

Recommendation 375

Use All Chemicals for Cost Reduction and Reducing the Health Risk to Employees

Background

At the Defense Waste Processing Facility, the processing chemical was changed from formic acid to glycolic acid for process improvement and safety. However, prior to the change, approximately 1400 gallons of 90 weight % (wt%) unused formic acid were left in the processing storage tanks. The switch required the formic acid to be removed and disposed of offsite at a Resource Conservation Recovery Act (RCRA) disposal facility. As a result, the disposal of unused formic acid from the DWPF process required additional workforce and financial resources. The removal and storage of the under-utilized formic acid resulted in the expenditure of additional funds.

Discussion

There were approximately 1400 gallons of 90 wt% formic acid remaining in the storage tank that were removed and disposed of as a result of the process change. A vacuum truck was used to remove the formic acid from the storage tank and place in totes. The vendor was then contacted in an attempt to return the unused chemical to them; however, the vendor did not have the means to retrieve the material and they were not interested receiving the material if it was stored in totes. As a result, remaining formic acid was then transported offsite to a disposal facility.

Two shipments of the excess formic acid will be required to remove the chemical for the site. The first shipment included six totes of diluted formic acid and six totes of 90% formic acid which cost approximately \$50,000. The second shipment is expected to be twelve totes of rinse water from the tanks and will cost approximately the same amount of money.

The unused formic acid was sent offsite for treatment and disposal as a Resource Conservation and Recovery Act (RCRA) U Listed Waste since it was an unused Commercial Chemical Product (CCP) with a sole active ingredient. The rinse water generated from cleaning of the formic acid storage and dilution tanks will be characterized and disposed of in the same manner, since there is still one sole active ingredient is formic acid. Options to ship the 90 wt% to an off-site vendor as an unused Commercial Chemical Product (CCP) for reuse were also explored but found to be troublesome to execute. The switch to glycolic acid is one of many process improvements intended to increase the throughput of waste and reduce risk to humans and the environment.

Recommendation

The Savannah River Site Citizens Advisory Board recommends that the Department of Energy-SR consider the following when making process changes, including economic benefit, protection of human health, and environmental effects.

- When making changes to the process, the DOE considers a timeline that will minimize waste material, efficiently utilize financial resources, and mitigate safety risk to employees and avoid the transportation of unused chemicals as a result of process changes
- Vendor should be contacted prior to removing chemicals from processes, for assistance in the planning for retrieval and transportation of remaining chemicals in process changes, in an effort to meet transporting per vendor requirements and reduce risk and mitigate cost.
- Additionally, DOE-SR should evaluate the possibility of donating unused chemicals to other research institutions.