



# Chemical Fact Sheet

## Perchloric Acid Chemical Safety Fact Sheet



Perchloric acid is a “super acid” that is 100% more acidic than pure sulfuric acid. Perchloric acid reacts violently when mixed with or exposed to benzene, calcium hydride, acetic acid, charcoal, olefins, ethanol, sulfur and sulfuric acid. Contact with organic materials such as wood and paper can result in a fire. Anhydrous or concentrated perchloric acid may form explosive perchlorate salts inside standard laboratory fume hood ductwork surfaces when heated or distilled. Perchloric acid must be stored away from organic materials.

### Training

Only individuals who have received proper training may use perchloric acid at the Harvard Institutes of Medicine (HIM) and New Research Building (NRB). The training shall include reading this data sheet, understanding the chemical’s material safety data sheet (MSDS), and receiving appropriate instruction from the supervisor or principal investigator on laboratory procedures.

### Exposure risks from Perchloric Acid

- It is very corrosive, and will cause severe burns, tissue damage and permanent disfigurement if dermal exposure occurs.
- Exposures to the eye will result in permanent loss of vision.
- Inhalation of vapors or mists will cause irritation with coughing, choking, and inflammation of the nose, throat, and upper respiratory tract.

### The Following Practices Must Be Followed Within Laboratories Using Perchloric Acid

- Provide job-specific training to staff.
- Provide appropriate employee chemical hygiene plan (CHP) training for all work processes.
- Perchloric acid exposure should be avoided with engineering controls and proper chemical handling.
- Nitrile gloves offer good resistance to perchloric acid.
- Limit access to work areas with perchloric acid.
- Do not eat, drink, smoke, chew gum, apply cosmetics or lip balm inside laboratory areas, ever.
- **The use of personal protective equipment (PPE) lab coat, gloves, safety glasses and a face shield is mandatory. All exposed skin must be protected. Arm sleeves may be required if laboratory coat and gloves do not meet.**
- Change disposable gloves frequently.
- Infrequent small quantities of perchloric acid ( $\leq 72\%$ ) may be handled inside in a standard chemical fume hood provided it is not heated or concentrated. **If used frequently, at concentration  $>72\%$ , or in large quantities, contact the HIM/NRB Environmental Health & Safety (EH&S) office.**
- **Perchloric acid that is heated or concentrated must be used within specially designed and maintained perchloric acid fume hoods.**
- Perchloric acid needs to be kept and stored away from organic materials. It will react violently with incompatible materials. Before handling perchloric acid, staff must review a material safety data sheet.
- Call 617-432-1901 if there has been a chemical spill.

**Before staff begin handling perchloric acid, the location(s) of the nearest eyewash station and drench shower must be identified. If you spill or splash perchloric acid onto your skin or eyes, wash and flush the affected area for 20 minutes with water and seek immediate medical attention.**

### Also See:

- Full Perchloric Acid Standard Operating Procedure available from the HIM/NRB EH&S office
- Perchloric Acid MSDS
- HIM-NRB Chemical Hygiene Plan available on the HIM/NRB EH&S Webpage: