Picric Acid

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. Picric acid is highly sensitive to heat, shock and friction and, additionally, is a toxic substance by all modes of entry (i.e., inhalation, ingestion, dermal contact). Picric acid is highly reactive 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.

Purchasing

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

Storage

- Label containers with date received and date opened.
- Store in original container in a cool, dry, wellventilated 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 every 6 months with DI water as needed and document on bottle.
- Dispose after 2 years of storage.
- Store separately from oxidizers, reducing agents, inorganic salts, metals (copper, lead, zinc, aluminum + water), ammonia, concrete, plaster, salts, gelatin, alkaloids and albumin.

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 container. If acid appears dry or crystallization occurs, do not open or handle the container. Contact EH&S at 644-6895 immediately.

Potential Health Effects

- The most serious hazard associated with this chemical is the risk of explosion, which is severe if the acid is dry.
- 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 (<30mls) may be absorbed with wet paper towels. Keep wet and collect for disposal. Collect all picric acid-containing wastes in plastic or glass bottles for disposal by EH&S.

Exposure Control/Personal Protection

Engineering Controls: Use picric acid in a lab 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), pants, and closed-toe shoes. Other PPE may also be required such as faceshield, apron, etc.

Guidelines graciously provided by Standford University