EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

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Coyne Textile Services Toxics Use Reduction Case Study

Implements Pre-Laundering Techniques to Achieve Reductions

Summary

Coyne Textile Services, an industrial laundry service, used simple but effective toxics use reduction techniques that resulted in reductions of over 19,000 pounds of chemicals and conservation of 2 million gallons of water. This translates into over $25,000 in savings from the reduction of chemical use and wash loads, plus additional savings from water conservation. Their success in developing these new techniques has established Coyne Textile Services as a leader among their competition.

Background

Coyne Textile Services is an industrial laundry service that specializes in cleaning textile wipes, uniforms, and floor mats. The company has been located in New Bedford, Massachusetts for 40 years and employs 90 people. Typical of most industrial laundry services, the soiled textiles are picked up from their customer and transported to the facility for processing. Prior to accepting the soiled textiles, no inspection would occur and frequently the incoming textiles would be soaked with various chemicals. The heavily soiled textiles limited the size of the wash load, and routinely required some loads to be rewashed, burdening the wastewater treatment system.

Toxics Use Reduction

Coyne Textile Services initially began to investigate toxics use reduction opportunities under the reporting and planning requirements of the Toxics Use Reduction Act (TURA). In order to keep the laundering and wastewater treatment processes unchanged, Coyne Textile Services focused on the treatment and handling of the laundry prior to washing.

To prevent receiving textiles that were soaked with various chemicals, Coyne Textile Services instituted a "No-Drip" policy when accepting a customer's laundry. As part of this policy, their customers are provided with thirty gallon barrels with false bottoms. Anything that is dripping from the laundry will drain into the false bottom and becomes the responsibility of their customer to dispose. When the laundry is collected from their customer's barrels for processing it is "drip dry". Coyne Textile Services then installed an extractor, essentially a hydraulic press, to extract the remaining liquids from the incoming soiled textiles. The extractor required no additional space, was easily integrated into the normal flow of incoming product, and removes more than 50 pounds of liquid per 350 soiled towels. The extracted liquids are piped to a sludge tank where they are combined with the sludge from the wastewater treatment process.

These two waste minimization efforts significantly reduced the soil weight entering the wash area, enabling Coyne Textile Services to add more soiled towels to each wash load. Consequently, reducing the number of total wash loads processed each day along with the amount of associated process chemicals used at the facility that are reportable under TURA. In addition, the need to rewash 5 – 6 batches per week was eliminated, further reducing the amount of both process and wastewater treatment chemicals used. Other benefits include a reduction in volatile organic compounds (VOC) emissions from the wash process and increased workplace safety.

Results

Reductions: Toxics use reduction, waste minimization, and water conservation, was successfully achieved by Coyne Textile Services. Reductions of chemicals used in the laundering process equaled in 15,000 pounds per year of potassium hydroxide. Chemical reduction in the wastewater treatment process amounted to 3,500 pounds of sulfuric acid and 1,200 pounds of ferric chloride. There has also been a reduction of toxic byproducts generated during the process, seen clearly in the reduction of volatile organic compounds. Aside from the chemical reductions, the adoption of the waste minimization techniques has also saved nearly 2 million gallons of process water annually for Coyne Textile Services.

Economics: The total cost of the extractor was $60,000, which included the entire cost of installation. The cost-savings achieved from the waste minimization techniques for Coyne include:

- The reduction of 15,000 lbs per year of potassium hydroxide that equals about $14,000 per year from the laundering process.
- The elimination of 5-6 rewashed batches per week represents 600 hours of labor that transfers to $9600 per year.
- Additional cost-savings from the reduction of water use are also realized.

Coyne Textile Services expects their initial financial investment in pollution prevention to pay off in less than three years.