

Tesoro Martinez Sulfuric Acid Spill

By: Christina Meyer

<https://www.csb.gov/tesoro-martinez-sulfuric-acid-spill/>

Activity

Tesoro Refinery located in Martinez, California contains an alkylation unit. This unit is used in many petroleum refineries in order to convert isobutene and low weight alkenes into alkylate. The process uses sulfuric acid as a catalyst. On February 12, 2014, maintenance was being performed on the unit.

Hazards

The Safety Data Sheet for sulfuric acid notes the hazards of this material including:

- May be corrosive to metals
- Causes severe skin burns and eye damage
- Causes serious eye damage

Preventative Actions and Safeguards

Ensure mechanical integrity before bringing any machinery back into service.

Contingency Action/ Mitigating Actions

Have a clear safety culture and standards, which focuses on the best way to proceed safely.

Initiating Event

Once the maintenance work was done, the operators opened a block valve in order to return the acid sampling system back into service. Not long after the valve was opened, the tubing directly downstream from the valve came apart. The tube is pressurized during the alkylation process and there was insufficient tightening between the tube and compression joint allowing the tube to be forced off.



Incident

Sulfuric acid spilled from the sampling station, while spraying the two workers causing burns. These workers were transported by helicopter to the burn unit of the nearest hospital. The spill lasted for about two and a half hours, which released around 84,000 pounds of sulfuric acid. The release got onto the refinery grounds and into a process sewer system.

Lessons Learned

A similar incident where workers were sprayed with sulfuric acid occurred in the year in March. Two similar incidents happening in less than a month demonstrates the need for an improvement in the refinery's safety standards and culture. This incident also identifies the need for strong safety management, which ensures mechanical integrity is verified prior to introducing the hazardous chemicals.