

## Nitriles

## 1. Chemical product and company identification

<b>Product name</b>	HYDROGEN CYANIDE (HYDROCYANIC ACID)
<b>MSDS #</b>	0000000084
<b>Code</b>	0000000084 (NAP)
<b>Product use</b>	Industrial applications
<b>Supplier</b>	INEOS USA LLC 2600 South Shore Blvd. League City, Texas 77573
<b>EMERGENCY SPILL INFORMATION:</b>	1 (800) 424-9300 Outside the US: +1 703-527-3887 (CHEMTREC)
<b>OTHER PRODUCT INFORMATION</b>	1 (866) 363-2454 <a href="http://techservice.innovene.com">http://techservice.innovene.com</a>

## 2. Composition/information on ingredients

Ingredient name	CAS #	% by weight
Hydrogen cyanide	74-90-8	95 - 100

## 3. Hazards identification

<b>Physical state</b>	Liquid.
<b>Color</b>	Colorless.
<b>Emergency overview</b>	DANGER!  EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. PRODUCT STABILIZED-- MAY BECOME UNSTABLE AND VIOLENTLY REACTIVE. MAY BE FATAL IF SWALLOWED. MAY BE FATAL IF ABSORBED THROUGH SKIN. MAY BE FATAL IF INHALED. CAUSES EYE IRRITATION. CAUSES SKIN IRRITATION. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: THYROID, NERVOUS SYSTEM, RESPIRATORY SYSTEM, CARDIOVASCULAR SYSTEM, HEARING IMPAIRMENT/CHANGE. VERY TOXIC TO AQUATIC ORGANISMS. May cause long-term adverse effects in the aquatic environment.  Do not ingest. Do not get in eyes, on skin or on clothing. Do not breathe vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Routes of entry</b>	Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Potential health effects</b>	
<b>Eyes</b>	Causes eye irritation. May be harmful or fatal if absorbed through eye contact.
<b>Skin</b>	May be fatal if absorbed through skin. Causes skin irritation. Prolonged contact can cause severe irritation or even burns. May cause damage to the following organs: Respiratory system, nervous system, cardiovascular system.
<b>Inhalation</b>	May be fatal if inhaled. Causes respiratory tract irritation. May cause damage to the following organs: nervous system, respiratory system, cardiovascular system.
<b>Ingestion</b>	May be fatal if swallowed. Causes gastrointestinal irritation and diarrhea. May cause damage to the following organs: nervous system, respiratory system, cardiovascular system.
<b>Medical conditions aggravated by over-exposure</b>	Individuals with preexisting diseases of the eye, respiratory system, nervous system or cardiovascular system may be at increased risk from exposure to this chemical.

Effects of cyanide poisoning include: eye, nose and respiratory tract irritation, pink to red or bluish skin color (cyanosis), reddening of the eyes, dilation of the pupils, breathing difficulty, visual disturbances, change in sense of smell or taste, headache, nausea, vomiting, heart palpitations, dizziness, weakness, vertigo, confusion, numbness or tingling in the extremities, chest pain, convulsions, coma. Effects can occur within seconds to minutes.

See toxicological information (section 11)

## 4. First aid measures

### Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately. If symptomatic, treat as described under inhalation.

### Skin contact

Immediately flush the skin with plenty of water while removing contaminated clothing and shoes. Thoroughly decontaminate clothing and discard contaminated leather goods and other items which cannot be decontaminated. Place contaminated clothing in closed container for storage until cleaned or discarded. Skin exposure could result in absorption and systemic cyanide poisoning. If symptomatic treat as described under inhalation and get immediate medical attention. Contaminated leather, particularly footwear, must be discarded. Note that contaminated clothing may be a fire hazard.

### Inhalation

Remove exposed person from source of exposure to fresh air. If not breathing, ensure clear airway and institute cardiopulmonary resuscitation (CPR). Avoid mouth to mouth resuscitation. Use mouth to mask ventilation with one way valve to exhaust victim's exhaled air away from rescuer. Use of an Ambu bag or pressure demand valve with face mask is acceptable. If victim is symptomatic, break an amyl nitrite ampule in a cloth and hold lightly under nose for 30 seconds every minute until sodium nitrite is administered. Use a new ampule every 3 minutes. If an ambu bag is used, the amyl nitrite ampule should be placed under the lip of the bag. If breathing is difficult, administer oxygen if available. Keep affected person warm and at rest. Get immediate medical attention.

### Ingestion

Get immediate medical attention. Do not wait for symptoms to develop. Do not induce vomiting. If not breathing, ensure clear airway and institute cardiopulmonary resuscitation (CPR). Avoid mouth to mouth resuscitation. Use mouth to mask ventilation with one way valve to exhaust victim's exhaled air away from rescuer. If breathing is difficult, ensure clear airway and give oxygen. If symptomatic, treat as described under Inhalation.

### Notes to physician

General First Aid Notes: Rescuers should be well trained and wear appropriate personal protective equipment before attempting to remove the victim from a contaminated area or call for assistance from a properly equipped Hazmat Team. All victims suspected of a significant cyanide exposure require decontamination with a large amount of water prior to administering first aid or medical treatment.

Once decontamination is confirmed, start first aid treatment immediately and call for medical assistance. First aid treatment consists of ensuring a patent airway and pulse, and administering 100% oxygen and amyl nitrite ampules. This can be provided by trained individuals before medical help arrives. Further medical treatment will be required if the person does not respond to first aid treatment and involves the intravenous administration of sodium nitrite and sodium thiosulfate. This must be provided by qualified medical personnel. Patients who rapidly regain consciousness and have no other signs or symptoms may not require the intravenous antidotal medications. The half-life of cyanide in the body is approximately 20 to 90 minutes. In the case of skin contact or ingestion, absorption may be delayed and symptoms of exposure may take longer to develop. A person who has ingested hydrogen cyanide solution or been exposed through skin contact should be closely observed for at least 30 minutes to an hour for the development of symptoms of cyanide exposure. Do not induce vomiting if ingested. If symptoms develop, first aid treatment should begin immediately.

In most cases, cyanide poisoning causes a pink to red skin color, not the bluish color normally associated with cyanosis. The bluish color is seen in severe cyanide poisoning. Reddening of the eyes and dilation of the pupils along with the other symptoms described in Section 3, Warning Signs of Overexposure, may be indicative of cyanide poisoning.

Cyanide poisoning (antidote) kits containing amyl nitrite ampules (or equivalent) and oxygen resuscitators must be available at the work site. Caution: Amyl nitrite is not stable and must be replaced every 1-2 years or earlier depending on storage conditions. Store in the original, dated box at temperatures below 140°F but above freezing temperatures. Do not store at excessively low temperatures that may reduce the vapor pressure of the amyl nitrite and limit its effectiveness. Amyl nitrite is very flammable. Do not use around a source of ignition or smoke in the area of use. Assure that the amyl nitrite vapors are being inhaled by the patient by breaking the ampule in a gauze pad and placing under the edge of the face mask or the lip of the ambu bag, or by using the hands, a container, etc. to keep the vapors from blowing away. Rescuers should avoid breathing amyl nitrite vapors. Amyl nitrite dilates the blood vessels, lowering blood pressure and can cause unconsciousness. The patient should lie down to limit the risk of unconsciousness. Do not overuse. Overuse of amyl nitrite could result in shock.

## First Aid Treatment for Cyanide Poisoning:

Rescuers should wear appropriate protective equipment (see Section 8) to prevent exposure to hydrogen cyanide.

The exposed person should be moved to an uncontaminated area, all contaminated clothing removed and bagged, and all exposed areas washed with water. See below for information on specific routes of exposure. Note: Contaminated clothing must be placed in a closed container or bag to eliminate that source of continued cyanide exposure. Contaminated clothing and other items must be disposed of as hazardous waste.

If no symptoms are evident, no treatment is needed. Decontaminate the person and observe them for at least 30 minutes for the development of symptoms.

If the person is conscious but symptoms such as nausea, dizziness, numbness, breathing difficulty, etc. are present, give oxygen.

If consciousness is impaired (the person is not responsive, dizzy, drowsy, confused, etc.) or if the person is unconscious but breathing, give oxygen and amyl nitrite. Break an amyl nitrite ampule in a cloth and hold lightly under nose for 15 seconds followed by removal for 15 seconds until the patient responds. Use a new ampule every 3 minutes. If an ambu bag or oxygen resuscitator is used, the amyl nitrite ampule should be placed in tissue under the edge of the face mask. Prevent the ampule from entering the person's mouth.

If the person is not breathing, give oxygen and amyl nitrite immediately using a positive pressure resuscitator. Prevent the ampule from entering the person's mouth. Administer amyl nitrite as described above.

All persons who receive first aid treatment should be evaluated by qualified medical personnel before being released.

### Notes to Physician (Additional information)

Toxicity may be delayed due to metabolic release of cyanide. General supportive therapy in the event of life threatening complications may be more important than specific antidotes. Support respiratory and cardiovascular function. Administer 100% oxygen. If symptomatic administer amyl nitrite until intravenous access is established, then inject sodium nitrite (10ml of a 3% solution over 5 minutes). Monitor blood pressure closely as sodium nitrite is a potent vasodilator. Follow the sodium nitrite directly with intravenous sodium thiosulfate (25% solution), 1.65ml(412mg)/kg of body weight for those under 25kg and 12.5gm (50ml) for those over 25kg. Give at a rate of 2.5-5.0ml/minute. If signs of poisoning persist or reappear, repeat nitrite and thiosulfate injections 30 minutes later at half the original dose. Monitor blood methemoglobin levels. They should not be allowed to exceed 30-40%. Whenever the cyanide antidote kit is used the patient should be admitted to an intensive care unit. Monitor arterial gases. Treat lactic acidosis and metabolic acidosis with sodium bicarbonate. Treat seizures with diazepam, phenytoin, or phenobarbital. Hyperbaric oxygen and hemodialysis may be helpful in severe cases not responsive to supportive and antidotal therapy. Hypotension secondary to nitrites should be treated with intravenous fluids and the Trendelenburg position. If pulmonary edema develops, maintain ventilation and oxygenation with close arterial gas monitoring. PEEP or CPAP may be necessary if pO<sub>2</sub> remains below 50mm Hg. Avoid net positive fluid balance. Blood cyanide and serum thiosulfate levels will be helpful for documentation although they might not be available for several days. Do not induce emesis in cases of ingestion. Gastric lavage may be performed with a large bore tube after endotracheal intubation. Administer activated charcoal slurry to prevent absorption. Administer one dose of a saline cathartic or sorbitol mixed with charcoal or given separately. Patients should be observed a minimum of 24-48 hours.

## 5. Fire-fighting measures

<b>Flammability of the product</b>	Flammable.
<b>Auto-ignition temperature</b>	535 °C
<b>Flash point</b>	-20 °C (Open cup)
<b>Explosion limits</b>	Lower: 5.4 % Upper: 46.6 %
<b>Products of combustion</b>	These products are carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide), nitrogen oxides (NO, NO <sub>2</sub> etc.).

## Unusual fire/explosion hazards

Extremely flammable liquid and vapor. Vapor may cause flash fire. Toxic Material. May be fatal if absorbed through skin, if swallowed or inhaled. Forms explosive mixtures in air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

May polymerize if exposed to: heat. Polymerization is highly exothermic and, if not controlled, may be violent. Polymerizes violently. Can lead to pressure build-up and subsequently to bursting of vessels or containers.

This material is combustible/flammable and is sensitive to fire, heat, and static discharge.

## Fire-fighting media and instructions

In case of fire, use water fog, foam, dry chemicals, or carbon dioxide. Do not use water jet.

Fight fire from protected location or maximum possible distance. Do not extinguish a leaking gas flame unless leak can be stopped. Use water spray to keep fire exposed containers cool. Move containing vessels from fire area if without risk.

DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

## Protective clothing (fire)

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

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## 6. Accidental release measures

### Personal precautions

Immediately contact emergency personnel. Do not enter area where material has spilled without personal protective equipment. Strictly avoid any contact with material. Eliminate all ignition sources. Isolate hazard area. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.

Keep unnecessary personnel away. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form non-flammable mixtures. Use suitable protective equipment (See Section: "Exposure controls/personal protection"). Follow all fire fighting procedures (See Section: "Fire-fighting measures"). Do not touch or walk through spilled material.

Do not enter any room, pit or container without wearing a full chemical protective suit and self-contained breathing equipment.

### Environmental precautions and clean-up methods

If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Avoid contact of spilled material with soil and prevent runoff entering surface waterways. See Section 13 for Waste Disposal Information.

### Personal protection in case of a large spill

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. A self-contained breathing apparatus should be used to avoid inhalation of the product.

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## 7. Handling and storage

### Handling

Never handle when working alone. Assure that proper personal protection measures are taken when opening or entering confined storage vessels. Proper respiratory equipment should be used when opening containers due to the probability of hydrogen cyanide vapors being released. Do not get in eyes, on skin or on clothing. Risk of cutaneous absorption. Do not breathe gas. Use only with adequate ventilation. Never handle when working alone. Assure that proper personal protection measures are taken when opening or entering confined storage vessels. Proper respiratory equipment should be used when opening containers due to the probability of hydrogen cyanide vapors being released. Wash thoroughly after handling. Destroy contaminated leather items such as belts and shoes and other items that cannot be decontaminated.

Cyanide poisoning first-aid (antidote) kits containing amyl nitrite ampules (or equivalent) must be available at the work site.

Keep away from heat, sparks and flame. Keep container closed. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

## Storage

Store in a segregated and approved area. This product must be kept in secure storage area so that only trained authorized personnel have access. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Store away from direct sunlight. Keep contents under 5°C.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### Ingredient name

Hydrogen cyanide

### Occupational exposure limits

**ACGIH TLV (United States, 9/2004). Skin**

CEIL: 5 mg/m<sup>3</sup>

CEIL: 4.7 ppm

**OSHA PEL (United States, 6/1993). Skin**

TWA: 11 mg/m<sup>3</sup> 8 hour(s).

TWA: 10 ppm 8 hour(s).

### Control Measures

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the work-station location. Use explosion-proof ventilation equipment.

### Hygiene measures

Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

### Personal protection

#### Eyes

Avoid contact with eyes. Chemical splash goggles.

#### Skin and body

Do not get on skin or clothing. Risk of cutaneous absorption. Wear clothing and footwear that cannot be penetrated by chemicals or oil. Recommended protective materials are PTFE and butyl rubber.

#### Respiratory

Use with adequate ventilation. Do not breathe gas/fumes/ vapor/spray. For exposure to gas, use a supplied air respirator.

#### Hands

Do not get on skin or clothing. Wear gloves that cannot be penetrated by chemicals or oil. Suggested protective materials are: Teflon and butyl rubber (limited use). 0.5mm Breakthrough time: >4h.

The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or S.O.P. for special handling directions

**Consult local authorities for acceptable exposure limits.**

## 9. Physical and chemical properties

### Physical state

Liquid.

### Odor

Like bitter almonds.

### Color

Colorless.

### Boiling point / Range

26 °C

### Melting point / Range

-13 °C

### Density

0.687 g/cm<sup>3</sup> at 20°C

### Vapor pressure

35 kPa at 0°C

82.7 kPa at 20°C

### Vapor Density (Air = 1)

0.93

### Solubility

Miscible in water. at 20°C

### Viscosity

Dynamic: 0.192 cP at 20°C

## 10. Stability and reactivity

<b>Stability and reactivity</b>	The product is stable.
<b>Conditions to avoid</b>	Keep away from heat, sparks and flame. Keep away from sources of ignition.
<b>Incompatibility with various substances</b>	Strong oxidizing materials, strong alkalis.
<b>Hazardous decomposition products</b>	carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide), nitrogen oxides (NO, NO <sub>2</sub> etc.)
<b>Hazardous polymerization</b>	Subject to violent polymerization when exposed to temperatures greater than 50°C (122°F). Acidity must be monitored and maintained to prevent polymerization. Water concentration should not exceed 4-5%. Incompatible with acids, bases and strong oxidizers.

## 11. Toxicological information

<b>Ingredient name</b>	<b>Test</b>	<b>Result</b>	<b>Route</b>	<b>Species</b>
HYDROGEN CYANIDE (HYDROCYANIC ACID)	LD50	4.2 mg/kg	Oral	Rat
	LD50	6.75 mg/kg	Dermal	Rabbit
	LC50	524 ppm (10 minute(s))	Inhalation	Human
	LC50	136 ppm (1 hours)	Inhalation	Rat
	LC50	142 ppm (30 minute(s))	Inhalation	Rat

### Chronic toxicity

#### Carcinogenic effects

No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA).

#### Mutagenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

#### Reproductive effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a reproductive toxin.

#### Teratogenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

### Other information

The following additional adverse effects of cyanide compounds other than hydrogen cyanide have been reported in experimental laboratory studies: thyroid changes, reproductive system changes, adverse effects on the developing fetus at doses that were toxic to the mother. While hydrogen cyanide alone is not known to affect hearing, simultaneous exposure to high levels of noise and concentrations of hydrogen cyanide at levels above the occupational exposure limit resulted in significant hearing loss in experimental animals. The significance of this finding to humans is not known.

## 12. Ecological information

<b>Ecotoxicity</b>	122 to 352 mg/l [LC50], 96 hour(s) [Fish (Minnows)]. 1.8 mg/l [EC50], 48 hour(s) [Daphnia].  Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<b>Mobility</b>	This product may move with surface or groundwater flows because its water solubility is: miscible in water.  This product is likely to volatilize rapidly into the air because of its high vapor pressure.
<b>Other ecological information</b>	Biological elimination: Our own tests showed that bacteria in biological treatment plants, after adaption, could withstand up to 100 mg cyanide/l.

## 13. Disposal considerations

### Waste information

Avoid contact of spilled material and runoff with soil and surface waterways. Suck off vapors from point of discharge. Vent waste air only via suitable separators or scrubbers. This material and its container must be disposed of as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of in accordance with all applicable local and national regulations.

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards. Since the emptied containers retain product residue, follow product insert warnings even after container is emptied. Labels should not be removed from containers until they have been cleaned.

Consult your local or regional authorities.

## 14. Transport information

### International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1051	Hydrogen Cyanide, stabilized	6.1	I	----	<b>Marine pollutant</b> Marine pollutant (P)
TDG Classification	UN1051	Hydrogen Cyanide, stabilized	6.1	I	----	<b>Marine pollutant</b> Marine pollutant (P)
IMDG Classification	UN1051	Hydrogen Cyanide, stabilized	6.1	I	----	<b>Marine pollutant</b> Marine pollutant (P)
IATA Classification	----	Forbidden	----	----	----	----

## 15. Regulatory information

### U.S. Federal regulations

US INVENTORY (TSCA): Listed on inventory.

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR Part 355): Hydrogen cyanide

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: HYDROGEN CYANIDE (HYDROCYANIC ACID): Fire hazard, reactive, Sudden Release of Pressure, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

### SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	HYDROGEN CYANIDE (HYDROCYANIC ACID)		100
Supplier notification	Hydrogen cyanide	74-90-8	99 - 100

CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):: Hydrogen cyanide: 10 lbs. (4.536 kg);

### State regulations

Massachusetts RTK:Hydrogen cyanide  
New Jersey:Hydrogen cyanide  
Pennsylvania RTK:Hydrogen cyanide (environmental hazard, generic environmental hazard)  
California Prop 65: No products were found

### Inventories

AUSTRALIAN INVENTORY (AICS): Listed on inventory.

CANADA INVENTORY (DSL): Listed on inventory.

CHINA INVENTORY (IECS): Listed on inventory.

EC INVENTORY (EINECS/ELINCS): Listed on inventory.

JAPAN INVENTORY (ENCS): Listed on inventory.

KOREA INVENTORY (ECL): Listed on inventory.

Product name	HYDROGEN CYANIDE (HYDROCYANIC ACID)	MSDS #	000000084 (NAP)	Page: 7/8
Version	3	Date of issue	06/28/2006.	Format US-COMP
				Language ENGLISH. ( ENGLISH )
			Build 4.2.7	

## 16. Other information

### Label requirements

DANGER!

EXTREMELY FLAMMABLE LIQUID AND VAPOR.  
 VAPOR MAY CAUSE FLASH FIRE.  
 PRODUCT STABILIZED-- MAY BECOME UNSTABLE AND VIOLENTLY REACTIVE.  
 MAY BE FATAL IF SWALLOWED.  
 MAY BE FATAL IF ABSORBED THROUGH SKIN.  
 MAY BE FATAL IF INHALED.  
 CAUSES EYE IRRITATION.  
 CAUSES SKIN IRRITATION.  
 CAUSES RESPIRATORY TRACT IRRITATION.  
 MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: THYROID, NERVOUS SYSTEM,  
 RESPIRATORY SYSTEM, CARDIOVASCULAR SYSTEM, HEARING IMPAIRMENT/CHANGE.  
 VERY TOXIC TO AQUATIC ORGANISMS. May cause long-term adverse effects in the aquatic environment.

### HMIS® Rating :

**Health** 4 \*  
**Flammability** 4  
**Physical Hazard** 1  
**Personal protection** X

**National Fire  
 Protection  
 Association  
 (U.S.A.)**



### History

**Date of issue** 06/28/2006.  
**Date of previous issue** 08/30/2005.  
**Prepared by** Product Stewardship

### Notice to reader

*NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.*