

# Sulfuric Acid-Special Precautions for Handling and Storage

## Fire and Explosion Hazards

The acid itself is not flammable, but in its higher concentrations may cause ignition by contact with combustible materials. It should therefore be isolated from organic materials, (paper, wood, etc.) and such products as nitrates, carbides, chlorates, and metallic powders.

Hydrogen is generated by the action of the acid on most metals. As hydrogen will form explosive mixtures with air under certain conditions, smoking should not be permitted near open drums or tanks. Bursting of containers can be caused by expansion due to heat or vapor pressure. This expansion can result from filling containers too full and not leaving sufficient air space in the drum; from use of air pressure for emptying; from internal pressure as a result of storing over too long a period without periodically venting.

## Drum Handling and Storage

- Labels state precautions that should be taken for safe handling and storage of drums of sulfuric acid.
- More specific precautions are as follows: Inspect drums for loose plugs and signs of leakage or damage before moving. Set aside for special handling if damage is found. Tighten loose plugs.
- Avoid rough handling of drums. Do not drop. Before emptying contents, substantially support the drums and block them to prevent movement.
- Drums should be stored with the plugs up. Storage periods of sulfuric acid in drums should be kept to a minimum.
- Drum storage outside of buildings should be avoided. Small amounts of water entering a drum of sulfuric acid could cause an explosion.
- Loosen plugs on the stored drums weekly, more frequently in hot weather, to release pressure that may build up in drums.
- Special drum vents can be used to relieve pressure buildup in drums. The plug can be removed and the vent installed, when the drum is put in storage. This will provide automatic venting when pressures exceed 5 pounds per square inch. Special metals must be used in the construction of the vents to prevent corrosion.
- Drums should be emptied by gravity only with the use of a faucet or safety siphon fabricated of material resistant to sulfuric acid. Application of pressure to the drum to remove the acid is extremely dangerous and should never be attempted.
- Never strike a drum with a tool or other hard object to loosen plugs, as resulting sparks may ignite the flammable hydrogen gas which is likely to be in the drum.

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