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MSDS: Cyanogen

PRODUCT INFORMATION

PRODUCT: Cyanogen
TRADE NAME: Cyanogen
CHEMICAL NAME: Cyanogen or Oxalonitrile
SYNONYMS: Dimethylcyanoarsine
FORMULA: C_2N_2
CHEMICAL FAMILY: Organic Cyanide
SUPPLIER'S NAME: MEGS Inc.
SUPPLIER'S ADDRESS: 2675 De Miniac
Ville St-Laurent, Qc, H4S 1E5
EMERGENCY PHONE NUMBER: (514) 956-7503
MOLECULAR WEIGHT: 52.04
PRODUCT USE: Various
PRODUCT IDENTIFICATION NUMBER: UN 1026

HAZARDOUS INGREDIENTS

CHEMICAL ID	CONCENTRATION	CAS #	LD(50)	LC(50)
	100%			
Cyanogen		460-19-5	SCU-Dog 13 mg/kg	Inhl-Rat 350 ppm/1h

PHYSICAL DATA

PHYSICAL STATE: Liquid and gas under pressure
APPEARANCE: Colorless gas and liquid
ODOR: Bitter almonds
ODOR THRESHOLD: Unknown
SPECIFIC GRAVITY (H_2O = 1): 0.954
VAPOR PRESSURE: 420 kPa

VAPOR DENSITY (air = 1):	1.80
EVAPORATION RATE:	Unknown
BOILING POINT:	-21.15°C
FREEZING POINT:	-27.83°C
pH:	Unknown
GAS DENSITY:	2.16 kg/m³ @ 15°C, 101.3 kPa
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Reacts with water and after exposure to light yield azuluric acid, ammonia and urea carbonates and cyanates.

FIRE OR EXPLOSION HAZARD

CONDITIONS OF FLAMMABILITY:	Cyanogen is flammable over a wide range in air
MEANS OF EXTINCTION:	Fires with cyanogen as the fuel can only be extinguished by shutting off the source of the gas. Use fine spray or fog to control fire by preventing its spread.
FLASHPOINT AND METHOD OF DETERMINATION:	Unknown
UPPER EXPLOSION LIMIT (% BY VOL):	32
LOWER EXPLOSION LIMIT (% BY VOL):	6
AUTO-IGNITION TEMPERATURE:	850°C
FLAMMABILITY CLASSIFICATION:	Class 1, Group B
HAZARDOUS COMBUSTION PRODUCTS:	Toxic cyanates
EXPLOSION DATA:	Yes, with oxides, acids and acid fumes
SENSITIVITY TO STATIC DISCHARGE:	Unknown

REACTIVITY DATA

CHEMICAL STABILITY:	Thermally unstable
INCOMPATIBLE MATERIALS:	Oxides, water, acids
CONDITIONS OF REACTIVITY:	Not applicable
HAZARDOUS DECOMPOSITION PRODUCTS:	Nitrogen oxide and cyanide fumes

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY:

SKIN CONTACT: Yes, see Inhalation, below

SKIN ABSORPTION: Absorption through the skin causes incoordination, tremors and eventual prostration and asphyxiation.

EYE: Irritation with low (15-20 molar ppm) concentrations

INHALATION: The effects include upper respiratory tract irritation, incoordination, tremors, prostration and asphyxiation.
Eye and nasal irritation are also caused by the presence of low (15-20 molar ppm) concentrations

INGESTION: Not known

ACUTE OVER EXPOSURE EFFECTS: Cyanogen is a deadly poison by all routes to the body. In the body it acts as an inhibitor of biological oxidation-reduction reactions. In so doing, it hinders cellular oxygen transfer (respiration). It initially strikes the central nervous systems which results in the paralysis of the respiratory tract.

Its odor of bitter almonds is only noticeable at concentrations considerably higher than lethal concentrations.

CHRONIC OVER EXPOSURE EFFECTS: None reported

EXPOSURE LIMITS: TWA = 10 molar ppm; (ACGIH 1995-1996)

IRRITANCY OF PRODUCT: Yes, see skin, Eyes, etc, above.

SENSITIZATION TO MATERIAL: None known

CARCINOGENICITY, REPRODUCTIVE EFFECTS: None known

TERATOGENICITY, MUTAGENICITY: None known

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: Possibly other (CN) compounds

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Gloves of impervious materials. Safety glasses or goggles with full face shield. Safety shoes, safety shower and

eyewash "fountain" and impervious cuter garments as required. Self contained breathing apparatus (SCBA)

SPECIFIC ENGINEERING CONTROLS: Dry cyanogen is only slightly corrosive. It can be handled best in carbon steel, stainless steel, Hastelloy® A, B and C, Monel® or Inconel®. Gasket or other soft materials should be of polyethylene, Kel-F® or Teflon®.

Systems should be kept scrupulously free of moisture.

LEAK AND SPILL PROCEDURES: EVACUATE ALL PERSONNEL FROM AFFECTED AREA.
Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is on container or container valve, contact the closest MEGS location. Eliminate all ignition sources.

WASTE DISPOSAL: Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to MEGS for proper disposal. For emergency disposal, contact the closest MEGS location.

HANDLING PROCEDURES AND EQUIPMENT: USE ONLY IN WELL-VENTILATED AREAS.
Valve protection caps must remain in place unless container is secured with valve outlet piped to the point of use. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Close valve after each use and when empty.

STORAGE REQUIREMENTS: Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52°C. Cylinders must be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area.

TDG CLASSIFICATION: 2.3 (2.1)

WHMIS CLASSIFICATION: A, B2, D1

SPECIAL SHIPPING INFORMATION: Always secure cylinders in an upright

position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

FIRST AID MEASURES

SPECIFIC FIRST AID PROCEDURES: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO CYANOGEN. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH APPROPRIATE PROTECTIVE EQUIPMENT (SELF-CONTAINED BREATHING APPARATUS, ETC.) TO PREVENT UNNECESSARY EXPOSURE AND BE AWARE OF EXTREME FIRE AND EXPLOSION HAZARD.

NOTES: Users should have a kit readily available for use by trained first aid personnel and the physician which should contain the following:
12 pearls of amyl nitrite
1 - 10 cc sterile syringe
1 - 20 cc sterile syringe
2 ampoules of 20 cc size of a 3% solution of sodium nitrite
2 ampoules of 50 cc size of a 25% solution of sodium thiosulfate

INHALATION: Immediaty on removal from the contaminated area, an amyl nitrite pearl should be broken and held under the victim's nose for 15 secondes. This treatment should be repeated 5 times at 15 seconds intervals. First aid personnel should take care not to inhale the amyl nitrite vapors. If victim is not breathing, give artifical respiration. Medical assistance should be sought immediately.

Note to physician: The nitrite-thiosulfate regimen is a specific antidote for cyanide poisoning. Immediately flush eyes or skin with copious quantities of water for at least 15 minutes while removing clothing. Hold eyelids open with fingers to assure complete flushing. Medical assistance should be sought immediately.

EYE CONTACT: PERSONS WITH POTENTIAL EXPOSURE TO CYANOGEN SHOULD NOT WEAR CONTACT LENSES.

Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes.

SKIN CONTACT: Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible.

MSDS for: Cyanogen / FaxBack Doc. # : 1058

PREPARATION INFORMATION

PREPARED BY: Safety Department

DATE PREPARED: 09/01/1999

LAST REVISION DATE: 05/21/2002

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