

INCIDENT DATE: August 2025

BACKGROUND

A research group was moving into a laboratory from a retired professor. There were chemicals left behind they had to clear out. There was a chemical inventory available however it did not include the locations of each chemical. They were wearing PPE eye protection, lab coats and gloves. When they started to review each bottle and clear out the solvents in the flammable cabinet. There was a shelf with five 1L bottles and a box with chemicals. As soon as they grabbed a bottle from the shelf, a bracket holding the shelf popped out and caused the shelf to be unstable. They contacted OHSE for assistance. Caution was taken to first remove the solvent bottles in the bottom of the flammable cabinet. They attempted to first remove box of chemicals however as soon as it moved the shelf tipped. The five bottles fell out of the flammable cabinet, crashed on the floor and three broke causing the contents to spill out. Two were solvents and one was a white powder. Spill pads were used to immediately to cover. The solvents started to evaporate causing an unpleasant intense odour and eye irritation. They evacuated the room to call for additional assistance. OHSE advised to close the lab overnight to allow the ventilation system to exhaust the evaporating solvent. A clean up was conducted the next day.

INJURIES

One individual had solvent spill on their shoes and pants. They immediately went to the hallway emergency shower to rinse their lower legs. Fortunately, they were not injured.

EQUIPMENT TYPE

There was no equipment or floor damage.



IMMEDIATE CAUSE

The next day, the three broken bottles were identified as triethylamine, ethyl acetate and paraformaldehyde. Triethylamine is a flammable solvent with corrosive properties and paraformaldehyde is a flammable solid. The flammable cabinet shelf was examined and found that three of the five shelf brackets had popped out such that the shelf was balancing on two brackets.

LEARNING OUTCOMES

The main factor that lead to the incident is the unstable shelf in the flammable cabinet due the popped out brackets and an inadequate plan to stop it from tipping. It is unclear when other brackets popped out but it appeared they have popped out for some time prior to the incident. The researchers established the shelf was unstable and to be cautious but should have included a plan or assess how to keep the shelf stable in the process of clearing out the cabinet. Another learning outcome from this incident is the inadequate chemical inventory of the laboratory. Although the lab had a list of all the chemicals present, the locations of each chemical was not written and hampered efforts to identify what the solvents & white powder solid that spilled. Knowing in advance what the chemicals are is important to review the Safety Data Sheets (SDSs) for emergency response efforts for exposures and/or clean up.

RECOMMENDATIONS TO PREVENT RECURRENCE

- Inspect regularly integrity & stability of cabinet shelves that store hazardous materials
- Ensure any hazardous conditions are fully communicated and understood by all parties involved (importance of information transfer)
- Conduct hazard & risk assessments
- Ensure chemical inventories are updated annually and include locations

More information for laboratory supervisor responsibilities:

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

More information on chemical inventory & chemical storage:

<https://www.uvic.ca/ohse/research-safety/chemical-safety/index.php#ipn-chemical-safety>

More information on hazard and risk assessments

https://www.uvic.ca/ohse/_assets/docs/lab-safety-folder/hazard-risk-assessment_template.pdf

More information on SDS

<https://www.uvic.ca/ohse/research-safety/chemical-safety/index.php#ipn-safety-data-sheets-sds->