



U.S. DEPARTMENT OF
ENERGY



**UNIVERSITY OF
CALIFORNIA**

Dry Ice Over Pressurization

What happened:

- Researcher put crystals in vial and over-packed in plastic jug with dry ice to keep crystals cold.
- Researcher proceeded to crystallography lab and upon trying to open the jug it ruptured from the pressure.
- Crystallography facility employee sustained cuts to the face.



Key Takeaways:

- Never containerize any cryogen!
- Practice ISM for every task.

Electrical Shock at ALS

What happened:

- An employee was troubleshooting a stepper motor, plugging and unplugging control cables.
- At some point a custom-made cable was wired to match a 5-wire LEMO connection to a 4-wire connection. The 5th wire (ground) was not connected. One of the phase wires came loose and energized the connector body.
- When the person brushed up against the connector, they received a shock to the hand.
- Employee reported the shock to a supervisor the next day.



Key Takeaways:

1. Custom fabricated cables must be assembled by a QEW.
2. If you come across a custom fabricated cable never assume it's wired properly unless you check it.
3. Report shocks immediately.

NREL Phosphine Exposure

What happened:

- A researcher prepared a sample using a Nanocrystal RF Plasma Reactor using phosphine as source gas.
- The researcher transferred the nanocrystals from the reactor to an argon-filled glovebox for collection and processing. He collected 5 mg of the nanocrystals onto a 1" wafer. He placed the wafer into a plastic sample carrier case (not air tight), removed it from the glovebox.
- When he opened the sample container to load it into the XRD, he immediately detected an unpleasant odor that seemed characteristic of phosphine gas and developed dizziness and shortness of breath.

Key Takeaways:

1. Look at processes that use toxic gases or toxic materials for weak points in the procedure that could expose researchers.

Peroxide test strip program

Submit requests to EHS using the [Peroxide Test Strip Request Form](#)

- Request form is available on A-to-Z index under **P**eroxide Test Strips and **T**est Strips, on CMS notification emails (link to Section 9 – Testing), and in the CHSP

Strips packaged in a labeled glass vial will be shipped to the requester using LBNL inter-campus delivery (delivery time up to 1 week, 2-3 days typical)

A 1-page [EHS Peroxide Testing Quickguide](#) with testing instructions will be included and available electronically

Sample label for vial:



Time Sensitive Chemicals Management

Wall to wall inventory is completed!

Chemical clean out is ongoing.

Paul will be reaching out to people w/ TSC to verify.



Chemical owners can decide how to manage their TSCs w/ consultation from EHS.

Emails from CMS; in the week a new TSC is added to inventory, and quarterly reminder for management.

DOE team on site next week

Effectiveness review related to NFPA 45.

Please look over your labs and insure that they are in good order.

- Housekeeping, seismic restraint, cylinder chains, refrigerator labeling, and door signs.
- Secondary container labeling (name and hazards at minimum).
- Correct common chemical segregation issues (e.g., purely alphabetical storage).
- Check labs for proper storage of flammable/combustible liquids not in use or staged for use, properly self-closing flammable cabinets, and secondary containment for squeeze bottles on bench tops.
- Survey time-sensitive chemical and peroxide forming chemical use and testing, and ensure researcher familiarity with policy.

DOE team on site next week

DOE auditors may ask about these topics:

- Ensure that researchers are familiar with the Global Harmonized System (GHS) and that signage is not outdated (e.g., references to MSDS).
- Open flame operations/Bunsen burners have appropriate permits, WPC activities/hazards & controls, and clear space for operation.
- Unattended heating operations involving materials that pose a fire or explosion hazard and ensure appropriate over-temperature control.
- Review the Lessons Learned from my email.