



NEW YORK STATE ENVIRONMENTAL EXCELLENCE AWARD CASE STUDY

Columbia University - Honored for its comprehensive on-site solvent recycling program and reducing the University's environmental footprint

SUMMARY

Columbia University was awarded in 2014 for reducing its environmental footprint, reducing costs and improving the health and safety of its students, faculty and surrounding communities. Columbia is achieving these benefits by implementing a multi-faceted, comprehensive on-site solvent recycling program. Columbia University is achieving environmental successes, reducing costs and improving the health of its campus community. This "triple bottom line" approach establishes a model for universities and laboratories.



BENEFITS

This innovative program is a sustainable model for complex institutions to manage large and costly waste streams. The program reduced solvent purchase volumes by approximately 80%. More than 45,000 gallons of solvents have been recycled which has reduced the transportation of new and waste solvents. This translates into a reduction of 3 million pounds of CO₂ emissions. This saved the university \$2.8 million by reducing the purchasing and disposing of solvents.



KEY METRICS

- 120 thousand pounds of hazardous waste was created over 4 years
- 3 million pounds of CO₂ were not emitted due to program
- \$2.8 million in savings
- Reduced cost of chemical waste disposal by \$650,000 annually

ABOUT COLUMBIA UNIVERSITY

- Established 1754
- 29,250 students
- Encompasses 20 schools
- Located in Upper Manhattan, New York, NY

NYS Environmental Excellence Award: Annual recognition of outstanding innovative and sustainable projects or programs and unique partnerships that are improving and protecting New York State's environmental resources and contributing to a stronger economy

A MODEL OF EXCELLENCE

- Limited the amount of waste sent for incineration
- Reduced annual operation and product purchase costs
- Outreach and training efforts through the website, daily Twitter feeds, an article on solvent recycling efforts and a presentation at the College and University Hazardous Waste Conference
- Eliminated costly product purchases and waste disposal by recycling on site for reuse
- Triple bottom line approach to reduce waste, increase sustainability and decrease financial costs
- Diverted waste from fuel blending to recover energy or direct incineration with no waste recovery
- Conducted weekly self-audits to ensure compliance

HIGHLIGHTS

The solvent recycling program has significantly reduced the generation of non-halogenated solvents. By decreasing the hazardous waste generated through repurposing the solvents for beneficial reuse, the university is extending the useful life of mass produced chemicals.

The program first targeted ethyl alcohol and xylene in a variety of tissue-processing and staining procedures, due to their consistent, high volume use. The program expanded in 2008 to include methanol and ethanol. In 2011 and 2013, Columbia purchased additional solvent recyclers and can now accommodate the Departments of Chemistry, Biological Sciences and Engineering.

Columbia is open to sharing its success and offers these steps as a way to get a solvent recycling program started:

- Gather relevant data regarding current solvent usage and costs.
- Determine a location for the unit with enough space and operational support (air circulation and electricity).
- Analyze product specifications and end product quality so users can see how it will fit their requirements. Check in regularly with end users to ensure expectations are being met.
- Secure support from users and senior officials.
- Inquire about federal, state and local regulations for operating a recycler. Prepare necessary regulatory documentation including data tracking logs.
- Share successes.



FUNDING

Columbia University and participating departments fund the program.