Laboratory Safety
Newsletter
Winter 2026

Yale *Environmental Health & Safety*

This issue

Tips to Avoid Slips

Employee injuries due to ice or snow have ranged between seven and 21 per winter season over the past few years at Yale. Just in the past two months, 10 employees suffered injuries resulting from icy conditions. These injuries can lead to time off work, physical therapy, and lasting impacts on quality of life. Please review the following tips to help reduce the risk of slipping and falling:

- Assume all wet or dark areas are icy in cold temperatures, and ice may be hidden under fresh snow.
- Wear shoes or boots with non-slip soles and consider traction aids (**example 1**, **example 2**).
- Exercise caution when transitioning between different floor types. Wet shoes may perform differently on various surfaces.
- Use three points of contact when entering and exiting vehicles.
- Walk in cleared, designated paths and avoid shortcuts.
- Keep hands free and avoid carrying items.
- Adjust your pace in slippery conditions and walk flat-footed with short steps.

Safety Spotlight: Isopropyl Alcohol & Peroxide Risks

Isopropyl alcohol (isopropanol, 2-propanol, IPA) is a common organic solvent frequently used in laboratories, machine shops, and, in low concentrations, as an antiseptic wound cleanser. The primary hazard is flammability, but it also poses health hazards, including central nervous system toxicity and eye irritation.

While IPA is not classified as a significant peroxide forming chemical (PFC), it can form and accumulate meaningful peroxides if left exposed to air, light, metal contaminants, or certain chemical mixtures. Among the more hazardous IPA solutions are pH-adjusted HPLC cleaning solvents with acids like trifluoroacetic acid, in which peroxidation may be accelerated.

Like some secondary alcohols that are classified as Class B PFCs, IPA can become dangerous if concentrated by evaporation or distillation. However, peroxide formation in IPA has been reported only under unusual or neglected conditions, so it is not explicitly tracked here at Yale. IPA must be stored in tightly closed containers away from light and heat, and precautionary lab practices must be followed to prevent peroxide formation.

Since 2023, Yale EHS has disposed of two acidified IPA bottles, which had developed visible peroxide crystals. Both containers were clear glass bottles using vented caps for HPLC tubing, mixed with acids for system cleanings, and neglected for more than two years - all conditions which accelerated peroxidation. One of the containers was created by the service engineer who installed the instrument without properly labeling or disposal after use. Fortunately, both containers were found and safely neutralized before serious injuries occurred.

Continued on next page

Isopropyl Alcohol & Peroxide Risk Incidents and Reminders

INCIDENTS AT UNIVERSITIES

- An EHS technician at Iowa State University sustained severe lacerations and trauma to their hands, face, and neck when a waste bottle containing IPA exploded. Peroxide crystals had formed in the bottle after it had been left on an HPLC for 5-10 years and detonated when it was handled.
- A glass bottle with residual IPA and other solvents exploded during waste processing at the University of Minnesota. Peroxide crystals had accumulated as the solvent evaporated and caused an explosion that tore the cart in half, blew open doors, and shattered glass in adjacent rooms when the bottle was discarded. Fortunately, no major injuries were reported.

KEY LAB SAFE PRACTICES

- Consider replacing IPA used for cleaning with ethanol, where feasible.
- Store IPA in tightly sealed opaque plastic or amber glass containers away from heat and light (in a flammable cabinet) and avoid using metal tools that could introduce contaminants.
- Ensure IPA secondary containers are freshly prepared and dispose of them after use, avoiding use of squirt bottles.
- Do not pour unused portions of peroxide forming chemicals back into source bottles.
- All PFCs should be labeled with a bright pink warning label. Labs must record the receipt, opening, and peroxide testing dates per Yale EHS PFC Safety Guidelines.

SAFETY REMINDER

If you notice cloudiness, crystals, or wisps in IPA containers, do not move or open it. Contact the EHS Emergency Line immediately at 203 785-3555.

Update: Laboratory Safety Program Training

In January 2025, EHS introduced an enhanced Laboratory Safety Program training through Workday Learning. This program must be completed by all university personnel who work in or are responsible for any type of laboratory on campus.

The training offers a comprehensive overview that includes:

- updated information on previously covered topics.
- engineering controls, compressed gases, cryogens, physical, and electrical safety.
- ergonomics and emergency preparedness.
- relevant policies, including Yale's Working Alone in Laboratories policy.

Completion of this training is mandatory to ensure that all individuals are well-informed about current laboratory safety standards. The program also requires a triennial refresher course (every three years) to keep everyone up to date on the latest safety procedures, policies, and emergency protocols.

If you have not yet completed the updated training, please do so as soon as possible.

Yale University Hotline

Speak up! Yale community members are strongly encouraged to raise concerns about compliance, integrity, ethics, or other violations of Yale policy — without fear of retaliation. There are multiple ways to raise your concerns in either an anonymous or identified way, including the University Hotline. Report online at your.yale.edu/hotline.