

SAFE USE OF PERCHLORIC ACID

Perchloric acid at elevated temperatures or concentrations >72% is a strong oxidizer. It presents an additional hazard in that when heated, the vapors can condense in the ventilation ductwork to form explosive perchlorates. Also, contact between perchloric acid and clothing, wood, paper, cotton or organic materials can produce fires and explosions when the perchloric acid dries out.

If you have been performing perchloric acid digestions in a chemical hood not specifically designed for perchloric acid, contact EOHSS immediately for an evaluation of the hood for perchlorate contamination.

Special Precautions for Using Perchloric Acid

- Perchloric acid must **NEVER** be heated in any lab at UMDNJ. A specialized washdown hood is necessary and there are none at the University.
- In the event of a spill, phone the Public Safety Emergency Number for your campus. Inform them that there is a spill of perchloric acid and that you need emergency assistance from EOHSS. However, you **MUST HAVE** an appropriate acid-neutralizing agent (for example, J.T. Baker's Team® 'Low Na+' Liquid Neutralizers) available in the lab and start cleaning up the spill immediately. If you can't clean up the spill immediately for any reason, add water to keep the spill diluted. **DO NOT** use paper towels, spill pillows, or any other organic absorbent to clean up spills of even dilute perchloric acid.
- Whenever possible, substitute a less hazardous chemical for perchloric acid.
- Perchloric acid should not be purchased in concentrations greater than 72% by weight. Never purchase greater than 85% perchloric acid – it is **exceptionally dangerous**.
- Perchloric acid must be used under a chemical hood **ONLY**. No benchtop work is permitted.
- All other chemicals, paper and other materials, must be removed from the chemical hood before using perchloric acid, especially the stock solution. Contact with organic substances may result in a violent reaction.
- To prevent injury, goggles or face shield, gloves, and apron should be worn when handling perchloric acid.

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- Store perchloric acid away from organic acids such as acetic acid, and away from bases and flammable materials.
- Investigators should ensure that everyone who works in labs where perchloric acid is used/stored is familiar with the safety measures in this factsheet.
- In the event of a fire, the best extinguishing agent is water.
- Perchloric acid waste must not be mixed with any other waste. Place it in a chemically compatible container (e.g. the same as the original container), then label and dispose of it as Hazardous Waste.

For More Information:

- Contact your campus EOHSS Office:

Newark 2-4822
Piscataway/New Brunswick 5-4058
Camden/Stratford 6-6189
Scotch Plains (908) 889-2486
- For CRC Handbook of Laboratory Safety section on perchloric acid and a review of accidents/incidents see: <http://www2.umdnj.edu/eohssweb/aiha/technical/msds.htm#Perchloric>

Environmental and Occupational Health and Safety Services

