

INCIDENT DATE: May 29, 2012

SUBJECT: Acid Waste Container Explosion

BACKGROUND:

A researcher was working with a nitric acid bath to clean equipment and disposed of 500mL of nitric acid (unknown concentration) into a 20L Aqueous Acidic waste container. Approximately 4-5L of acidic waste was already in the container. About 15-20 minutes later a loud explosion occurred in the chemical storage area and the container was found lodged in the ceiling.

INJURIES

No one was injured as a result of this incident.

EQUIPMENT DAMAGE

The waste container ruptured causing an acid spill on the floor and shelves, broken ceiling tile and broken glass from the light fixture.



IMMEDIATE CAUSE

Nitric acid is a strong oxidizing agent that can react violently with a variety of organic substances. Incompatible organic compounds include acetic anhydride, acetone, acetonitrile and formic acid. It is suspected that the nitric acid reacted with an organic compound already present in the waste container. The resulting oxidation reaction generated heat and gaseous by-products which caused the internal pressure of the closed container to increase and forcefully rupture.

RECOMMENDATIONS TO PREVENT RECURRENCE

- Use the OHSE Aqueous Acidic waste containers only for compatible dilute acid wastes.
- Collect concentrated acid wastes in their original container or find another compatible container and provide a label indicating contents.
- Always dispose of oxidizing acids in a separate container and label. Do not mix with other acids or aqueous wastes.
- Remove concentrated acid wastes from the lab as soon as possible using weekly OHSE pick-up.

More information about hazardous waste disposal:

<http://ohs.uvic.ca/environment/waste.php>