

TCE-based products in ultrasonic gun cleaning baths



Because TCE is effective as a metal degreaser, it is sold as a solvent for use in ultrasonic gun cleaning baths. Employees are exposed when breathing vapors from the bath and when handling the solution or firearms without the proper gloves.

If your facility no longer uses this process, be aware that there is a potential for TCE exposure from the cleaning solutions if they are still stored on-site. During a recent PEOSH inspection, an abandoned ultrasonic bath was found at a law enforcement facility in an area where firearms were cleaned. Indoor air sampling results at this facility showed TCE at levels that may increase the risk for harmful health effects.*



NJDOH recommends the following:

Active Use of Ultrasonic Bath

- Replace TCE-containing chemicals with less hazardous substitutes.
- Install LEV to capture vapors from the bath.
- Wear proper protective chemical-resistant clothing, gloves, and eye protection.

Abandoned Ultrasonic Bath

- Properly dispose of bath cleaning solutions and stored containers.
- Do NOT pour TCE down the drain!

*TCE levels below $2\mu\text{g}/\text{m}^3$ (micrograms of TCE per cubic meter of air) are not expected to cause harmful health effects according to the federal Agency for Toxic Substances and Disease Registry (ATSDR)

Cleaning guns at home?

- Review the information in this brochure.
- Clean your gun in a well-ventilated area.
- Avoid cleaning your gun inside your house or apartment.
- Double-check that the gun is not loaded and that it is not pointing toward you or anyone around you.
- Wear goggles or safety glasses.
- Use the correct type of gloves.
- A dust mask does not protect you against chemical vapors.
- Familiarize yourself with the precautions regarding handling, first aid, storage, and accidental spills.
- Discard all expired or empty cans/bottles containing TCE at your county's hazardous waste collection event.
- Be safe!

Aim for Safe Gun Cleaning

Your Health Does Matter



Public Employees Occupational Safety and
Health (PEOSH) Unit
(609) 984-1863
[http://www.nj.gov/health/workplacehealthandsafety/
peosh/](http://www.nj.gov/health/workplacehealthandsafety/peosh/)

Health Advisory

The Public Employees Occupational Health and Safety (PEOSH) Program in the New Jersey Department of Health is issuing this advisory to alert law enforcement personnel about the health hazards associated with trichloroethylene (TCE), an ingredient found in gun-cleaning products.

Why is TCE Considered a Health Hazard?

- At low levels, TCE can cause harmful effects on the central nervous system, liver, kidneys and reproductive system, and can affect fetal development during pregnancy.
- It can also cause eye, nose, and throat irritation. Repeated or prolonged skin contact can cause redness, rash, blistering, and scaling.
- The National Toxicology Program, the EPA, and the International Agency for Research on Cancer have determined that TCE can cause cancer.

Scientists have linked TCE exposure to abnormally low sperm counts in males.

Also, TCE presents a risk to women of child-bearing age including pregnant women as short-term exposures can potentially affect a developing fetus.



How Do You Become Exposed to TCE While Cleaning Your Gun?

A common route of exposure is inhalation. TCE is taken in through the lungs, passed into the blood, and carried to other parts of the body. Skin contact is an also important route of exposure.

How Can You Tell if a Gun-Cleaning Product Contains TCE?

- Many manufacturers do not list all the product ingredients on the label.
- Therefore, search the Internet for the product Safety Data Sheet (SDS, formerly MSDS) to find what chemicals are in the gun-cleaning product you are using. **IMPORTANT:** In addition to trichloroethylene, TCE is sometimes labeled as acetylene trichloride, ethylene trichloride, trichloroethene, or Tri.
- The SDS/MSDS provides information about the hazards of a product and advice about safety precautions.
- It is good practice to read the SDS/MSDS of all gun-cleaning products since they likely contain a potentially hazardous solvent.



How Do You Prevent Exposure to TCE While Cleaning Your Gun?

Substitution — Switch to an alternative solvent that does not have the reproductive and cancer risks of TCE.

Ventilation — Local exhaust ventilation (LEV) is recommended in a workplace setting. This is a system designed to enclose, or capture and remove air at the source of exposure. Employers should have a hazard assessment conducted to determine what type of LEV is needed.

Skin Protection — Avoid skin contact. Wear chemical protective gloves. The following gloves are recommended: PVA™ (Polyvinyl Alcohol); Silver Shield™/4H™; Viton™; Barrier®.

Eye Protection — Use non-vented, impact and splash-resistant goggles.

Who Do I Contact About Health Concerns?

Law enforcement personnel with health concerns may have their health care provider contact the Environmental and Occupational Health Sciences Institute (EOHSI) of Rutgers University located in Piscataway, NJ. The physicians at the EOHSI Clinical Center specialize in occupational and environmental exposures to contaminants and can provide additional guidance.



The EOHSI Clinical Center can be reached at (848) 445-0123.