

Environmental Health and Safety

PIRANHA SOLUTIONS

I. Overview

- a. Piranha solutions are used to remove organic residues from substrates, particularly in micro-fabrications labs. The traditional piranha solution is a 3:1 mixture of sulfuric acid and 30 percent hydrogen peroxide. The solution may be mixed before application or directly applied to the material, applying the sulfuric acid first, followed by the peroxide. Piranha solutions are extremely energetic and may result in explosion or skin burns if not handled with extreme caution.
- b. Piranha solutions are OSHA Particularly Hazardous Substances (PHS), and all areas of use must have PHS controls in place including but not limited to:
 - i. A written SOP for the work must be prepared by the individual laboratory.
 - ii. Each employee handling a Piranha solution must have documented training on the written SOP.
 - iii. Review the Guidelines for use of Particularly Hazardous Substances

II. Emergency Procedures

- a. In case of skin contact:
 - i. May cause skin burns. Flush the skin with copious amounts of water for at least 15 minutes. Seek medical attention.
- b. In case of eye contact:
 - i. Piranha is corrosive and irritating to the eyes. Flush contaminated eye(s) immediately with copious quantities of water for at least 15 minutes. Seek

- c. When preparing the Panha solution, always add the hydrogen peroxide to the sulfuric acid.
- i. If the peroxide concentration is 30% (w/w), add 1.5 ml of peroxide to 10 ml of sulfuric acid.

