Skin Protection Fatality File

A laboratory researcher suffered a delayed chemical burn after only a few drops of a highly corrosive organic chemical splattered on his unprotected left forearm. The burns first appeared hours after exposure, got worse overnight, and eventually required treatment at a hospital.

Working in a fume hood, a researcher was drying a large quantity of oleylamine (CAS# 112-90-3) in a 250ml three-neck flask under pressurized argon. After cooling the flask, he proceeded to transfer the contents to a bottle. As he removed the septum from the neck of the flask, a small quantity of oleylamine spurted from its neck and a few drops landed on his forearm. He subsequently went to a nearby restroom and briefly (less than one minute) washed the affected area of his forearm with soap and water. A few hours later he noticed a minor burn mark near his wrist. Late that same evening he noticed that several other burn marks had formed on his forearm. By morning a few of the burn marks had developed blisters and he went to the hospital where he was treated.

The accident investigation revealed that the researcher:

- Had performed this operation dozens of times before without injury, so he was not particularly worried about it.
- Was not familiar with the high corrosivity of the chemical, and he expected it to wash off quickly with soap and water.
- Was not wearing a lab coat or other protective clothing (there were no burns where his arm was protected by his short-sleeved shirt).
- Was concerned about being late for a group meeting and therefore ran a higher-than-normal argon pressure, hoping to expedite the procedure.

Lessons Learned

Study the Material Safety Data Sheet (MSDS) before using a chemical. The MSDS for oleylamine states the following health effects, exposure controls, and first aid measures when it comes

to skin exposure:

- Causes skin burns.
- Wear appropriate protective clothing to prevent skin exposure.
- Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing.
- Always wear a lab coat or other appropriate protective clothing when working with corrosive materials. When working in a fume hood, the sash protects the torso and face but not the arms. The Chemical Hygiene Plan (CHP) should require that a lab coat be worn during such procedures and these coats should be provided to all researchers. The laboratory where this accident occurred now has instituted a policy that lab coats are required.