



The University of Akron
College of Polymer Science
and Polymer Engineering

Office of Operations - Safety Office

LESSONS LEARNED

March 2019 - Sulfuric Acid Spill

What Happened? *Following safety rules significant in eliminating severe acid burn with permanent scarring.*

Researcher was performing a routine procedure cleaning samples with piranha solution. After placing a beaker of substrate in the hood, the researcher reached down to take a bottle of sulfuric acid (H_2SO_4) from the acid cabinet beneath the hood to pour into the beaker. At this time the bottle broke because it was already cracked, or it was just slightly tapped on the bottom to cause it to break. The contents of the bottle dispersed quickly onto the researcher's lab coat and sneakers. The researcher quickly went for the safety shower with the help of another researcher just coming into the lab. There is a small delay in the water filling into the pipe to the shower head and the researcher decided to rush to the bathroom to rinse her foot. Researcher was wearing a lab coat, safety glasses, gloves and closed toe shoes. Health and Safety was notified promptly, and the researcher was evaluated at the Student Health Center with very minor burns.



Lab coat provided much needed protection



Laces and top of shoe completely gone



Lab coat protected upper legs



What was the cause?

Accidental break of the jar during removal from cabinet. Acid bottles do not have plastic coating in the glass to protect from breaking easily. Most brown chemical bottles have more protection built into the glass.

What went wrong?

- Hazard of working in research that involves chemicals.
- Possibly too many chemical bottles in the storage to make easily accessible.
- Hood space limited due to needed equipment.
- Only one person in the research group watched the Safety Shower videos from the March Safety Focus.

What went right?

- Researcher was wearing lab coat, safety glasses, closed toe shoes and gloves.
- Researcher was quickly helped by another researcher.
- University of Akron Health and Safety was contacted immediately.
- Researcher knew to take shoes and socks off.
- Researcher knew the chemical being used, its hazards and emergency actions to take.
- Researcher was trained in the process and there were written procedures.

What corrective action was taken? -

- Research group to buy smaller bottles of acid
- Research group to review the use of the safety shower

How can incidents like this be prevented?

- This incident had a positive outcome because the researcher followed the safety rules and wore a lab coat, safety glasses, gloves and closed toe shoes. The researcher minimized her risk of being exposed to an accident and it worked! Great job to this researcher for following the rules!

Quote from Researcher in the incident report:

“the safety rules were being followed and they were really adequate. I have totally understood their importance because each thing had played a significant role of saving me from the acid.”