INFORMATION ON PICRIC ACID

Explosive when dry

Picric acid (CAS No. 88-89-1, *2,4,6-trinitrophenol, picronitric acid*) is a pale yellow, odorless crystal that is slightly soluble in water. It is primarily used as a staining reagent and in synthesis reactions. When hydrated, it is typically harmless, but when dry can be a powerful explosive. Dry picric acid is highly sensitive to heat, shock, and friction. Additionally, it is a toxic substance by all modes of exposure (i.e., inhalation, ingestion, and dermal contact). Picric acid reacts with a wide variety of materials (e.g., concrete, plaster, amines, bases, and metals such as lead, zinc, copper, and mercury) to form picrate salts, which are more reactive and shock sensitive than the acid itself.

STORAGE AND HANDLING

Purchasing:

- Purchase of picric acid should be restricted to the smallest practical quantities.
- If possible, eliminate solid picric acid from your inventory by purchasing premixed stains or a 1% solution for use in stain preparation.

Storage:

- Label containers with date received and date opened.
- Store in original container in a cool, dry, well-ventilated area away from sources of heat.
- **Keep wet** – material should be a wet paste and **greater than 10% water by volume**.
- Check for evidence of dried crystals (see handling section) and rehydrate contents with DI water every 6 months as needed and document on bottle.
- Dispose after 2 years of storage.
- Picric acid is classified as Stanford Chemical Storage Group X, and must be stored separately from all other chemicals.

Handling:

- Do not use metal spatulas to remove picric acid.
- Clean the bottleneck, cap and threads with a wet cloth before resealing.
- If handling picric acid contained in a jar, gently tilt bottle to see if crystals roll over each other. If they do, the acid is dry and capable of explosion.
- Dried crystals may also be present within threads of screw top containers and present a detonation hazard when opening the container. If the acid appears dry or crystallization occurs, do not open or handle the container. Contact EH&S at 725-9999 immediately.

POTENTIAL HEALTH EFFECTS

- The most serious hazard associated with this chemical is the risk of explosion if the acid is dry.
- Picric acid is toxic if swallowed, inhaled, or absorbed through the skin. Inhalation of dust may cause lung damage. Chronic exposure may cause liver or kidney damage. It is a skin irritant and allergen.
- See SDS for additional signs/symptoms/health effects.

EMERGENCY PROCEDURE

- Very small spills (< 30 mL) may be absorbed with wet paper towels. Keep cleaning materials wet and collect for disposal. Collect all picric acid-containing wastes in plastic or glass bottles for disposal by EH&S.
- See SU's Laboratory Chemical Safety Toolkit for additional guidance on emergency spills or exposures: http://chemtoolkit.stanford.edu/emergencies.

EXPOSURE CONTROLS/PERSONAL PROTECTION

- **Engineering Controls:** Use picric acid in a certified fume hood to reduce risk of inhalation.
- **Personal Protective Equipment:** Wear lab coat with fully extended sleeves, safety glasses or splash goggles, nitrile or neoprene or other picric acid-resistant gloves (latex is not effective), long pants, and closed-toe shoes. Other PPE may also be required, such as a faceshield, apron, etc.

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