

CLIP, Chemical Laboratory Information Profile

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

Acrylonitrile**CAS No.: 107-13-1**

Synonyms: 2-Propenenitrile, Vinyl cyanide, Cyanoethylene

Physical Properties**Exposure Limits**

Volatile colorless liquid with characteristic odor. For most persons the odor threshold is greater than the TLV.

Vapor pressure at 20 °C: 85 torr

Melting point: -83 °C

Boiling point: 77 °C

OSHA PEL: 2 ppm

OSHA STEL/C 10 ppm

ACGIH TLV: 2 ppm

Hazardous Characteristics

| Overall toxicity | Flammability | Destructive to skin/eye | Absorbed through skin | Sensitizer? | Self-reactive? | Incompatible with: |
|------------------|--------------|-------------------------|-----------------------|-------------|----------------|--|
| 4 | 3 | 3 | 3 | No | Yes | Oxidizing agents, strong bases and acids, halogens, peroxide.* |

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

***Reactivity Hazards**

The monomer polymerizes readily, especially in the presence of strong bases or acids, peroxides, halogens, and other substances. When exposed to light, the monomer, even if inhibited, will polymerize when the temperature is greater than 200 °C. The polymerization is exothermic and often is vigorous, even violently explosive. 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*? Yes

Typical symptoms of acute exposures:

If inhaled, dizziness, faintness, labored breathing, coma, asphyxia (cessation of breathing), death. In the eyes, inflammation, pain. If on the skin, blistering, dermatitis, and absorption through the skin causing symptoms similar to those from inhalation.

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

Eyes, respiratory system, central nervous system.

Storage Requirements

Store inhibited acrylonitrile in a cool, dry, well-ventilated, locked location, away from ignition sources and separated from oxidizing agents, acids, and bases. Never store uninhibited acrylonitrile.

Additional Remarks

Victims poisoned by acrylonitrile require specific first aid treatment, usually described in the MSDS for this compound. At ordinary temperatures, the vapor pressure of acrylonitrile greatly exceeds the limits established by OSHA and ACGIH. Accordingly, users will be likely to be over-exposed to the vapors of this compound unless appropriate precautions are rigidly maintained; see MSDS for details. The vapor is heavier than air and can travel long distances; it is explosive when mixed with air.

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 <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/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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