

Perchloric Acid

Safety Data Sheet

Division of Occupational Health and Safety
National Institutes of Health



DESCRIPTION

Colorless, Odorless, fuming, oily hygroscopic liquid. Unstable in concentrated form. Strong oxidizing agent

OTHER NAMES

None

USES

Medicine; analytical chemistry; catalyst; manufacture of various Esters; ingredient of the electrolytic bath in the decomposition of lead; electropolishing; explosives.

HAZARDOUS PROPERTIES

Fire Hazard

1. Moderate by chemical reaction when exposed to reducing agents.
2. Moderate when exposed to heat.
3. Highly flammable when spilled on or mixed with carbonaceous materials.

Explosion Hazard

1. Forms perchlorate which undergoes spontaneous and explosive decomposition when evaporated to dryness.
2. May explode on contact when spilled on or mixed with organic materials and allowed to dry.
3. May explode on contact with reducing agents (if perchlorates have formed).
4. Shock sensitive if dehydration has occurred.

Health Hazard

1. Strong eye, skin and mucous membrane irritant.
2. Will emit highly toxic fumes of chlorides when heated.

PRECAUTIONS

Fire Protection

1. Limit the quantity of this material to the immediate needs.
2. Keep all containers away from sources of heat and other combustible materials, reducing agents and dehydrating agents.

Personal Protection

1. Avoid breathing vapor and skin contact with liquid.
2. Always wear lab coat, gloves, and goggles when working with this equipment.

STORAGE

1. Never store more than 2-3 pints or the minimum necessary to complete experimental procedure.
2. Store materials on an acid resistant non-combustible shelf.
3. Store separately from dehydrating, oxidizing and reducing agents, organic materials and combustible materials.
4. Store acid in a cool area but prevent freezing of acid.
5. Protect against physical damage.

TECHNICAL DATA

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|---------------------------------|------------------------------|
| 1. Chemical Formula | HC1O ₄ |
| 2. Molecular Weight | 100.47 |
| 3. Vapor Density (Air = 10) | — |
| 4. Boiling Point | 39° C |
| 5. Flash Point | |
| 6. Ignition Temperature | — |
| 7. Specific Gravity (Water = 1) | 1.768 |
| 8. Melting Point | -112° C |
| 9. Solubility | Soluble in water and alcohol |
| 10. Flammable limits | (percent by volume) - |

EMERGENCY PROCEDURES

First Aid

- a. Inhalation – Remove patient from contaminated area and administer artificial respiration immediately if breathing has stopped.
- b. Skin Contact – Irrigate area of contact with copious amounts of water.
- c. Eye Contact – Irrigate eyes with copious amounts of water.
- d. Ingestion – Insufficient information available.

- e. Call physician immediately.

REFERENCES:

1. The Condensed Chemical Dictionary, 8th Edition, revised by Gessner G. Hawley, Van Nostrand Reinhold Company, N.Y., New York.
2. Dangerous Properties of Industrial Materials by N. Irving Sax, 1975, Reinhold Publishing Corporation, N.Y., New York.
3. Industrial Hygiene and Toxicology by Frank A. Patty, 2nd Edition (Revised), Volume II, 1962, Interscience Publishers, John Wiley and Sons, N.Y., New York.
4. Fire Protection Handbook, Revised 13th Edition, National Fire Protection Association, 1969, Boston Massachusetts.
5. CRC Handbook of Laboratory Safety, Edited by Norman V. Steer 1967, The Chemical Rubber Company.

The information contained in this bulletin is based upon a literature search and may not be complete.