



DAYTON, OHIO REGIONAL HAZ-MAT RESPONSE TEAM NEWSLETTER

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Chemicals In Our Area

When trying to produce a topic for this month's newsletter I thought we might discuss chemicals that are used extensively in our area. I am not looking to address chemicals that come through our area on rail or highway rather I would like to address the chemicals found in our community's businesses and industries

One of those chemicals is **Sulfuric Acid**. There are multiple applications for the use of sulfuric acid.

- It can be used to produce phosphate fertilizers for agricultural applications.
- In the petroleum industry sulfuric acid is used for removing impurities in oil and fuel and improving octane levels.
- In the chemical industry sulfuric acid is used for producing detergents, synthetic resins, dyes, explosives, and numerous inorganic compounds.
- In the metal industry sulfuric acid is used to remove oxidation and scale from steel and other metals before further processing, such as galvanizing or cold rolling.
- Because of its strong acidity and dehydrating power, sulfuric acid is a common laboratory reagent.
- Dilute sulfuric acid functions as the electrolyte in lead-acid batteries, which are widely used in automobiles and backup power systems.

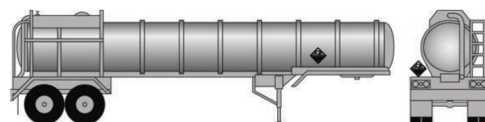
Battery systems in our area account for a vast majority of the required reporting by industry. Companies that have large numbers of electric fork-trucks and cell towers that have battery back up systems are some of the industries that are required to report their inventory.

Sulfuric Acid

Is a colorless to brown, oily liquid that has no odor and is soluble in water. It is a strong corrosive with a pH of around 1 based on its concentration. Its Specific Gravity is 1.8 making it almost two times heavier than water and its Vapor Density is 3.4 making it over three times heavier than air. It has a Vapor Pressure of <0.001 mmHg which causes it not to travel very far when accidentally released from its container. It is not documented as having an LEL or UEL and is not considered flammable.

Sulfuric acid is reactive with metals, **water**, organic materials, strong acids, strong bases, alcohols, cyanides, and sulfides. Sulfuric acid is not known to Polymerize.

Labeled a Hazard Class 8 Corrosive its UN Number can be 1830, 1831, or 1832 based on the state that it is in. Most commonly transported in DOT 412 highway containers designed specifically for sulfuric acid use or in poly drums or totes.



Response Considerations

If life safety is an issue and a rescue is possible, determination on proper PPE will need to be made. Our structural fire gear is not designed for acids such as Sulfuric Acid and therefore would provide very limited protection. Risk a lot to save a lot, risk nothing to save nothing. Recommended PPE would be Level B - chemical resistant splash garment with SCBA. Due to its low vapor pressure Sulfuric Acid does not tend to travel far therefore, establish a Hot Zone consistent with the ERG and adjust based on recon and testing around the area. Testing recommendations would include our *Bear Paw* with wet and dry pH paper and potentially using our Draeger Tubes with a Sulfuric Acid tube. Containment of the material is extremely important so consider the use of diking materials early in the incident. When no life safety is present consultation with OhioEPA, the responsible party (RP), and the RP's clean up contractor needs to occur. Dilution of the product with water and neutralization should be discouraged due to the potential reactions that will occur.

Oleum

A related form, **fuming sulfuric acid** or oleum (sulfur trioxide dissolved in concentrated sulfuric acid), is employed in the production of dyes and organic chemicals that require stronger conditions than the standard acid can provide and beyond the scope of this newsletter.

Potential

In Montgomery County there are over 100 facilities that report Sulfuric Acid and in Greene County there are about 40 facilities so the potential for us in a response to be involved with a Sulfuric Acid spill are good. For more information on this chemical consult a chemical specific SDS, the NIOSH Pocket Guide, the DOT ERG, and CAMEO Chemicals.

Training – Training for this month is **Suit Compatibility and Testing. August 17, 18, & 19** – 0900 - 1200 hours. **Dayton Training Center Task Force Building**

September 14, 15, & 16 - 0900-1600 hours
DFD TC @ Task Force Bldg
Railroad with Jon Simpson

Please Make a Note of October Training Date Change

October 6, 7, & 8 – 0900 - 1200 hours
DFD TC @ Task Force Bldg
Top Ten Scenarios

November 16, 17, & 18—0900-1200 hours
Location – Dayton Police Academy
Bomb Squad Awareness

December - No Training