

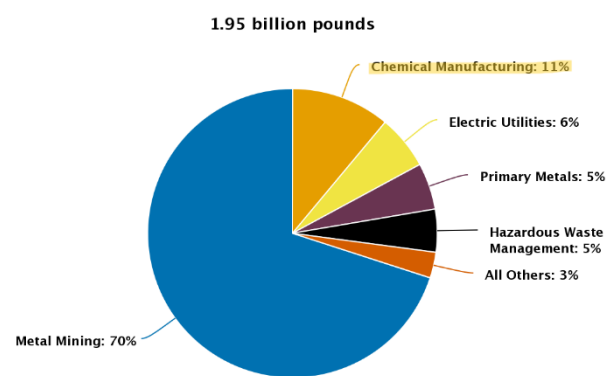
The Pollution Prevention Success Story of Pressure Chemical Co.

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2023 TRI-P2 Storytelling Challenge

Sector Background

The “Chemicals” sector, which consists of facilities that manufacture, process, or use chemicals for various purposes, is responsible for 11% of the total amount of chemicals released on the TRI. Due to the exceeding amount of released hazardous material in the chemical industry, many facilities, like Pressure Chemical Co., have turned to pollution prevention practices (P2).

On-Site Land Disposal by Industry, 2020

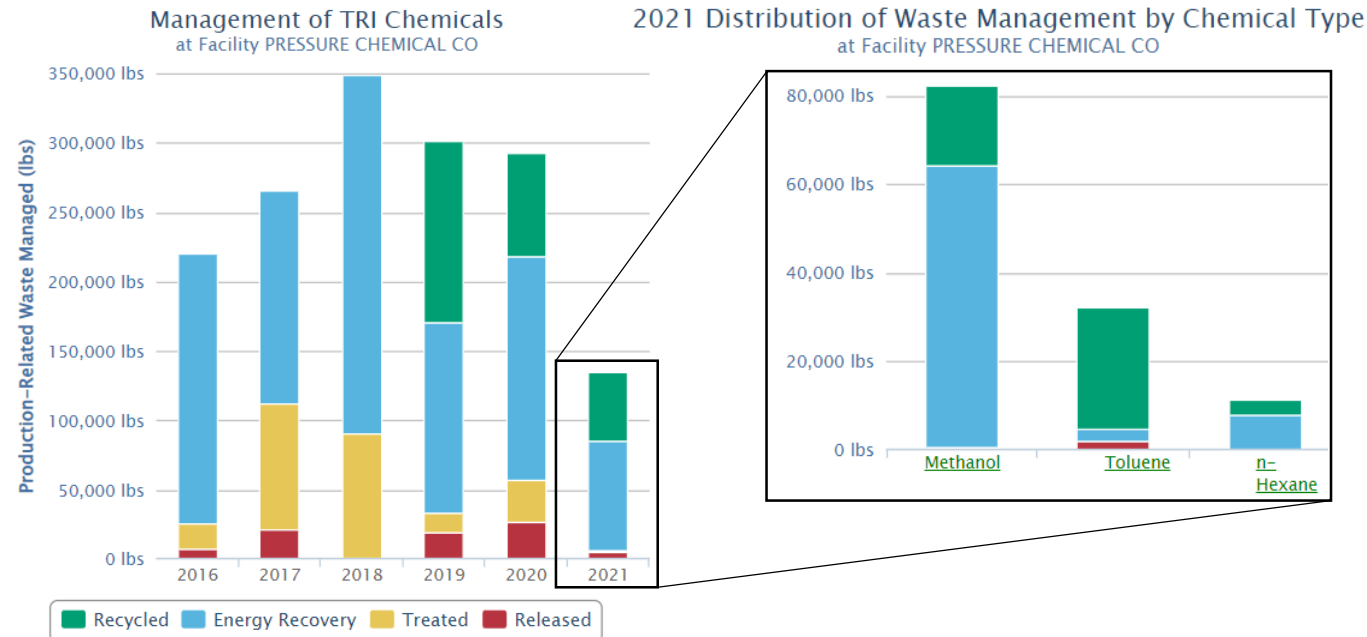


About the Facility

Pressure Chemical Co. is a local chemical manufacturer located in Pittsburgh, PA. Founded in 1964, the facility originally supplied chemicals for university researchers. The company has since commercialized its services and now manufactures custom chemicals for various businesses.



Overview of Implemented Pollution Prevention Activities



Pollution Prevention Efforts Through Optimizing Process Conditions for Efficient Chemical Recycling

Overview of TRI Data:

Prior to 2019, Pressure Chemical Co. recycled little if any excess chemical material. Since then, they have made significant progress. According to reported 2021 TRI data, Pressure Chemical has successfully recycled over 250,000 lbs. of chemical waste.

Of the total chemicals recycled in 2021, 18,094 lbs. have been methanol, 27,475 lbs. have been toluene, and 3,579 lbs. have been n-hexane.

These three chemicals are commonly used as solvents in chemical manufacturing processes, and are difficult to dispose of. By investing into optimized and efficient chemical recycling, Pressure Chemical was able lower their waste disposal costs, which was a major incentive for further implementing P2 activities.

Description of P2 Activity:

At Pressure Chemical Co., optimizing process conditions for chemical recycling is a crucial pollution prevention technique. By improving the efficiency of chemical recycling for toxic materials such as methanol, toluene, and n-hexane, Pressure Chemical has significantly reduced the amount of chemical waste released, minimizing its environmental footprint.

Pressure Chemical optimizes its recycling processes by minimizing raw material consumption while using energy efficiently. Pressure Chemical’s process optimization involves adjusting reaction conditions such as temperature and pressure, as well as scheduling regular maintenance of production equipment. By improving the efficiency of chemical reactions, Pressure Chemical is able to reuse excess methanol, toluene, and n-hexane effectively, instead of releasing them into the environment.

Company Benefits of Process Optimizing Chemical Recycling

Optimizing its processes has brought numerous benefits to both Pressure Chemical’s employees and customers. By implementing pollution prevention techniques in its chemical manufacturing processes, Pressure Chemical is better able to serve its customers and meet their standards. With the use of pollution prevention technology, such as optimized chemical recycling, Pressure Chemical is able to offer more environmentally-friendly products to the public. Additionally, the company has begun partnering with local community businesses to develop more sustainable solutions in the chemical industry.

Moreover, optimizing chemical recycling has created a safer work environment for employees. With more chemical recycling in place, fewer employees are needed to handle and dispose of hazardous chemical waste. This positive impact on the environment has fostered a positive workplace culture, boosting employees’ morale and job satisfaction.

P2 Activity Impact on Environment and Community

Pressure Chemical’s efforts in pollution prevention have resulted in significant environmental benefits and have also had a positive impact on the community.

Environmental Benefit

Based on TRI’s average emissions data, Pressure Chemical has avoided emitting approximately 1.6 metric tons of CO₂e by chemically recycling 18,094 lbs. of methanol, as well as an additional 4.9 metric tons of CO₂e by recycling 27,475 lbs. of toluene and 0.4 metric tons of CO₂e by recycling 3,579 lbs. of n-hexane.

Chemical	Amount Recycled (lbs.)	Quantified Environmental Benefit (metric tons of CO ₂ e emissions avoided)
Methanol (CH ₃ OH)	18,094	1.6
Toluene (C ₆ H ₅ CH ₃)	27,475	4.9
n-Hexane (C ₆ H ₁₄)	3,579	0.4

Community Impact

Pressure Chemical’s efforts to prevent pollution have had a positive impact on the Pittsburgh community. Over the past few years, the company has sponsored several Fall festivals at the Friends of Carnegie Library of Pittsburgh, where attendees have had the opportunity to learn about local environmental issues and ways to reduce pollution. Additionally, in the summer of 2022, Pressure Chemical presented its chemical pollution prevention activities at the Specialty & Agro Chemicals America event, a national forum focused on promoting sustainable chemical manufacturing technology.

By increasing awareness of pollution prevention practices, Pressure Chemical has built a strong relationship with the local community, and their responsible and sustainable practices serve as an example for others to follow.

