

Personnel Related FAQs

Personal Protective Equipment (PPE)

Safety

MSDS

Personal Protective Equipment (PPE)

Q.

What kind of PPE is used when loading/unloading acid?

A.

The recommended PPE for unloading/loading sulfuric acid is a hard hat, chemical goggles with a face shield, acid splash suit, rubber gloves and boots. The acid splash suit is typically a coated PVC material. An acid hood can be worn in place of the chemical goggles and face shield.

Q.

Do you need respiratory protection for sulfuric acid?

A.

Respiratory protection is not required when handling non-fuming (<100%) sulfuric acid under normal conditions. Fuming sulfuric acid >100% (also known as oleum) may require an acid mist cartridge respirator or a supplied breathing source, based on the type of job and exposure monitoring results.

Q.

Can you wear a face shield instead of chemical goggles?

A.

A face shield can be worn over the chemical goggles, but should never be worn in lieu of the goggles. With a face shield, acid can spray in from the side or from underneath the face shield - the eyes do not have "positive" coverage from a face shield.

Q.

What do you wear in your plants?

A.

The type of Personal Protective Equipment (PPE) worn on our sites depends on the type of job and potential hazard associated with that job. For a plant

walk-through, the minimum recommended PPE is a hard hat and chemical goggles. For low-hazard jobs, such as operating valves and pumps, the minimum recommended PPE is a hard hat, chemical goggles and acid resistant gauntlet-length gloves.

For higher level potential hazard jobs, such as loading or unloading acid, a hard hat, chemical goggles, face shield, acid-resistant gauntlet-length gloves, acid resistant splash suit (not a rain coat) and acid-resistant boots, preferably steel-toed, are recommended.

For 1st breaks into lines or other equipment that contained acid, the minimum PPE recommended is an acid-resistant hood, acid-resistant gauntlet-length gloves, acid-resistant splash suit (Level "C") and acid resistant-boots.

Q.

From whom can I buy the acid gear?

A.

The acid gear can be purchased from a number of different suppliers. Make sure the suit material is truly acid-resistant for the % sulfuric acid you are handling on your plant site (i.e., make sure the suit is good for 93% acid, not just 20% acid, if you handle 93% on your site). Also make sure the suit is properly designed to minimize tears/rips at the arm-pits and crotch. Make sure the suit is properly sized. DuPont Protective Apparel markets several fabrics and styles of suits acceptable for sulfuric acid service.

Safety

Q.

How far does a fume cloud of sulfuric acid go?

A.

Non-fuming sulfuric acid (<100%) has a very low vapor pressure and does not fume, so it will not have a fume cloud. If a spill occurs, sometimes people will notice an odor. This odor is usually the result of the sulfuric acid reacting with something (typically organic), or if the acid reacts with water and causes a splattering "mist."

Q.

What are the main dangers associated with sulfuric acid?

A.

The main hazard associated with sulfuric acid is its corrosivity to skin and eyes. It can cause rapid damage to skin and eye tissue on contact, and may result in burns and/or permanent eye damage. Another potential with sulfuric acid is that if it is diluted it becomes much more corrosive to most metals. As the metals corrode hydrogen gas is evolved. If the hydrogen gas collects (such as in a room or in a tank) it may reach the explosive range.

Q.

Do I need to evacuate for an acid spill?

A.

The main hazard associated with an acid spill is contact with the liquid, which may result in burns to the skin and eyes. Evacuate an area large enough to prevent any liquid exposure to the acid. If the acid spill reacts with any other chemical/object on the ground and a resulting odor/mist is suspected, evacuate downwind.

Q.

What do you use to neutralize/clean up a spill?

A.

In general any alkali will neutralize an acid spill. Soda ash, caustic soda, lime, limestone, and baking soda can be used. A "rule-of-thumb" is to dilute the acid to about 15% before trying to neutralize, if possible, to minimize the heat generated by the neutralization reaction. Once the pH has been adjusted to between 2-12, the spill waste can usually be treated as "non-hazardous waste". Verify this with your local and state regulatory agencies.

Q.

What is your plant's Emergency Response Plan for an acid incident?

A.

The plant Emergency Response Plan is site-specific, based on the size of the plant, the number of trained responders typically at the plant at certain times, the availability of trained local community responders, etc. In general, for non-fuming sulfuric acid, the main consideration would be to contain the liquid, to keep it out of sewers, waterways and from the groundwater. The main safety hazard associated with non-fuming sulfuric acid is burns from

skin/eye contact. The main environmental hazard is that it would quickly lower the pH of any water it reaches, causing potential damage to plants and wildlife.

Q.

What kind of Emergency Response training do your plant people receive?

A.

All plant personnel receive the eight-hour OSHA HAZCOM 1910.119 "Right-to-Know" training. Every three years, plant operation personnel receive training that meets the 40-hr HazWoper training requirements. Plant personnel also participate in at least one drill per year involving sulfuric acid.

MSDS

Q.

How do you measure sulfuric acid in the air, to see if you meet AEL?

A.

A "sulfuric acid mist" draeger tube is the easiest method to measure the exposure level of sulfuric acid in the air.

Q.

What is the "reportable quantity" for sulfuric acid?

A.

The "reportable quantity" for sulfuric acid is 1000 lbs. as H₂SO₄. In commodity lbs. this is about 1070 lbs. (70 gallons) as 93.2% (66° Bé) or about 1020 lbs. (67 gallons) as 98% sulfuric acid.

Q.

Is the MSDS good for <20% acid?

A.

The common MSDS produced by DuPont is good for 77-100% H₂SO₄.

Q.

What is the first aid treatment for acid exposure?

A.

The first aid treatment for sulfuric acid is fairly simply - get as much water

on the affected area, as fast as possible. Wash/rinse the affected skin area for at least 15 minutes. Follow-up the water wash by applying a clean, terrycloth soaked in ice-water. Continue to apply the ice-cold compresses until told to stop by a physician. The ice-cold compresses will "pull" the heat away from the burn area and minimize further damage to the skin tissue.

Q.

Do burn gels work for acid exposures?

A.

No. Do not apply any burn gel to a sulfuric acid burn unless specifically told to do so by a physician.

Q.

What kind (if any) training do you do with local hospitals/paramedics on acid burn treatment?

A.

The plants provide annual training/refresher training to the local hospitals/paramedics on the treatment of sulfuric acid exposures.

Q.

Are drills recommended for potential acid spill/exposure incidents?

A.

Emergency response drills are highly recommended for potential sulfuric acid spills/exposures. We conduct quarterly drills with our four rotating shift personnel, so each shift participates in at least one drill per year.