

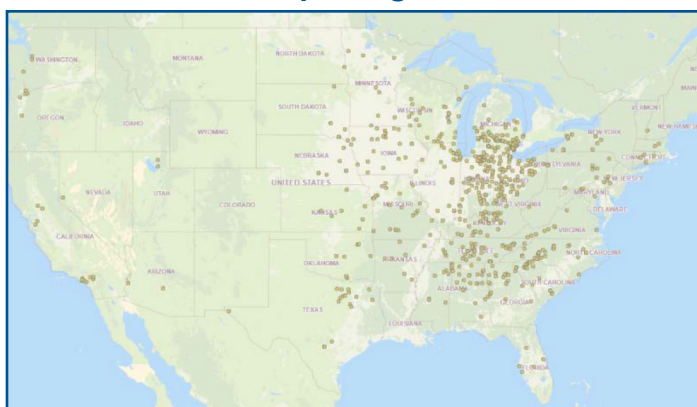
Automotive Manufacturing and Maintenance

P2 National Emphasis Area (FY22-23)
P2-TRI Fact Sheet



EPA adopted six [national emphasis areas](#) (NEAs) for the FY 2022/2023 pollution prevention (P2) grant cycle. This fact sheet summarizes environmental and P2 information for one of the NEAs: **the automotive manufacturing and maintenance sector** (NAICS 3361, 3362, and 3363 for manufacturing and NAICS 8111 for maintenance facilities). According to the Census Bureau, the automotive manufacturing portion of this NEA includes 7,264 establishments.^{1,2} About 11 percent of these establishments (facilities) reported to the [Toxics Release Inventory \(TRI\)](#) for 2020.¹ TRI tracks the management of toxic chemicals as reported by U.S. industrial facilities. Annually, facilities report to TRI how much of each chemical is recycled, combusted for energy recovery, treated, and disposed of or otherwise released to the environment.

Locations of Automotive Manufacturing Facilities Reporting to TRI, 2020



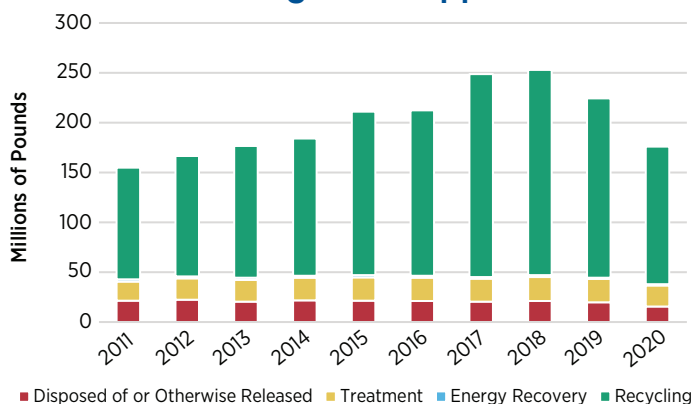
TRI Quick Facts for 2020

	Automotive Manufacturing	All Sectors
Number of TRI Facilities	823	21,022
Total Production-Related Waste Managed (lb)	176 million	28.3 billion
Total On-site and Off-site Disposal or Other Releases (lb)	15.8 million	3.0 billion
Total On-site (lb)	12.2 million	2.7 billion
• Air (lb)	12.1 million	550 million
• Water (lb)	3,788	194 million
• Land (lb)	3,678	1.95 billion
Total Off-site (lb)	3.6 million	348 million

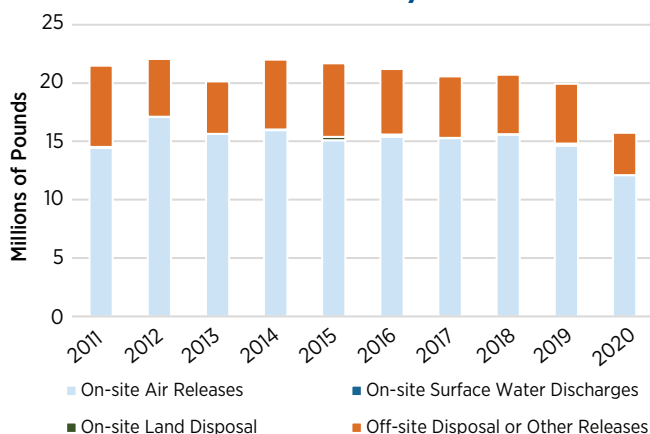
EPA encourages facilities to first eliminate the production of waste at its source (source reduction) prior to recycling, energy recovery, treatment, or disposal. The charts below show quantities of TRI chemicals released or otherwise managed as waste by the sector as reported to TRI. P2 technical assistance providers and others may be able to use the information below to identify opportunities that prevent chemical releases through source reduction activities. Information can be explored in more depth at [EPA's TRI P2 Search Tool](#).

Automotive Manufacturing

Waste Management Approaches



Total Releases by Media



For more information on P2 and the EPA's P2 Program, please contact the P2 Hub at: p2hub@epa.gov or 202-566-0799 or visit www.epa.gov/P2

¹ Data sources: U.S. EPA, 2020 TRI National Analysis data released October 2021; and U.S. Census Bureau, 2017 Economic Census.

² Automotive maintenance facilities are not covered by TRI and therefore are not included in this fact sheet.

Automotive Manufacturing and Maintenance

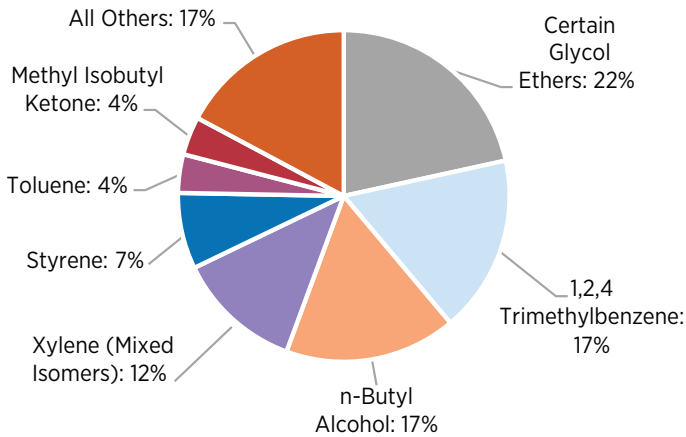
P2 National Emphasis Area (FY22-23)
P2-TRI Fact Sheet



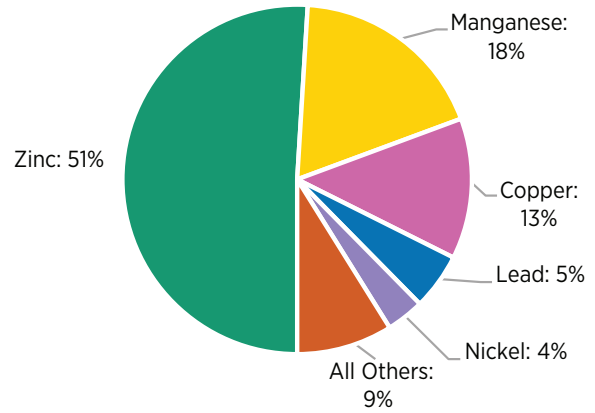
The following charts show the TRI chemicals released on site to air and water by facilities in the automotive manufacturing sector. In these charts, each metal and its compounds are combined.

Automotive Manufacturing

Releases to Air, 2020
12.1 million pounds



Releases to Water, 2020
3,788 pounds

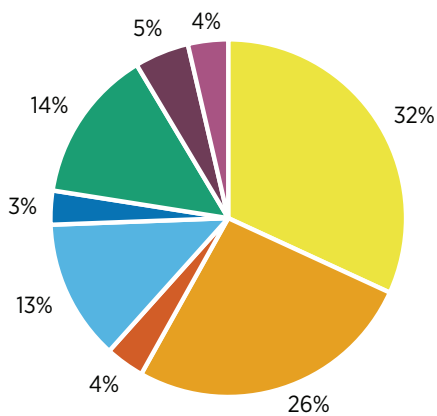


P2 Activities Reported to TRI

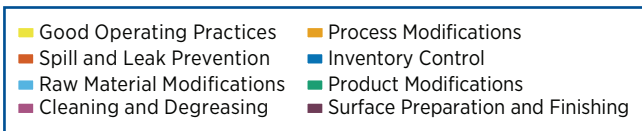
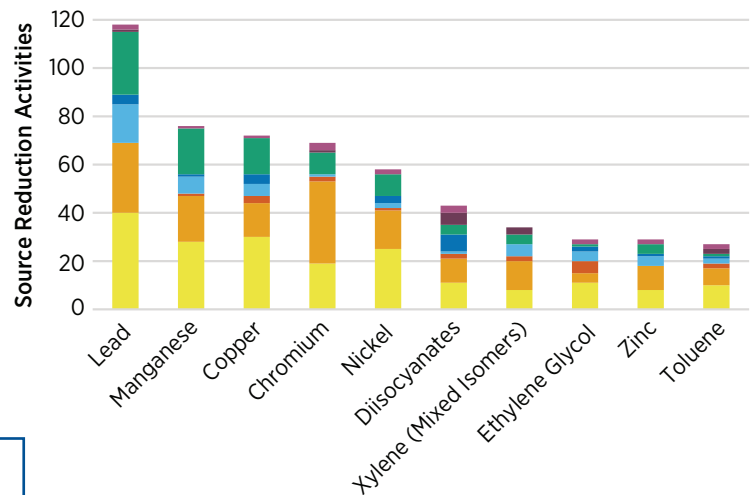
The figures below illustrate the source reduction activities reported to TRI by facilities in the automotive manufacturing sector for 2016 - 2020. In the bar chart, the number of source reduction activities reported for each metal and its compounds are combined.

Automotive Manufacturing, 2016-2020

Source Reduction Activities



Source Reduction Activities by Chemical



For more information on P2 and the EPA's P2 Program, please contact the P2 Hub at: p2hub@epa.gov or 202-566-0799 or visit www.epa.gov/P2

Automotive Manufacturing and Maintenance

P2 National Emphasis Area (FY22-23)
P2-TRI Fact Sheet



P2 Opportunities

Due to the nature of the automotive manufacturing industry's activities, P2 initiatives from the metal fabrication sector may be applicable to Automotive Manufacturing facilities. See the "Metal Manufacturing and Fabrication Fact Sheet" for scrap metal, coolant and plating P2 opportunities that may also apply to facilities in the automotive sector.

Examples of P2 achievements in the automotive sector identified from published sources are listed below. Some of the sources below link to non-EPA web sites. EPA cannot attest to the accuracy of non-EPA sources and providing links to a non-EPA source is not an endorsement by EPA of the source or the information it contains.

- **Installing or upgrading vapor recovery systems.** Painting and coating operations can release volatile organic compounds (VOCs) at automotive manufacturing and maintenance facilities. Installing or upgrading vapor recovery systems in automotive paint booths may reduce the amount of purge solvent required and associated emissions.
 - The [reducing solvent emissions from vapor degreasers](#) fact sheet lists regulations and emissions standards for vapor degreasers and describes strategies for reducing solvent used and emissions from drag-out, drafts, diffusion, and sprays.
- **Re-scheduling color changes and maintenance cleaning.** Wastes are formed when purge solvents are used to clean paint booths between color changes or during maintenance. Rescheduling color changes and cleaning times can help minimize purge solvent usage.
 - The [TRI Pollution Prevention Search tool](#) includes examples of facilities implementing good operating practices including scheduling changes and maintenance procedures.
- **Finding alternatives to VOC-containing purge solvents.** Alternative cleaning solvents and cleaning methods are becoming increasingly available. There are also recycling and reuse programs available for automotive paint booth purge solvents in some areas.
 - The [University of Minnesota Technical Assistance Program \(MnTAP\)](#) describes maintenance practices for painting/spray booth equipment and lists resources for finding alternative cleaning equipment and solvent recyclers.
- **Replacing hexavalent chromium in plating baths.** Hexavalent chromium, a known human carcinogen, is still widely used in plating bath operations. Exploring P2 for this use would be beneficial. Trivalent chromium is generally not considered to be as toxic as hexavalent chromium and could be an incrementally preferred replacement. The only necessary equipment modification is the addition of new plating bath electrodes. However, other P2 approaches in this area should be explored as well.
 - [Pollution Prevention Technology Profile: Trivalent Chromium Replacements for Hexavalent Chromium Plating](#) gives an overview of the plating process, regulatory requirements, and pollution prevention research regarding chromium plating alternatives with a focus on trivalent chromium alternatives.

For more information on P2 resources for the sector, go to:

- [TRI's Automotive Sector P2 webpage](#) which summarizes: the major sources of chemical releases; how these quantities have changed over time; and the types of P2 practices implemented. To read the complete [Automotive Manufacturing Profile, see Chapter 6 of Green Energy to Sustainability: Strategies for Global Industries](#).
- [EPA's P2 Resources Search tool](#) for a compilation of P2 case studies and other resources.
- [TRI's Pollution Prevention Search tool](#) to explore P2 activities reported to TRI.

For more information on P2 and the EPA's P2 Program, please contact the P2 Hub at:
p2hub@epa.gov or 202-566-0799 or visit www.epa.gov/P2