

## Improper Handling of Chemical Wastes Results in Unstable Mixture – September 2012

### What happened?

A researcher was using nitric acid to clean glass slides and disposed of this along with aqueous washings from the slides into a glass chemical bottle containing nitric acid and water. The researcher then mistakenly added methanol to the acid waste bottle.

The addition of methanol to nitric acid can form methyl nitrate, which is potentially unstable and explosive. The researcher moved the waste bottle from the acid cabinet to the fume hood and waited a week. He observed gas bubbles in the container and opened the lid to release any built-up pressure. The solution bubbled vigorously, so he closed it. After placing the waste bottle behind the blast shield in the fume hood, the researcher contacted the EHS office.



Waste bottle  
behind blast shield.

### What was the cause?

Even though the container was labeled acid waste the researcher made a mistake by adding the methanol. Not paying close enough attention to the proper handling of chemical waste resulted in this incident.

### **What corrective actions were taken?**

EHS lab safety and chemical waste personnel went to the lab with the researcher. EHS personnel removed the other chemicals from the fumehood, taped the fumehood closed, posted signs and hazard tape on the fumehood, and removed the pipe under the fumehood sink and placed a container there to hold liquid in the event that the waste bottle broke.

The researcher was instructed to not enter the lab and to notify all other lab personnel about the lab closure. A contractor specializing in handling reactive chemicals was brought in to neutralize and stabilize the container for removal and disposal.

### **How can we prevent incidents like this?**

- Notify EHS immediately when an incident occurs. Do not wait.
- Review the importance of not mixing incompatible chemicals.
- Segregate incompatible chemicals whenever possible.

### **Resources**

1. Bretherick's Handbook of Reactive Chemical Hazards, 6th Edition, P.G. Urban, ed., 1999
2. [Prudent Practices in the Laboratory, Handling and Management of Chemical Hazards, National Research Council, 2011](#)