Case Study:
Sodium Azide Assessment

New England Healthcare Provider

Situation

The hemotology equipment within a New England hospital lab was **discharging a sodium azide solution into laboratory cup sinks** as part of routine operations. **During a repair** to a cup sink's cracked and leaking p-trap, **an explosion occurred.** The sodium azide waste had come into contact with brass and copper plumbing, forming and accumulating explosive, shock-sensitive metal azides.

Action

Triumvirate entered as a **remedial contractor and health & safety consultant**. Here's how we took care of the problem :

- Identified **six sinks** exhibiting the potential for metal azide contamination. All **required immediate remediation.**
- **Isolated the affected area**, turned off sink operations, and **installed localized ventilation**, all in level-C personal protective equipment
- Plugged exposed piping
- Performed remediation by chemical rinse with a sodium hydroxide solution, **remaining on-site for the 16-hour rinse duration** to monitor air quality, observe liquid levels, and monitor for leaks.
- Performed a **second chemical rinse** after rinsing drains with cold water. This time nitrous acid solution for 24 hours.
- Removed the spent liquid for both chemical rinses using **tubing and a vacuum**, consolidated it into **30-gallon DOT drums**, and **removed off-site**.
- Performed a **visual inspection** of the copper and brass fittings and then r**emoved the metal fittings** and **screened the remaining cast iron pipe**. The pipe was managed as scrap metal.

Result

Triumvirate **removed the immediate explosion hazard** by neutralizing any metal azide within the piping and **limited the long-term potential for accumulation** of metal azide in lab plumping by removing all metal piping. **Metal-free piping and fixtures were installed,** and **wastewater volumes and flows were closely monitored** from this point on to prevent signifiant accumulation of explosive metal azides in plumbing. As a preventative measure for the future, Triumvirate's technical team **advised the hospital to use azide-free reagents** in their wastewater process or to containerize sodium azide wastewater for disposal.

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