

OVERVIEW

Aqua Regia is an acidic, corrosive, and oxidative mixture of concentrated hydrochloric acid (HCl) and concentrated nitric acid (HNO₃). The ratio can vary with the most common mixtures being 3:1 and 1:1. It is called aqua regia because it is one of the few acid mixtures that can dissolve the “noble” metals: gold (Au), platinum (Pt), and palladium (Pd).

POTENTIAL HAZARDS



WHAT HAPPENED?

AQUA REGIA ACCIDENT

A fresh solution of aqua regia was made to clean glassware the following day. The lid was screwed on the bottle tightly for storage. The bottle of aqua regia pressurized as the reaction progressed. The next day when the lid was loosened, the aqua regia solution gushed out of the bottle on to the hand of the user, the fume hood, and the floor of the laboratory.

WHAT WENT RIGHT?

- ✚ Contact EH&S to report the accident.

WHAT CORRECTIVE ACTIONS WERE TAKEN?

- ✚ Review and discuss the SOP-Aqua Regia.
- ✚ Enforce the use of Personal Protective Equipment (PPE).
- ✚ Review location of the eye/shower station.
- ✚ Train Lab staff.

HOW CAN INCIDENTS LIKE THIS BE PREVENTED?

- ✚ **Written SOPs:** a robust written SOP is a critical element for safe chemical operations.
- ✚ **Training is key:** completing training for Lab personnel is key to prevent injuries and for emergency procedures.
- ✚ **Wear your PPE:** Personal protective equipment is your last line of defense against injury. Minimum PPE when working aqua regia: Lab coat, face shield or google, chemical-resistant gloves.
- ✚ **Use equipment properly:** Use proper storage and containment. Adequate Fume hood sash position to protect the user. Must use vented cap and leave loosened especially after initially made.
- ✚ **Situational awareness:** Always pay close attention to all aspects of an experiment in progress.
- ✚ **When in doubt ask questions** to your PI or EH&S Lab Safety. For additional information visit: www.ehs.ufl.edu