CLE AIChE Process Safety Fundamentals Seminar

Case Studies and Management of Change (MOC) Workshop

Wednesday, November 6, 2024

MOC Case Study EXERCISE #1

The company has modified the formulation of one of their products that is produced as a batch process in atmospheric conditions. The new formulation used dimethylformamide (DMF) as a component replacing methylene chloride which is known to be a carcinogen. DMF has never been used on this site.

Exercise 1 MOC recommendations by Team 1 (4 attendees of seminar):

1. Measure personal exposure to Methylene Chloride and DMF.
2. Add sensors to detect amounts of airborne Methylene Chloride and DMF.
3. Does storage of materials follow NFPA and OSHA for cylinders, totes, and drums?
4. How does mass flow control for Methylene Chloride and DMF compare relative to different densities?
5. What are process hazard analysis comparisons for thresholds of Methylene Chloride and DMF in this working area?
6. What are the release exposure comparisons of Methylene Chloride and DMF predicted to be for the Fire Department notification and training?

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MOC Case Study EXERCISE #2

The company has an existing atmospheric flat bottom stainless steel tank. The unjacketed storage tank is on a concrete pad in the company's tank farm. The storage tank is to be repurposed to store a styrene monomer.

Exercise 2 MOC recommendations by Team 2 (4 other attendees of seminar):

1. Verify or add concrete pad paint coating over insulation.
2. What is surrounding tank farm distance and service relative to repurposed tank?
3. Add a cooling jacket or cooling water spray nozzles to repurposed tank.
4. Add LT, PT, and TT sensors and alarms to the repurposed tank.
5. Vent repurposed tank to carbon filter and kiln or flare.
6. Add secondary containment dike wall to repurposed tank if none exists.
7. Inspect and verify repurposed tank previous service and surface conditions.
8. Flammable liquid and vapor are colorless. Add a windsock.
9. Add atmospheric vent with flame arrestor to repurposed tank to prevent backflash into tank in the event of exterior vented vapor ignition.
10. Add an agitator to repurposed tank to better control monomer body temperature.