Nitric Acid

Chemical and Physical Properties

Nitric Acid is a strong acid and oxidizer that is incompatible with organic materials. Incompatible mixing can cause a violent release of heat and gas. A large amount of pressure can build up inside closed and partially-closed containers and can potentially rupture the container.

Health Hazards

Acute effects: Exposure to nitric acid can cause severe irritation and burns of skin, eyes, and respiratory tract.

Chronic effects: Repeated or prolonged inhalation of nitric acid vapor can cause severe inflammation of the respiratory tract, reduced lung function, and asthma-like symptoms. It may also result in deterioration of the teeth.

Safe Handling and Storage

Compatibility with other chemicals/materials

Nitric acid can react violently with organic chemicals and material to cause noxious fumes, fire, and explosions. Reactions can also produce hydrogen, which can ignite spontaneously.

Safe use of Nitric Acid

- Remove any incompatible organic material before using nitric acid.
- Always make and use nitric acid solutions in a properly vented location, such as a fume hood.

Safe Storage of Nitric Acid

- Nitric acid must be stored in a compatible containment tray and away from organic chemicals and bases.
- Nitric acid solutions may never be stored in containers that once contained organic solvents as an inadvertent reaction may occur.

Fact Sheet

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Nitric Acid (cont.)

Accidental Exposure

- **Inhalation:** Move to fresh air and seek immediate medical attention.
- **Skin Contact:** Immediately remove contaminated clothing and rinse with copious amounts of water. Seek medical attention.
- **Eye Contact:** Check for and remove any contact lenses. Rinse eyes for 15 minutes in the eyewash. Seek emergency medical attention.
- **Accidental ingestion:** Do not induce vomiting. Seek emergency medical attention.

Spill Response

Please review the Chemical Spills Fact Sheet for details regarding emergency and non-emergency spill cleanup. Review this fact sheet prior to work with chemicals in the lab and annually thereafter.

If there is a non-emergency spill within your capability to clean up, be sure not to use organic absorbing material, such as paper towels or sawdust, as a fire could result. After the initial cleanup, neutralize the area with a sodium carbonate solution and rinse with copious amounts of water.

Waste Disposal

Dispose of nitric acid in unused waste containers or containers that have previously held nitric acid solution. DO NOT re-use containers that previously contained incompatible materials, such as organic solvents.

Additional Information

Contact your Research Safety Service Partner for additional questions about safe use, storage, and disposal of nitric acid.

Resources

Prudent Practices Lab Safety Summary—Nitric Acid

Pub Chem Nitric Acid Laboratory Chemical Safety Summary (LCSS)

Video of the reaction between ethanol and nitric acid