Trizol Exposure- June 2018

What happened?

On June 29, 2018, a researcher in a Biological Science Division lab was working with TRIzol reagent isolating nucleic acids from cells. TRIzol reagent is a phenol solution with guanidine isothiocyanate and ammonium thiocyanate. As such it has a strong phenolic odor. The researcher was using 1mL of TRIzol per sample for a total of 44 samples. After an extended amount of time working inside a chemical fume hood that had both a vertical sash and horizontal panels, the researcher started experiencing some symptoms of chemical exposure including lightheadedness and shortness of breath. After consulting with the Safety Data Sheet the researcher went outside to get fresh air. While outside it was noted that they began to look pale and expressed numbness in their extremities. The researcher was then escorted by a colleague to University of Chicago Occupational Medicine (UCOM). The researcher quickly recovered and was released without any restrictions.

What was the cause?

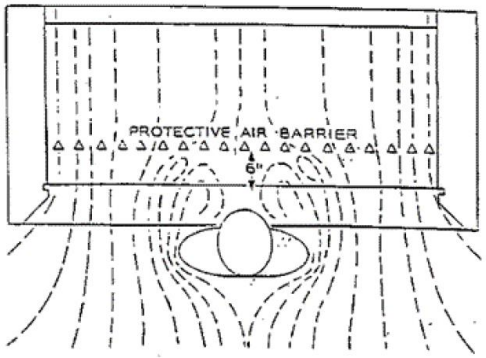
The exposure to TRIzol reagent was likely due to improper use of the chemical fume hood. The fume hood's vertical sash was completely closed, however the horizontal panels were in the fully opened position. When using the horizontal panels a panel should always be positioned between the work and the researcher. This prevents the researchers head from accidentally entering the fume hood and forces the researcher to work deeper inside the hood preventing fumes from escaping the containment. Part of the reason the vertical sash was not in use and only the horizontal panels were used is because the vertical sash is broken making the raising and lowering of the sash difficult.

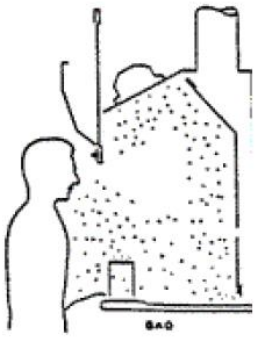
What were some of the things done well?

- The researcher was using a chemical fume hood that was certified within the past year
- The chemical fume hood was relatively uncluttered
- The researcher knew where the Safety Data Sheets were and accessed them quickly
- The researcher was escorted by a colleague to UCOM
- The researcher submitted a UCAIR report when they returned to the laboratory

What are some lessons learned from the incident?

- When working in a chemical fume hood keep all chemicals at least 6" inside to maintain containment





Office of Research Safety
University of Chicago
920 E. 58th Street, CLSC 145
Chicago, IL. 60637

Ph: 773-834-2707
F: 773-834-2766
E: ResearchSafety@uchicago.edu

- When using a fume hood with horizontal panels keep a panel between you and your work

- Only hands and arms should enter the fume hood, never stick your head inside the fume hood
- If an engineering control (e.g. fume hood) is not functioning properly submit a work request with Facilities Services (773.834.1414) or Physical Plant (773.702.6295) and follow up with the Office of Research Safety (researchsafety@uchicago.edu, 773.834.2707)

Resources

1. University of Chicago's Chemical Hygiene Plan template https://researchsafety.uchicago.edu/page/policies-and-safety-manuals
2. UC Berkeley video on Proper fume hood usage https://www.youtube.com/watch?v=A4AHxLnByts
3. UC Davis SafetyNet #35 https://safetyservices.ucdavis.edu/safetynet/how-use-chemical-fume-hood-safely
4. University of Illinois Division of Research Safety Chemical Fume Hoods https://www.drs.illinois.edu/SafetyLibrary/ChemicalFumeHoods