

LESSONS LEARNED

September 2012

The following is a summary of a recent incident at Columbia University. The information presented is intended to provide awareness and help readers plan against the occurrence of a similar situation in their laboratory or work area.

Incident Impacts Softened by Well Trained Students

The impacts of a serious situation were softened by well-trained students when an organometallic chemical reaction ended in a small explosion and chemical exposure. A student was splashed on the leg with a hexylmagnesium bromide solution when cooling reagents unexpectedly reacted, causing a small explosion in the chemical fume hood.

The student, who was wearing lab appropriate clothing, chemical-resistant gloves, a flame-resistant lab coat, and eye protection at the time, immediately moved away from the chemical fume hood, removed their contaminated clothing, and rinsed their leg beneath the overhead emergency shower. Nearby students came to the affected student's aid by notifying Public Safety, Environmental Health & Safety (EH&S), and retrieving the Safety Data Sheet (SDS).

The students, trained in [Laboratory Safety](#) by EH&S, and some certified in the [Supervision of Chemical Laboratories](#) by the New York City Fire Department, reacted admirably during this event.

Post-analysis of the incident revealed a change in reaction protocol. A cooling process used during the experiment, which was completed safely and successfully a few times prior to the incident, was shortened. The decrease in cooling time is suspected as playing a role in the unintended reaction that triggered the small explosion, and subsequent chemical exposure.

Lessons Learned

- Knowing where the emergency equipment (eyewash, emergency shower, fire extinguisher) is and how to use it can be the difference between minor consequences and serious injury.
- The combination of properly-selected PPE and appropriate street clothes worn by the affected student minimized contact with the reagent and consequently limited the physical impact of the incident to a minor chemical burn.
- The successful completion of an experiment is synonymous with the safe completion of an experiment. Adjustments to an experiment can modify both scientific and safety outcomes. Seeking the peer-review of another researcher, or principal investigator, before modifying an experiment is always a step toward enhanced laboratory safety and incident prevention.

For further information on this or any other safety related matter, please contact the [EH&S office](#).