

## **Bridging the Gap in Hazardous Waste Monitoring for Cleaning Chemical Industries in the UAE**

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### **Abstract:**

Although the UAE has made significant progress in advancing waste management technologies, consistent monitoring of hazardous waste quantity and composition from Cleaning Chemical Manufacturing Facilities (CCMFs) remains insufficiently explored. Therefore, implementing effective waste management practices is vital for maintaining safety and sustainability in facilities that produce both hazardous and non-hazardous waste. This study focuses on Al Saqr Industries LLC in Sharjah, a facility producing residential and commercial cleaning products such as antiseptics, battery acid, bleach, liquid hand wash, and antifreeze. The facility was selected as a case study due to its diverse range of chemical outputs and its representative role in highlighting the challenges and opportunities of hazardous waste management within the UAE's manufacturing sector. Hazardous waste, including solvents, acids, and reactive residues, must be carefully segregated from non-hazardous waste such as cardboard, paper, and plastics into different waste collection bins. Handling waste by these cleaning chemical facilities ensures that these wastes are safely stored and labelled before being transported by BEEAH to its Hazardous Waste Treatment Centre in Sharjah. At BEEAH, the hazardous waste is processed and treated by using advanced techniques such as autoclaving, neutralization, shredding, and safe incineration technologies, ensuring compliance with Federal Law No. 12 of 2018 and Cabinet Resolution No. 39 of 2021. Compared to the UAE, countries like China and India have implemented Extended Producer Responsibility (EPR) policies and digital waste tracking systems to enhance compliance and accountability. Integrating similar frameworks within the UAE could strengthen regulatory standards, improve data transparency, and promote safer, more sustainable management of hazardous waste in CCMFs.

### **Keywords:**

Cleaning Chemical Manufacturing Facilities (CCMFs), hazardous waste, non - hazardous waste, Extended Producer Responsibility (EPR).