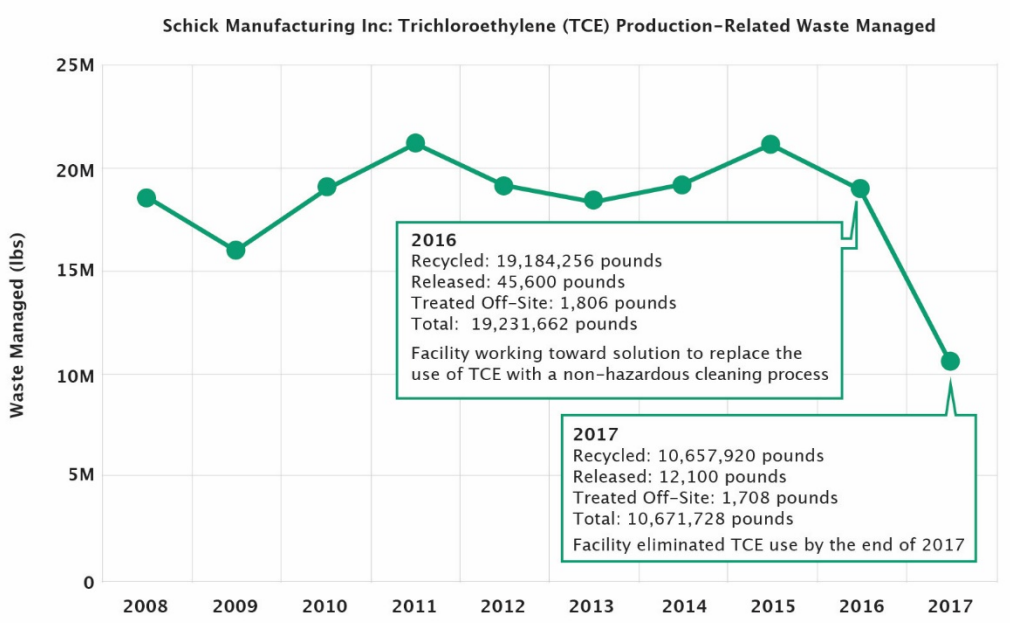
P2 Case Study

Pollution Prevention as Reported in the Toxics Release Inventory (TRI)

How One Facility Completely Eliminated the Use of TCE

Schick Razor Blade Manufacturing in Knoxville, Tennessee



Schick reported reductions for TCE production related wastes by 50% or apx. 10,000,000 lbs. in the 2017 TRI reporting year. By October 2017, the entire facility was TCE free.

About the facility: Edgewell Personal Care - Schick's Knoxville, Tennessee facility (formerly American Safety Razor) manufactures a wide variety of razor blades for personal care.

Chemical used in production: Trichloroethylene (TCE) was used as a cleaning solvent in both liquid and vapor cleaning/degreasing operations. TCE was used in both the wash baths after the grinding process and during the final cleaning process of the blades. The bulk of the TCE had been recycled on-site through carbon absorption and distillation as shown in the trend graph above. Out of the 20 million pounds managed in 2016, less than 50,000 lbs were released to air as fugitive or stack air emissions and and much less at about 15,000 lbs for 2017 before their transition to completely TCE free.

Why P2?: Eliminating TCE at the Knoxville plant became a priority because of the high cost of its use (e.g., waste disposal, energy costs associated with distallation). There was also concern for the regulatory risk, liability and remediation costs from potential TCE air releases and contamination. In addition TCE is considered a hazardous waste and the company wanted to eliminate the health, safety and environmental risks to the community.

P2 results: Since December 2017, TCE use has been completely eliminated at this plant; the chemical is no longer used in operations or in any equipment. For the 2018 TRI reporting year, Schick is no longer required to submit a TRI report for TCE. By moving to the new process, the hazardous air pollutants were also reduced by 77.8% (23 tons per year on average) eliminating the need for a Title V Air Permit under the Clean Air Act, moving this facility from a major source permit holder to a minor source permit holder. This resulted in a cost savings of $7500 for the permit fee assessed annually. Although risk reduction was the key driver for these P2 measures, the plant estimates cost reductions of $225,000 a year in total, part of which was from reduced energy costs ($130,000) from the new system.

EDGEWELL PERSONAL CARE - SCHICK PLANT

What do they do?
Manufacture razor blades for personal use.

SCHICK Manufacturing Inc.
2820 Media Dr .
Knoxville, TN 37914

Sector: Fabricated Metal Mtg.
NAICS: 332215

POLLUTION PREVENTION

Eliminated the use of trichloroethylene (TCE) in 2017 and removed all related equipment from its processes.

P2 BENEFITS

- Elimination of TCE risks,
- Lowerd costs for materials, waste disposal, and energy usage ($225,000), and
- Reduced labor and monetary costs for the Title V permit ($7500)

Project Description: How did they do it?

P2 project description: The Knoxville plant decommissioned the twelve original TCE based cleaning wash boxes used in razor blade production and replaced them with a comprehensive hot-air blow off (HABO) system. The HABO system is designed to dry and clean the parts with high velocity hot air.

- Grinding: The razor blades are sharpened during the grinding process, and any residual oil and small pieces of metal can be left behind once the blades are sharpened. The new HABO system is used as a first step to ensure that the blades are free from any burrs or residual oil left behind. The new system does not require chemicals like TCE to be used to clean off the product following the grinding operation.

- Final cleaning: The team worked with a company specializing in a vacuum parts cleaning technology. After many months of comprehensive testing, Schick found that using an alcohol-based cleaner in the vacuum technology proved to be ideal for the project.

Throughout the whole project, continuous communication and training was maintained with the entire team helping to assure a complete understanding and smooth transition of the new technology. Schick invested over $500,000 for the new cleaning systems, and over $2.5 million dollars on the entire project with a return on investment (ROI) of 11 years.

OLD TCE Strip Cleaning Wash Box

NEW Hot Air Blow-off Equipment