



Occupational Safety and Health Guidelines for Picric Acid



BACKGROUND

Picric acid, also known as Tri-Nitro Phenol, is a military explosive that is used as a booster charge to set off another less sensitive explosive, such as T.N.T. It is also used in the manufacture of medicinals. It tends to form dangerously sensitive and unstable picrate salts, such as potassium picrate, if the acid is kept for a long time or if improper storage allows the liquid to evaporate. For this reason, it is usually produced as ammonium picrate, a lesser reactive form. Many hospitals have phased out the use of picric acid but may not have disposed of the resulting surplus. Over a period of time, unused acids will become unstable as salt crystals develop.

HEALTH HAZARD INFORMATION

Exposure results from inhalation, eye or skin contact, or ingestion. Old picric acid may contain picrate salts. Simply turning the lid on a bottle containing these salts may initiate an explosion.

Effects of Overexposure

- ◆ Health Risks
- ◆ Danger Warnings
- ◆ Proper Procedures
- ◆ Skin and eye irritation, allergic skin rash, and yellow staining to skin and hair.
- ◆ Headaches, dizziness, nausea, vomiting and diarrhea.
- ◆ High doses may cause destruction of the red blood cells, damage to kidneys and liver, skin color and other tissues to turn yellow, and yellow-tinted vision.

Recommended Medical Surveillance

The following medical procedures should be completed by each employee exposed to picric acid and repeated on an annual basis.

- Medical history and physical examination
- Urinalysis
- Liver function tests

Contact a physician if anyone develops signs or symptoms of exposure.

*Medical Safety and Health Program
U.S. Army Center for Health Promotion and Preventive Medicine
Aberdeen Proving Ground, MD 21010-5422
DSN 584-3040 or Commercial 410-671-3040
email: mchdshh@aeahal.apgea.army.mil*

Personal Protective Equipment

- ◆ Impervious clothing, gloves, and face shields are required.
- ◆ Clothing must be changed before leaving the work premises.
- ◆ Contaminated clothing should be placed in closed containers until the clothing can be discarded or until picric acid is removed from the clothing.
- ◆ Dust- and splash-proof safety goggles are required.
- ◆ Respirators may be used for operations which require entry into tanks or closed vessels, or in emergency situations.

Sanitation

- ◆ Wash with soap or a mild detergent, body areas which may have contacted picric acid at the end of each work day.
- ◆ Eating and smoking are prohibited in areas where picric acid is handled, processed, or stored.
- ◆ Wash hands thoroughly with soap or mild detergent and water before eating, smoking, or using toilet facilities.
- ◆ If eyes become contaminated, irrigate immediately, if swallowed, seek medical attention immediately.

Spill Procedures

- ◆ Persons not wearing protective equipment and clothing should be restricted from areas of spills until cleanup has been completed.
- ◆ If picric acid is spilled, these steps are to be taken:
 1. Remove all ignition sources.
 2. Ventilate area of spill.
 3. Attempt to reclaim spilled material; however, do not sweep or bum unless this is supervised by explosive experts.

Recommendations and Disposal Procedures

- ◆ Conduct an inventory of high-risk areas - laboratories, material storage, and other places where picric acid may be stored. If your facility still uses picric acid, ensure it is handled properly.
- ◆ If you find picric acid in your facility, contact your Environmental Science Officer, Safety Manager, or Hazardous Waste Manager for handling and disposal guidance. Do not handle or attempt to dispose until someone knowledgeable of picric acid has examined it.
- ◆ If your facility still uses picric acid, order and keep on-hand only what you will use in a reasonable time. Order small bottles, and use one completely before opening another. Remember to follow handling and storage guidance on the MSDS; wear personal protective equipment at all times when working with this acid.