



---

## Material Safety Data Sheet

---

**MSDS1004****revised 20-AUG-2007**

### ACETONE CYANOHYDRIN

---

#### CHEMICAL PRODUCT/COMPANY IDENTIFICATION

---

**Material Identification**

MSDS Number : 1004  
CAS Number : 75-86-5  
Formula : CH<sub>3</sub>C(CH<sub>3</sub>)OH)CN  
Molecular Weight : 85.11  
CAS Name : PROPANENITRILE, 2-HYDROXY-2-METHYL

**Trade names and Synonyms**

2-HYDROXY-2-METHYLPROPANENITRILE  
2-METHYLLACTONITRILE  
α-HYDROXYISOBUTYRONITRILE  
2-HYDROXYISOBUTYRONITRILE

**Company Identification****MANUFACTURER/DISTRIBUTOR**

Lucite International, Inc.  
7275 Goodlett Farms Parkway  
Cordova, TN 38018

**PHONE NUMBERS**

Product Information : 1-800-4-LUCITE  
Transportation Emergency : 1-800-424-9300  
Medical Emergency : 1-877-886-2143

---

#### COMPOSITION/INFORMATION ON INGREDIENTS

---

## Components

Material	CAS Number	%
ACETONE CYANOHYDRIN	75-86-5	97.5
HYDROGEN CYANIDE	74-90-8	0.1
ACETONE	67-64-1	0.9
STABILIZER AND INERTS*		1.1
WATER	7732-18-5	0.4

Components (Remarks)

\*Sulfate salts of trimethylamine

---

**HAZARDS IDENTIFICATION**

---

\*\*\*\*\*EMERGENCY OVERVIEW\*\*\*\*\*  
\* Poison. Causes symptoms similar to those of cyanide \*  
\* poisoning. Death can occur rapidly. Colorless liquid.\*  
\*\*\*\*\*

**Potential Health Effects**

EYE: Causes irritation. Permeation can occur in toxic amounts.

SKIN: Skin irritant. Permeation can occur in toxic amounts.

INGESTION: Highly toxic.

INHALATION: Causes non-specific discomfort. Can be lethal.

CHRONIC (CANCER) INFORMATION: Persons with preexisting diseases of the central nervous system may have increased susceptibility to the toxicity of acetone cyanohydrin. Unlikely to present a cancer hazard in man.

TERATOLOGY (BIRTH DEFECT) INFORMATION: No information available but no adverse effects anticipated.

REPRODUCTIVE INFORMATION: No information available but no adverse reproductive effects anticipated.

---

**FIRST AID MEASURES**

---

SPEED IS ESSENTIAL. GET HELP AND OBTAIN IMMEDIATE MEDICAL ATTENTION. ALWAYS HAVE ON HAND A CYANIDE FIRST-AID KIT. Protect yourself and any casualty from further exposure during decontamination.

INHALATION: Remove patient from exposure, keep warm and at rest. ADMINISTER OXYGEN AND AMYL NITRITE. Apply artificial respiration if breathing has ceased or shows signs of failing. Appropriate mechanical means should be used (Flynn Resuscitator or bag and mask).

SKIN CONTACT: Immediately flush skin with plenty of water while removing all contaminated clothing and shoes. Do not delay. Administer oxygen and amyl nitrite. Keep patient quiet and warm. Call a physician.

EYE CONTACT: Immediately flush with plenty of water, remove contaminated clothing. Do not delay. Keep victim quiet and warm. Administer oxygen and amyl nitrite. Call a physician

INGESTION: Induce vomiting immediately by giving two glasses of water, or previously prepared 1% sodium thiosulfate solution, and sticking finger down throat. Never give anything by mouth to an unconscious person. Administer oxygen and amyl nitrite. Call a physician.

TO USE AMYL NITRITE: Break an ampoule and hold lightly under nose for 15 seconds. Repeat five times at about 15 second intervals. If necessary

repeat this procedure every 3 minutes with a fresh ampoule until 3 or 4 ampoules have been given. If artificial respiration is being used, place a broken ampoule inside the resuscitator face piece, being careful that the ampoule does not enter the victim's mouth and cause choking.

#### Notes to Physicians:

If victim is conscious and alert oxygen may be all that is needed. If patient has not responded to amyl nitrite, inject intravenously 10 milliliters of a 3% solution of sodium nitrite at a rate not greater than 2.5 to 5 milliliters per minute. Follow directly with 50 milliliters of a 25% solution of sodium thiosulfate at the same rate by the same route. Give oxygen and keep patient under observation. If cyanide exposure was severe watch patient for 24-48 hours. If signs of poisoning persist or reappear, repeat nitrite and thiosulfate injections 1 hour later in one-half the original doses. If signs of excessive methemoglobinemia develop--cyanosis, vomiting, shock, coma--give 100% oxygen by mask and 1% methylene blue solution intravenously, 1 to 2 mg/kg of body weight over five to ten minutes. This may be repeated in one hour if necessary. Since reversion of methemoglobin to hemoglobin occurs spontaneously, moderate degrees of cyanosis need be treated only by supportive measures such as bed rest and oxygen inhalation. Cyanocobalamin (Vitamin B12), one milligram intramuscularly, may speed recovery. Intravenous fluids and blood transfusions may be indicated in very severe circumstances.

---

### **FIRE FIGHTING MEASURES**

---

#### Flammable Properties

Flash Point	: 74 C (165 F)
Method	: TCC

#### Flammable limits in Air, % by Volume

LEL	: 2.2
UEL	: 12
Autoignition	: 688 C (1270 F)

Combustible. Heating can release vapors which can be ignited. Vapors or gases may travel considerable distances to ignition source and flash back. Fire and Explosion Hazards: Heating causes thermal decomposition to Acetone and extremely poisonous hydrogen cyanide gas, reducing flashpoint and increasing fire hazards. Clean burning detoxifies.

Extinguishing Media: Water Spray, Foam, Dry Chemical, CO2.

#### Fire Fighting Instructions:

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Hose with water from a distance to prevent splashing on personnel. Cool tank/container with water spray. Washings may contain cyanide. Do not allow to enter drains, sewers or watercourses.

Fight fire from a distance, heat may rupture containers. Run-off water should be contained and detoxified.

---

### **ACCIDENTAL RELEASE MEASURES**

---

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up. Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Initial Containment: Remove source of heat, sparks, flame, impact, friction or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas. Gaseous emissions from a pool can be greatly reduced by covering with an alcohol type concentrate foam.

Spill Clean Up: Cleaned-up material is a RCRA Hazardous Waste.

Accidental Release Measure

Transfer liquid to containers for recovery and disposal. Dilute remaining liquid with at least 50 volumes of water.

---

## **HANDLING AND STORAGE**

---

### HANDLING

NEVER work alone.

Avoid contact with skin and eyes. Use only in well ventilated areas.

When using do not eat, drink or smoke. Always wash hands before smoking, eating and drinking.

### STORAGE

NOTE: ONLY ACID STABILIZED ACETONE CYANOHYDRIN SHOULD BE STORED.

Cyanides should only be stored under STRICT conditions in clearly designated areas. Keep container in a well ventilated place. Keep container dry. Keep away from alkalis, acids, oxidizing agents, flammable and combustible materials. Keep away from food and tobacco products.

Storage Temperature : ambient.

---

## **EXPOSURE CONTROLS/PERSONAL PROTECTION**

---

Engineering Controls: Use a totally enclosed system. Keep container tightly closed. Use ventilation that is adequate to keep airborne concentrations below exposure limits. Keep away from heat, sparks, flames or direct sunlight. Evacuate immediately if fumes suspected. Observe label precautions. Before use, study INEOS Bulletins on HYDROGEN CYANIDE and SODIUM CYANIDE. Plan evacuation and first aid before beginning work.

### Personal Protective Equipment

EYE/FACE PROTECTION: Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying material.

RESPIRATORS: Use a positive pressure air-supplied respirator if concentrations may exceed exposure limits. Air-purifying respirators are inadequate for this material.

PROTECTIVE CLOTHING: Wear impervious clothing to prevent ANY contact with this product, such as gloves, apron, boots, or whole body suit made as appropriate. No permeation data on protective clothing for this material could be found.

Exposure Guidelines  
Exposure Limits

## ACETONE CYANOHYDRIN

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
STEL (ACGIH)	: 4.7 ppm, 5 mg/m <sup>3</sup>
WEEL (AIHA)	: 2 ppm, 8 Hr. TWA, Skin
	: 5 ppm, 15 minute TWA, Skin

## Other Applicable Exposure Limits

## HYDROGEN CYANIDE

PEL (OSHA)	: 10 ppm, 11 mg/m <sup>3</sup> , Skin
TLV (ACGIH)	: 10 ppm, 11 mg/m <sup>3</sup> , Ceiling Skin

---

**PHYSICAL AND CHEMICAL PROPERTIES**


---

Form	: mobile liquid
Color	: light yellow to light brown
Odor	: faint almonds
pH (Value)	: acidic
Boiling Point (Deg C)	: 120 at 129 mm Hg
Explosive Properties	: Not applicable.
Oxidizing Properties	: Not applicable.
Vapor Pressure (mm Hg)	: 0.2 at 20 Deg C
Solubility (Water)	: miscible
Solubility (Other)	: Not available.
Partition Coefficient	: Not applicable.
Freezing Point (Deg C)	: -19
Initial Boiling Point (Deg C)	: 82 at 30 mbar
Specific Gravity	: 0.936 at 20 Deg C
Vapor Density (Air = 1)	: 2.95
% Volatiles	: 100 WT% (100% by Volume)
Evaporation Rate	: 1 (Butyl Acetate = 1)

---

**STABILITY AND REACTIVITY**


---

Chemical Stability: Unstable if heated or mixed with alkalis. Avoid heat and ignition sources.

An acidic inhibitor has been added (0.1 - 0.15% by weight sulfuric acid) to reduce disassociation.

Incompatibility with Other Material: Incompatible with alkalis and oxidizing agents.

Decomposition: Hazardous gases produced are highly flammable and extremely poisonous hydrogen cyanide, and flammable acetone vapors.

Polymerization: Polymerization will not occur.

---

**TOXICOLOGICAL INFORMATION**


---

## ANIMAL DATA

Inhalation 4 hour ALC: 62.5 ppm in rats  
Skin Absorption LD50: 16 mg/kg in rabbits  
Oral LD50: 17 mg/kg in rats

The compound is a slight skin irritant.

Toxic effects described from long term exposures by inhalation include upper and lower respiratory irritation, and liver and kidney changes. Another study by an unspecified route also reported changes in the liver, kidney and other organs.

The compound does not produce genetic damage in bacterial cell cultures.  
HUMAN HEALTH EFFECTS

Skin contact may include irritation or rash. Evidence suggests that skin permeation can occur in amounts capable of producing the effects of systemic toxicity.

Inhalation may include nonspecific discomfort, such as nausea, headache, dizziness, vomiting, and weakness. Higher exposures may lead to rapid respiration, lowered blood pressure, unconsciousness, and fatality from gross overexposure.

Toxicity of acetone cyanohydrin is reported as equivalent to a molar equivalent of hydrogen cyanide and the following additional effects attributed to hydrogen cyanide may occur: inhalation or skin contact may initially include rapid respiration, flushing, drowsiness, drop in blood pressure, rapid pulse, and loss of consciousness; central nervous system stimulation followed by central nervous system depression and hypoxic convulsions and death due to respiratory arrest; temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation.

Higher exposures may lead to fatality from gross overexposure. In the few cases of disturbance of vision or damage to the optic nerve or retina attributable to cyanide poisoning, the poisoning has been acute and severe, and lethal or near lethal. Evidence suggests that skin permeation can occur in amounts capable of producing the effects of systemic toxicity. Individuals with preexisting diseases of the central nervous system may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity Information:

None of the components in this material is listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

---

## **ECOLOGICAL INFORMATION**

---

### Environmental Fate and Distribution

High tonnage material produced in wholly contained systems. The product is soluble in water. The product has low potential for bioaccumulation. The product is predicted to have high mobility in soil.

### Persistence and Degradation

The substance is substantially biodegradable in water. Biodegradability by activated sludge, 14 days, 99.8% of 35mg/l of CN ion degraded; > 60% of 180 mg/l degraded.

### Toxicity

Very toxic to aquatic life and micro organisms.

Aquatic Toxicity

96 hour LC50, bluegill sunfish: 0.57 mg/L

WGK 3 (self classification)

Effect on Effluent Treatment

The product is substantially removed in biological treatment processes.

No-effect level for biological treatment processes is 10mg/l as CN ion.

Ecotoxicological Information

---

## DISPOSAL CONSIDERATIONS

---

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system. Incinerate material in accordance with Federal, State/Provincial and Local requirements. Send dilute amounts to an approved water treatment facility with their knowledge.

Hazardous Waste # P069

---

## # TRANSPORTATION INFORMATION

---

Shipping Information

DOT

Proper Shipping Name : RQ ACETONE CYANOHYDRIN, STABILIZED

Hazard Class : 6.1

I.D. No. (UN/NA) : UN 1541

PACKING GROUP : I

Special Information : POISON INHALATION HAZARD

DOT Placard : POISON INHALATION HAZARD, ZONE B

MARINE POLLUTANT

Reportable Quantity : 10 lb.

---

## REGULATORY INFORMATION

---

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

Superfund reportable discharge = 10 lb.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes

Chronic : Yes

Fire : Yes

Reactivity : Yes

Pressure : No

LISTS:

Extremely Hazardous Substances: Yes

CERCLA: Yes RQ = 10 LBS.

Specific Toxic Chemicals: No

TPQ = 1,000 LBS.

European Regulations: EINECS 200-909-4

---

**OTHER INFORMATION**

---

NA = Not Applicable  
NE = Not Established  
# = Indicates updated section

NFPA, NPCA-HMIS

NFPA Rating  
Health : 4  
Flammability : 1  
Reactivity : 2  
NPCA-HMIS Rating  
Health : 4  
Flammability : 1  
Reactivity : 2

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information

See Lucite International Bulletins on "Hydrogen Cyanide and Sodium Cyanide Properties, Use, Storage and Handling". Plan evacuation and First Aid before beginning work.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% OR MORE FOR SPECIAL HAZARDOUS SUBSTANCES): Acetone Cyanohydrin.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER: None known.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None known.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): Acetone Cyanohydrin.

-----  
The information herein is given in good faith but no warranty, expressed or implied, is made. Lucite International assumes no responsibility for personal injury or property damage that may arise from use of this material. Vendees or users assume all risks associated with the use of this material.



Responsibility for MSDS :

MSDS Coordinator  
Lucite International, Inc.  
2665 Fite Road  
Memphis, TN 38127  
901-354-1082