

CLIP, Chemical Laboratory Information Profile

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

Acetaldehyde



CAS No.: 75-07-0

Synonyms: Ethanal, ethyl aldehyde

Physical Properties

Exposure Limits

Colorless liquid with a pungent, fruity odor.
 Vapor pressure at 20 °C: 768 Torr
 Melting point: -124 °C
 Boiling point: 21 °C

OSHA PEL: 200 ppm
 ACGIH TLV: 25 ppm

Hazardous Characteristics

Overall
toxicity
2

Flamma-
bility
4

Destructive
to skin/eye
3

Absorbed
through skin
0

Sensi-
tizer?
No

Self-
reactive?
Yes

Incompatible with:

Bases, oxidizing agents, acid anhydrides, alcohols, halogens, amines, ammonia, ketones, phenols, hydrogen cyanide, hydrogen sulfide.*

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

*Reactivity Hazards

Polymerizes violently in the presence of many bases, of trace metals, and of acetic acid as well. Often spontaneously explodes when in contact with strong oxidizing agents. The vapor can ignite spontaneously when in contact with corroded metal. 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-9?

Yes

Identified as a reproductive toxin in Frazier and Hage, *Reproductive Hazards of the Workplace*?

No

Typical symptoms of acute exposures:

Sore throat, coughing, labored breathing, lung edema, unconsciousness if inhaled; serious cases can be fatal. Corrosive if in eyes; also causes inflammation and/or pain. On the skin causes inflammation and/or pain. Severely irritating if swallowed or in the mouth, and corrodes tissues, causes vomiting, diarrhea, abdominal pain. Repeated inhalation of the vapor produces effects similar to those associated with chronic alcoholic intoxication.

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

Respiratory system, eyes, skin, gastro-intestinal tract, central nervous system.

Storage Requirements

With other flammables in a cool, dry, well-ventilated location, away from ignition sources and separated from oxidizing agents.

Additional Remarks

The vapor is denser than air and can travel long distances; it is explosive when mixed with air. At ordinary temperatures the vapor pressure of acetaldehyde greatly exceeds the limits established by OSHA and ACGIH. Accordingly, users will be likely to be over-exposed to the vapor of this compound unless appropriate precautions are rigidly maintained; see the MSDS for details. Note that symptoms of lung edema are not manifest immediately in victims who have inhaled acetaldehyde vapors or mist; some hours may elapse first; physical effort can exaggerate these symptoms. Rest is essential for persons exposed to excess vapor or mist.

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 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/m³—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-9—National Toxicology Program, Ninth 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.

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