

# Perchloric Acid

Perchloric acid is usually found as a colorless, odorless liquid. When chilled or diluted, it can be used as an oxidizing agent. As perchloric acid is heated, any interaction with organics, bases, and reducing agents may result in a fire or explosion.

## Perchloric Acid Engineering Controls

Perchloric acid **must not** be heated inside a standard chemical fume hood. Heating of perchloric acid **must only** be done inside a chemical fume hood with washdown capabilities specifically designed for such work.

Perchloric Acid can condense in standard duct work and form explosive perchlorates. For this reason a wash down hood is also needed when working with perchloric acids at higher concentrations. Purpose-built perchloric acid hoods are currently only available at LDEO. If your lab anticipates the need to work with perchloric acid above ambient temperatures, please contact EH&S.

## Perchloric Acid Incompatibilities



Though perchloric acid is not flammable, it can increase the intensity of a fire. It may also spontaneously combust when in contact with organic materials like wood, paper, or spill pads.

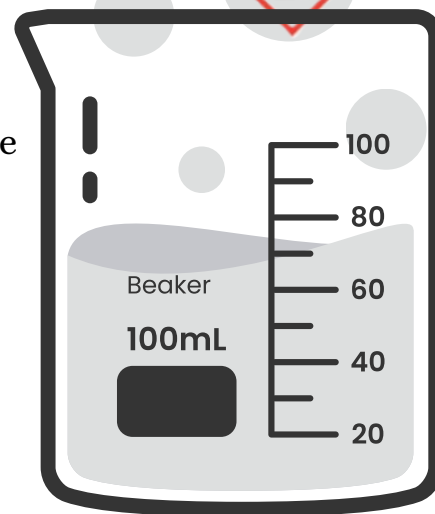
Perchloric acid is incompatible with most chemicals and can react violently with organic and oxidizing agents. **Do not mix with other chemicals.**

## Perchloric Acid Properties

- Perchloric acid is an extremely corrosive superacid (an acid stronger than sulfuric acid) with a pKa lower than -9.
- Notify EH&S immediately if perchloric acid appears discolored.
- At concentrations higher than 70%, perchloric acid becomes unstable and is shock-sensitive when dry. Concentrations >72% perchloric acid are forbidden for transportation.
- Industrial-grade perchloric acid (70-72%) acts like a strong, non-oxidizing acid at cold or room temperatures.

## Fun FAQ

Perchloric acid becomes unstable and a strong oxidizer when heated to temperatures over 160°C.



Have more questions? Reach out to EH&S at [Labsafety@columbia.edu](mailto:Labsafety@columbia.edu) or give us a call

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QR Code: EH&S Perchloric Acid Policy.

