

NYSP2I Helps Manufacturer Reduce Environmental Footprint



Challenge

The company wanted to identify ways to lower operational costs and reduce hazardous waste production.

Solution

NYSP2I assisted the company in performing an assessment to identify options for addressing costs and waste production.

Results

- Water mapping helps identify where high water usage can be minimized.
- Off-site reclamation may not be economically feasible.
- Reuse of recovered solvent reduces hazardous waste and waste disposal costs.
- Anaerobic digestion may be an option to reduce filter cake waste.

Company Background

A manufacturer of nutritional ingredients in New York is aiming to switch to more cost-effective and sustainable practices. The company currently produces approximately 20 tons of solvent-based hazardous waste annually. Copious amounts of wastewater sludge and process waste are also generated and disposed of in landfills. The company was seeking to reduce the amount of hazardous waste generated and to better manage the waste produced during production.

Challenge

The company reached out to the New York State Pollution Prevention Institute (NYSP2I) to obtain assistance with reducing its environmental footprint. The objective was to investigate and identify cost-effective methods to reduce hazardous waste production, increase process water efficiency which would lower dependence on wastewater treatment, and improve management of process and sludge.

Solution

An assessment was conducted to better understand the manufacturing operation, resource utilization, and waste generation. A few options for achieving the objective were water mapping, reducing the amount of solvent through off-site reclamation, reusing waste solvent in the current operation, and anaerobic digestion of the filter cakes to avoid shipping to landfills.

Results

The company provided water use data, process flow diagrams, distillation system specifications, and solvent storage information to NYSP2I. NYSP2I suggested the installation of water meters to more accurately map water usage. Company personnel changes led to in-house mapping without further assistance of NYSP2I. Another option to reduce water usage would be the implementation of low flow nozzles in heavy hose use locations.

Currently, recovered solvent is disposed of after processing through a single-stage distillation column. Initially, the system was designed to recover and reuse the solvent on-site; however, this practice was discontinued due to contamination concerns. While off-site reclamation was investigated as an alternative to reduce disposal costs, the required logistics to store and transport used solvent was deemed impractical. On-site recovery and reuse were investigated further, but the required degree of solvent purity for process use was unclear and needed further investigation before implementation.



The company was also interested in reducing solid waste generated during processing. Since the filter cake contains organic material, anaerobic digestion could be an option. An off-site facility has been identified for this type of processing, but the biomethane potential (BMP) of the filter cakes must be analyzed to determine whether this material can be digested sufficiently to produce biogas. Samples would need to be tested to obtain this information.

Partners



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