



## PERCHLORIC ACID USE GUIDELINE

Perchloric acid ( $\text{HClO}_4$ ) is a highly reactive, corrosive, powerful oxidizer, which can become unstable and explosive. Its vapors can form shock sensitive perchlorate salts that deposit in portions of exhaust systems. Contact of concentrated perchloric acid solutions with ordinary combustibles such as wood or paper can cause them to ignite, and it reacts vigorously with many organic compounds.

Unused or aged perchloric acid should be properly disposed rather than kept on the shelf longer than 6-12 months. If a bottle containing perchloric acid has turned dark or formed crystals, an explosion potential may exist - do not move the bottle! If the perchloric acid solution generates pressure while in storage note this on the disposal tag, and request a free vented cap from EH&S at 303-492-6025. Perchloric acid should only be used by individuals who are fully aware of its properties and hazards, while using proper equipment and procedures that prevent exposures and unwanted reactions.

Perchloric acid in concentrations  $> 72.5\%$  is unstable and is prohibited from storage and use in UCB facilities unless special, approved fire protection systems and other safety controls and operating procedures are in place.

A dedicated, specially designed perchloric acid fume hood and duct/fan system is required if any of the following conditions exist:

1. Perchloric acid  $>72.5\%$  is used or stored;
2. Perchloric acid (at any concentration) is heated (such as during digestions) or evaporated into the atmosphere or fume hood without a vapor capture / scrubber system in place;
3. Perchloric acid  $\geq 60\%$  is used on a continuing basis (rather than infrequently or occasionally) without a vapor capture / scrubber system in place.

As with any strong mineral acid, basic additional precautions include: acid resistant gloves, chemical splash goggles, and other protective clothing; use in vicinity of emergency eyewash and safety shower; add acid to water - not water to acid; provide secondary spill containment; segregate from non-compatible (organic) materials; limit quantities to what is needed for the next 6-12 months.

In the event of a perchloric acid spill, neutralize with soda ash, carbonate, lime or baking soda, and soak up with an inorganic-based absorbent. Do not use paper towels, rags or sawdust because such materials may spontaneously ignite. Spills on wood may ignite after the material dries. The best fire extinguishing agent is water.

Contact EH&S at 303-492-6025 for more information.