

Lab Safety Alert

Defective chemical bottle

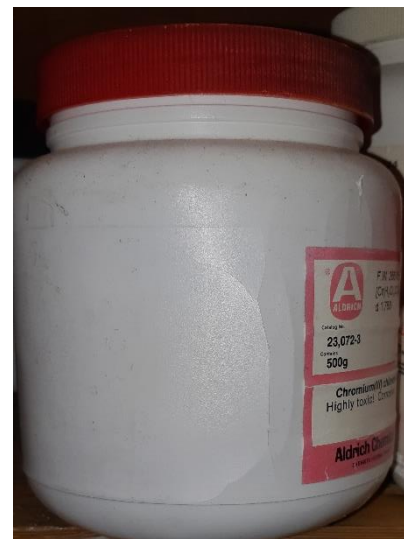
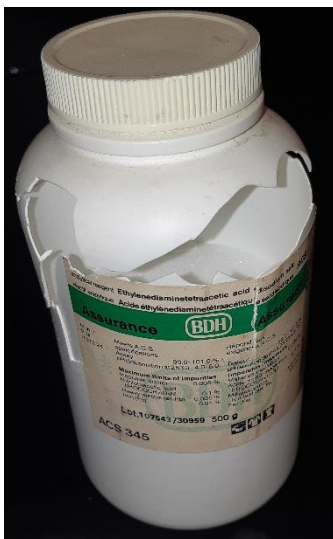
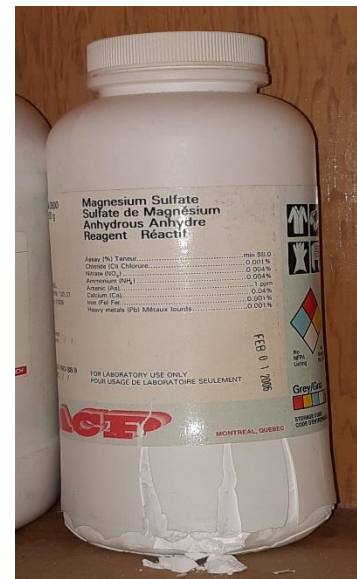
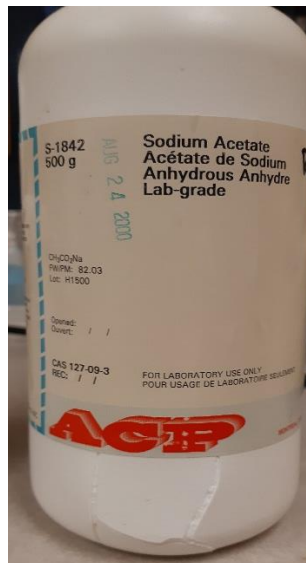


INCIDENT DATE: February 26 2021
SUBJECT: Defective chemical container

BACKGROUND:

Lab personnel were updating their chemical inventory. One lab worker was standing and handling the chemical bottles to read out the chemical names and details to another lab worker that was entering the info on a laptop. They were both wearing eye protection, lab coats and gloves. The first lab personnel reached up to a shelf above the bench to grab the next chemical container above head level. As they grabbed it to bring it down to around head level to read the label, their fingers broke right through the brittle plastic. The chemical, 500 mL of Safranin dye, spilled out everywhere onto the floor, counter bench and all over the lab worker's upper body (hand, arm, head, neck and down their chest).

EXAMPLES OF DEFECTIVE PLASTIC CHEMICAL BOTTLES FOUND AT UVIC





INJURIES

The lab worker doused with the Safranin dye immediately rinsed themselves at the nearest emergency shower in the adjacent lab. The emergency shower was slightly obstructed and the water from the emergency shower was too cold to remove the red dye with soap. The lab worker then went to a warm shower located on a different floor and was able to remove the dye from their skin.

EQUIPMENT DAMAGE

The Safranin dye stained the floor and bench top even after extensive washing and mopping.

IMMEDIATE CAUSE

The chemical container broke because the plastic material was old and brittle. Plastic bottles and caps degrade over time due to various factors, like UV light, such that containers around 10 years old or older are the susceptible to break.

LEARNING OUTCOMES

A stool to elevate the lab worker for a better vantage point to assess chemical bottles would have prevented the chemical from spilling all over their upper body. There was no written date on the container label when the chemical was received nor opened. It was not known how old the container was and remained in the inventory over the years. A written date on the chemical container would have helped lab workers decide to dispose the chemical via hazardous waste much sooner or be careful when handling the container.

RECOMMENDATIONS TO PREVENT RECURRENCE

- Use a stepping stool to reach overhead items
- Write on chemical label date received and/or date opened
- Assess for cracks and defects on chemical bottles before handling them
- Use a secondary container when handling old and brittle chemical containers
- Dispose old chemicals (10+ years) and defective bottles
- Transfer chemicals to new bottles if defects found in original containers
- Know where warm emergency showers are located
- Do not block life safety equipment such as emergency showers and eye wash stations
- Ensure SDS of chemicals are readily available online or print within the room

For more information on chemical storage:

<https://www.uvic.ca/ohse/research/laboratory/chemical-storage/index.php>

For more information on WHMIS:

<https://www.uvic.ca/ohse/research/laboratory/whmis/index.php>

For more information on hazardous waste:

<https://www.uvic.ca/ohse/environment/waste/index.php>