

Durez Corporation Focuses on Hazardous Waste Reduction



Durez Corporation

Durez Corporation (Durez), a division of Sumitomo Bakelite North America, Inc., is a resin manufacturer located in Niagara Falls, New York. The production of different resins involves a range of chemical reactions, which take place in heated reaction vessels or kettles under atmospheric pressure or vacuum.

Challenge

The hazardous waste managed at Durez is distillate by-product from production kettles, spent solvent used for cleaning, and various other small streams. Approximately 92% of the waste is the distillate material which is sent to a permitted incinerator for treatment. Some of the resins that Durez produces utilize reactants which result in significant amounts of non-hazardous distillate waste. However, due to the current waste treatment set-up, most of the waste (hazardous and non-hazardous) is mixed together to create the current reported amounts of hazardous waste. If the non-hazardous component could be segregated and removed from the incinerator pathway, the annual amount of hazardous waste would decrease below a threshold that would save the company a significant amount in hazardous waste fees.

Durez had already implemented segregation of a portion of the non-hazardous waste, incinerating it separately from the mixed hazardous waste stream described above. Segregation of the remaining non-hazardous waste stream was not possible due to the lack of versatility of the current treatment system and resources needed to incinerate an additional waste stream (system flush/cleaning between different batches and required sampling).

Solution

The New York State Pollution Prevention Institute (NYSP2I) partnered with Insyte Consulting (Insyte) to investigate and identify cost-effective approaches to reduce the amount of hazardous waste generated at Durez's facility. NYSP2I conducted several

Challenge

- Durez wanted to identify viable, sustainable options to reduce the amounts of hazardous waste generated.

Solution

- NYSP2I partnered with Insyte Consulting (Insyte) to investigate and identify cost-effective approaches to reduce the amount of hazardous waste generated at Durez's facility.

Results

- It was determined that the best option to reduce hazardous waste was the removal of the smaller, non-hazardous waste stream from the incinerator pathway.
- The most effective process was determined to be reverse osmosis plus activated carbon. Filtered water could then be safely discharged or reused within the facility.
- The economic analysis performed indicates less than one year payback to implement the reverse osmosis/activated carbon system.

site visits to review Durez's current operations and performed a baseline analysis to better understand waste types. NYSP2I reviewed with Durez waste stream segregation options to better understand the most cost-effective approaches to manage Durez's waste. Pilot-scale separation tests were conducted to validate potential segregation options. Additionally, NYSP2I evaluated other opportunities to reduce hazardous waste, including the lowering of water content in the distillates that are sent to incineration and alternative management options for the waste cleaning solvent sent off site. Finally, an economic analysis was conducted to provide Durez an understanding of the feasibility of implementing solutions to reduce their hazardous waste.

Results

The work performed by NYSP2I led to key findings that can support Durez with reducing hazardous waste and becoming more efficient at their facility.

- It was determined that the best option to reduce hazardous waste was the removal of the smaller, non-hazardous waste stream from the incinerator pathway, therefore allowing additional segregation of the larger non-hazardous waste stream from the currently combined hazardous waste stream. This move would result in an overall reduction of hazardous waste to below the threshold that triggers additional regulatory fees.
- Separate management of this smaller non-hazardous waste stream would require a fairly sophisticated process to ensure that this waste is managed properly and cost-effectively. Various methodologies were considered to separately manage this non-hazardous distillate including membrane filtration, evaporation, and activated carbon.
- The most effective process was determined to be reverse osmosis plus activated carbon. Filtered water could then be safely discharged or reused within the facility.
- The economic analysis performed indicates less than one year payback to implement the reverse osmosis/activated carbon system based on savings in hazardous waste fees.

"The NYSP2I team was great to work with. They used a cross-functional approach to help identify the areas in which they could provide the biggest impact. The knowledge and experience of the team was instrumental in developing a solution that was both practical and cost efficient."

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