

## CLIP, Chemical Laboratory Information Profile

"Only when you know the hazards, can you take the necessary precautionary measures."

**Hydrogen Peroxide, 3%****H<sub>2</sub>O<sub>2</sub>(aq)****CAS No.: 7722-84-1****Physical Properties****Exposure Limits**

Colorless liquid continuously evolving oxygen when in an open vessel.

Vapor pressure at 20 °C: 20 Torr

OSHA PEL: 1 ppm (as H<sub>2</sub>O<sub>2</sub>)

ACGIH TLV: 1 ppm (as H<sub>2</sub>O<sub>2</sub>)

**Hazardous Characteristics**

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin?	Sensitizer?	Self-reactive?	Incompatible with:
1	0	1	No	No	No	Combustibles, flammables, finely divided solids, rough surfaces, water-soluble alkaline metallic compounds.*

0: None (or very low); 1: Slight; 2: Moderate; 3: High; 4: Severe.

**\*Reactivity Hazards**

Even at 3% concentration in aqueous solution, hydrogen peroxide is a potent oxidizing agent. It decomposes, forming oxygen rapidly upon heating and also when almost any finely divided solid or rough-surfaced material is introduced into the liquid. The oxygen released in this way is atomic, not molecular, and consequently is a hazardous oxidizing agent that can react violently with oxidizable substances. See Bretherick's *Handbook of Reactive Chemical Hazards* for details and for other incompatibilities.

Cited as known to be or reasonably

anticipated to be carcinogenic in NTP-10? No

Identified as a reproductive toxin in Frazier and Hage,

*Reproductive Hazards of the Workplace?*

No

**Typical symptoms of acute exposures:**

In the eyes, irritation, pain. On the skin, inflammation. If inhaled, sore throat, coughing. If ingested, discomfort, sore throat, abdominal pain, vomiting.

**Principal target organ(s) or system(s):**

Skin, eyes, respiratory system.

**Storage Requirements**

Store separately in a cool, dry, well-ventilated location away from flammables, combustibles, and other reducing agents.

**Additional Remarks**

Aqueous hydrogen peroxide solutions at concentrations greater than 3% are more reactive: the greater the concentration, the more reactive. This does not mean that 3% solutions are "safe". Thus, even a 3% solution can decompose violently if its pH is made to be greater than 7 by the addition of, say, a few pellets of solid NaOH.

**Notes****ReadMe**

This Chemical Laboratory Information Profile is *not* a Material Safety Data Sheet. It is a brief summary for teachers and their students that describes some of the hazards of this chemical as it is typically used in laboratories. On the basis of your knowledge of these hazards and before using or handling this chemical, *you need to select the precautions and first-aid procedures to be followed*. For that information as well as for other useful information, refer to Material Safety Data Sheets, container labels, and references in the scientific literature that pertain to this chemical.

**Reproductive Toxins**

Some substances that in fact are reproductive toxins are not yet recognized as such. For the best readily available and up-to-date information, refer to "DART/ETIC". See the TOXNET home page at [www.sis.nlm.nih.gov](http://www.sis.nlm.nih.gov) and click on "Toxicology search". *Note that some of the data in DART/ETIC have not been peer-reviewed*. See also Linda M. Frazier and Marvin L. Hage, *Reproductive Hazards of the Workplace*, Wiley, 1998; and T. H. Shepard, *Catalog of Teratogenic Agents*, 9th ed.; Johns Hopkins University Press, 1998.

**Abbreviations**

ACGIH TLV—American Conference of Governmental Industrial Hygienists—Threshold Limit Value. C—Ceiling. CAS—Chemical Abstracts Service. mg/m<sup>3</sup>—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-10—National Toxicology Program, Tenth Annual Report on Carcinogens. OSHA PEL—Occupational Safety and Health Administration—Permissible Exposure Limit. ppm—parts per million. STEL/C—Short-term exposure limit and ceiling.

Prepared by: Jay A. Young

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