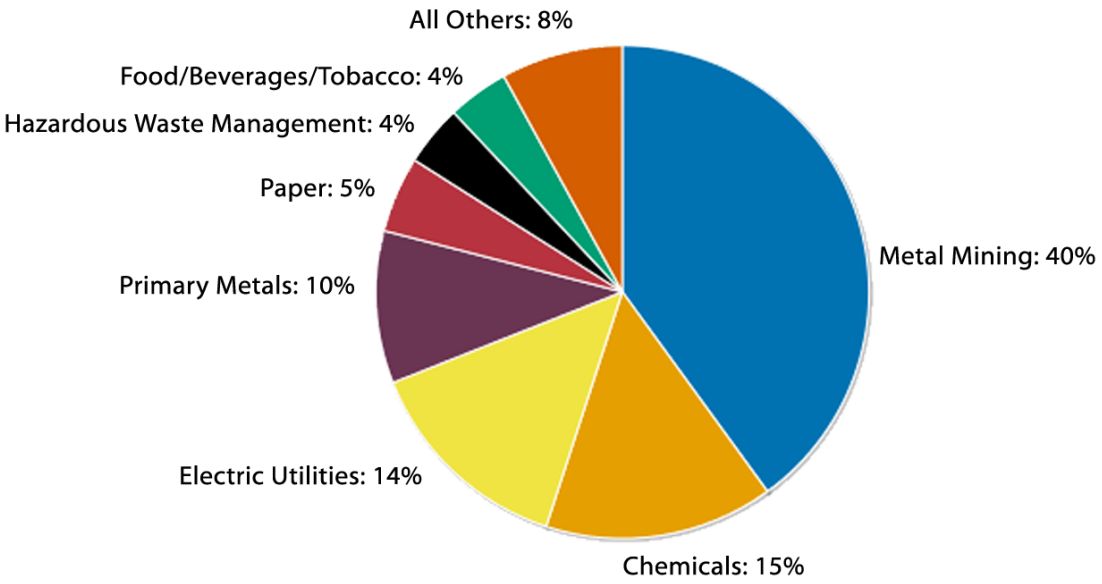
Individual industry sectors reporting to TRI can vary substantially in size, scope, and makeup, therefore, the amounts and types of toxic chemicals generated and managed by each differ greatly. Within a sector, however, the industrial processes, products, and regulatory requirements are often similar, resulting in similar toxic chemical use and waste generation. Therefore, it is useful to look at waste management trends within a sector to identify potential emerging issues.

TRI Sectors

TRI covers 26 industry sectors including manufacturing sectors, as well as metal mining, electric utilities, chemical wholesalers and hazardous waste treatment.

To take a closer look at the individual sectors, Figure 20 shows that in 2012, 92% of total disposal or other releases of TRI chemicals originated from just seven of the 26 TRI industry sectors. More than two-thirds originated from just three industry sectors: metal mining (40%), chemicals (15%), and electric utilities (14%).

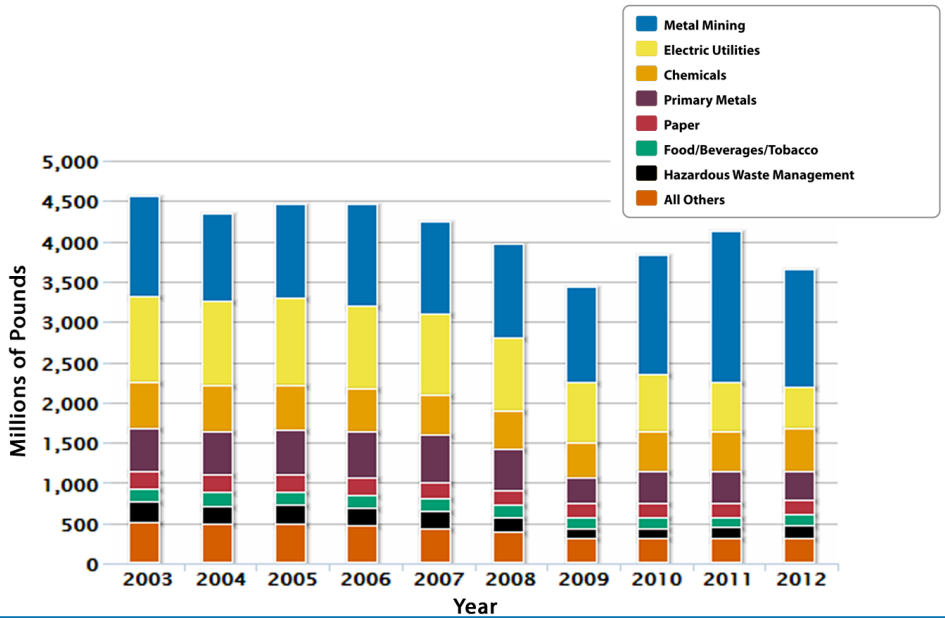
Figure 20. Total Disposal or Other Releases by Industry, 2012



Over time, the amounts and proportions of TRI chemicals' disposal or other releases by each industry sector have varied as shown in Figure 21. All of the seven industry sectors with the largest reported releases in 2012, except metal mining, fell from their 2003 levels. Four of these sectors (metal mining, electric utilities, primary metals, and food) decreased from 2011 to 2012.

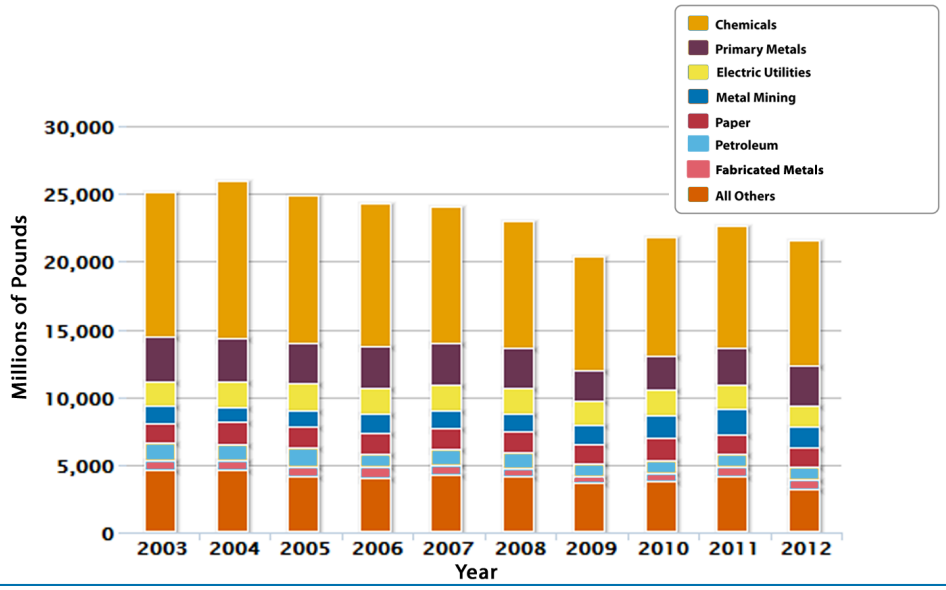
The greatest decrease from 2003 to 2012 was observed in the electric utilities sector with a decrease of 554 million pounds (down 52%), including a decrease of 97 million pounds from 2011 to 2012. Among other reasons, these reductions are due to a switch from coal- or oil-based fuels to other fuels, such as natural gas, and improved pollution controls. In recent years, electric utilities have also cited improved estimation methods as another reason for decreases. The metal mining sector reported a 206-million-pound (17%) increase since 2003, due to increases in on-site land disposal.

Figure 21. Total Disposal or Other Releases by Industry, 2003-2012



As shown in Figure 22, the contribution of each of the top seven sectors to the production-related waste managed has not changed considerably between 2003 and 2012. For example, the top three sectors in terms of waste managed in 2003, chemicals, primary metals and electric utilities, reported 63% of waste managed in 2003 and 64% in 2012.

Figure 22. Production-Related Waste Managed, by Industry, 2003-2012



Most industry sectors reported a decline in production-related waste managed from 2003 to 2012 resulting in an overall decrease of 14%. Of the top fifteen industrial sectors in terms of waste managed in 2012, only metal mining increased from 2003 to 2012, with a 16% increase over that time period.

Impacts

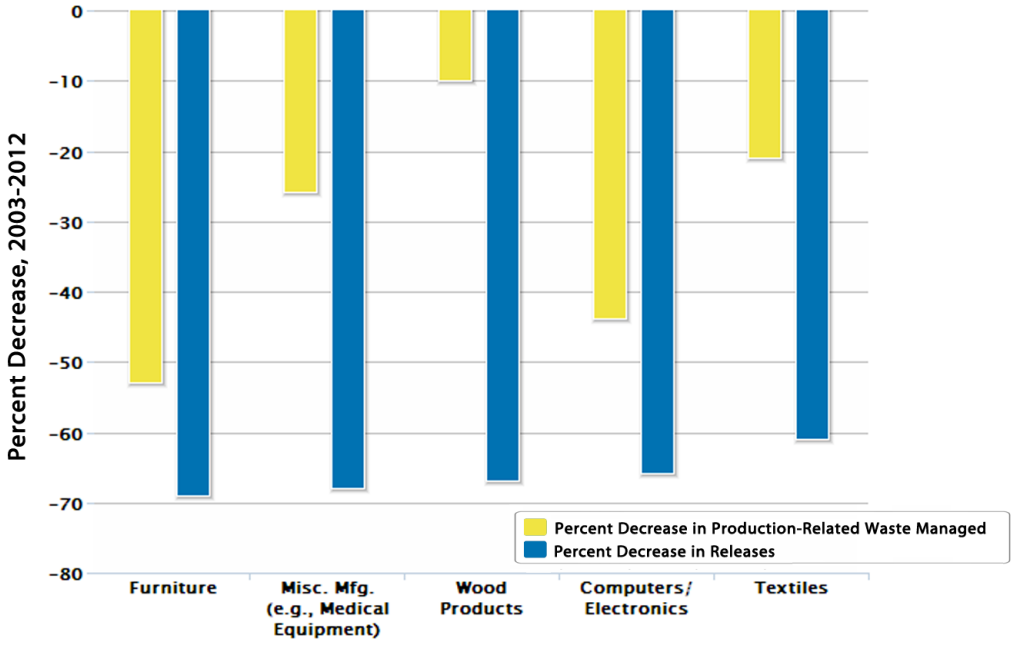
Although factors such as production play a role, source reduction appears to have contributed to substantial decreases in the quantities of chemical waste generated in recent years.

Despite long term declines in production-related waste managed, some sectors increased their waste managed in recent years, including:

- Chemical manufacturers, which increased 11% from 2009 to 2012, including a 5% increase from 2011 to 2012.
- Primary metals, which increased 31% from 2009 to 2012, including a 4% increase from 2011 to 2012.
- Fabricated metals, which increased 30% from 2009 to 2012, including a 2% increase from 2011 to 2012.

For many industries, source reduction activities appear to have contributed to substantial decreases in waste generation, including releases, in recent years. The five sectors with the greatest percent decrease in releases from 2003 to 2012 are displayed in Figure 23.* Pollution control techniques are often responsible in cases where releases decline at a faster rate than overall waste generation, although other factors, such as reductions in production, can contribute to both trends as well.

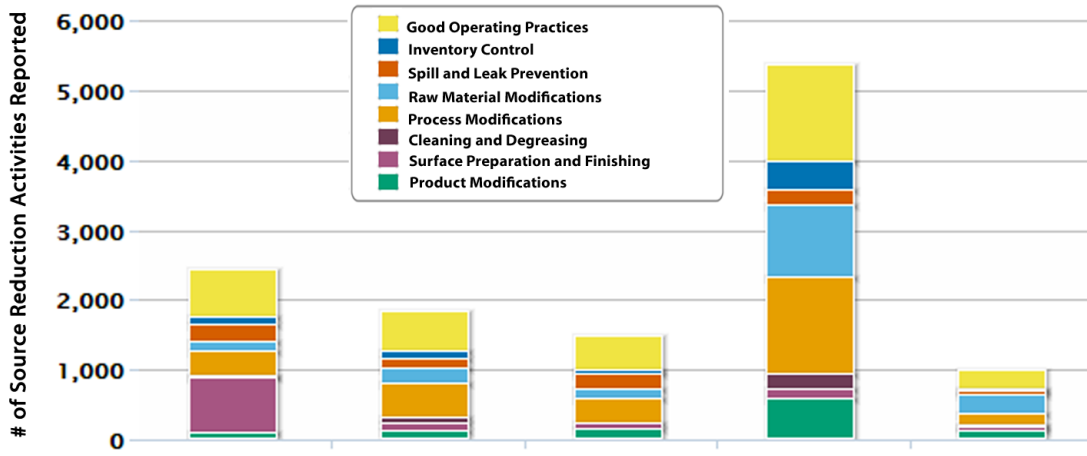
Figure 23. Percent Change in Production-Related Waste Managed and Releases for Industries with Largest Decreases in Releases, 2003-2012



* Limited to sectors with at least 100 forms submitted in 2012.

Figure 24 shows the newly implemented source reduction activities reported from 2003 to 2012 for the five industries with the greatest percent decrease in releases over this time period. As shown in the figure, the types of source reduction activities varies by industry–for example, many furniture manufacturers reported changes to surface preparation and finishing operations (e.g., improved application techniques), while computer and electronics manufacturers frequently reported modifications to their raw materials, processes and products, often associated with the elimination of lead solder.

Figure 24. Number of Newly Implemented Source Reduction Activities for Top Industries by Percent Decrease in Releases, 2003-2012



Industry	Furniture	Misc. Mfg. (e.g., Medical Equipment)	Wood Products	Computers/ Electronics	Textiles
% Decrease in Releases '03-'12	-69%	-68%	-67%	-66%	-61%

While sector-specific waste management trends can be used as indicators of environmental performance, it is important to consider the influence that production and the economy have on chemical waste generation.

To get an idea of how changes in production levels at TRI facilities may influence total disposal or other releases, EPA uses "value added" from the Bureau of Economic Analysis to estimate production for the manufacturing sector (www.bea.gov/industry/gdpbyind_data.htm). Value added is a measure of the contribution of each sector to the nation's Gross Domestic Product (GDP), which represents the total value of goods produced and services produced annually in the U.S. While not all of the facilities that report to TRI are in the manufacturing sector, most (89% in 2012) are in this sector. The solid line in Figure 25 shows manufacturing value added (adjusted for inflation), representing production, decreased by 5% from 2003 to 2012. For the same time period, there was a 23% decrease in releases. This decrease occurred even though production decreased by only 5%. Because one would expect releases to decrease proportionally to decreases in production, the graph demonstrates that other factors were also contributing to the reductions in releases.

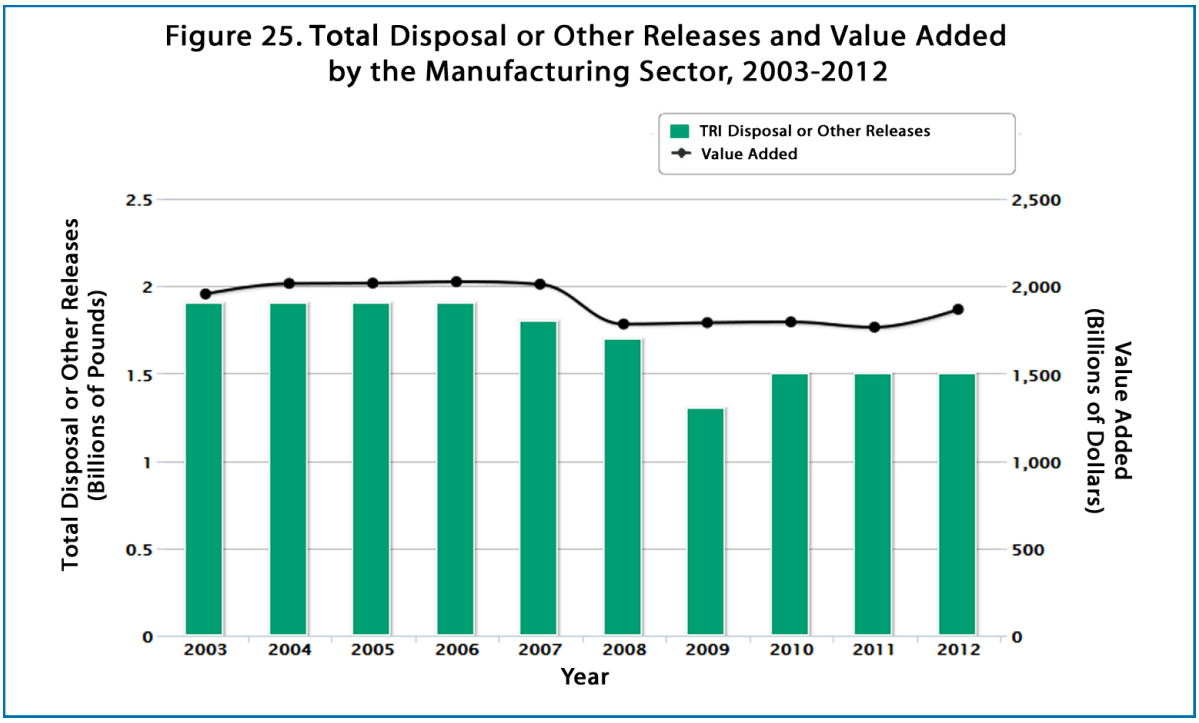
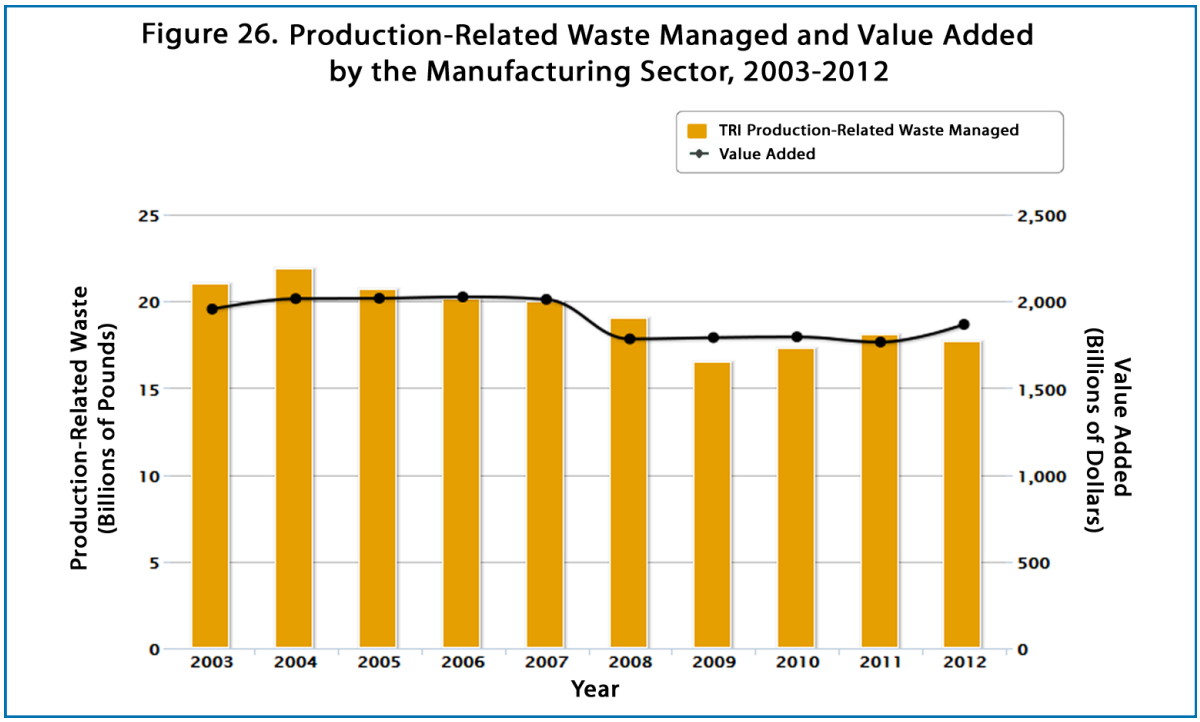


Figure 26 presents the trend in production-related waste managed by the manufacturing sector and the trend in the manufacturing sector's value added (as shown by the solid line). The manufacturing sector's production-related waste decreased by 16% from 2003 to 2012, while manufacturing value added decreased by only 5%. More information on production trends for individual sectors can be found in the sector profiles.



The TRI National Analysis highlights four sectors: chemical manufacturing, electric utilities, metal mining, and computers/electronics. EPA uses the best available data to present these sectors' economic trends. The sources of the data vary by sector. For the electric utilities sector, electricity generation data from the U.S. Department of Energy were used (www.eia.gov/electricity/data.cfm#generation). Mine production data are from the U.S. Geological Survey (minerals.usgs.gov/minerals/pubs/mcs). The production index from the Federal Reserve was used as an estimate of business activity for the chemical and the computers/electronic sectors (www.federalreserve.gov/datadownload/default.htm).