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MSDS: Chlorine

PRODUCT INFORMATION

PRODUCT: Chlorine
TRADE NAME: Chlorine
CHEMICAL NAME: Chlorine
SYNONYMS: None
FORMULA: Cl₂
CHEMICAL FAMILY: Halogen
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: 70.91
PRODUCT USE: Various
PRODUCT IDENTIFICATION UN 1017
NUMBER:

HAZARDOUS INGREDIENTS

CHEMICAL ID	CONCENTRATION	CAS #	LD(50)	LC(50)
Chlorine	99+%	7782-50-5	None published	Inhl-Human 873 ppm/30 min

PHYSICAL DATA

PHYSICAL STATE: Gas and liquid under pressure
APPEARANCE: Amber colored liquid; gas is greenish yellow
ODOR: Sharp, pungent odor.
ODOR THRESHOLD: Detectable at levels below 1 ppm in air by the normal person.
SPECIFIC GRAVITY (H₂O = 1): Liquid @ Boiling Point = 1.56
VAPOR PRESSURE: @ 15°C = 584 kPa

VAPOR DENSITY (air = 1): 2.48
EVAPORATION RATE: Unknown
BOILING POINT: -34.1°C
FREEZING POINT: -101.0°C
pH: Unknown
GAS DENSITY: 3.38 kg/m³ @ 15°C, 101.3 kPa
COEFFICIENT OF WATER/OIL @ 15°C, Bunsen Coefficient = 2.620
DISTRIBUTION:

FIRE OR EXPLOSION HAZARD

CONDITIONS OF FLAMMABILITY: Nonflammable gas
MEANS OF EXTINCTION: Nonflammable gas
FLASHPOINT AND METHOD OF DETERMINATION: Nonflammable gas
UPPER EXPLOSION LIMIT (% BY VOL): Nonflammable gas
LOWER EXPLOSION LIMIT (% BY VOL): Nonflammable gas
AUTO-IGNITION TEMPERATURE: Nonflammable gas
FLAMMABILITY CLASSIFICATION: Nonflammable gas
HAZARDOUS COMBUSTION PRODUCTS: Nonflammable gas
EXPLOSION DATA: Nonflammable gas
SENSITIVITY TO STATIC DISCHARGE: None

REACTIVITY DATA

CHEMICAL STABILITY: Stable
INCOMPATIBLE MATERIALS: Hydrocarbons, ammonia, ether
CONDITIONS OF REACTIVITY: High reactivity with organic and inorganic compounds may cause explosions and can aggravate fires. Most hazardous reactions are with OF₂, O₂F₂, F₂ NH₃ phosphorus and arsenic.
HAZARDOUS DECOMPOSITION PRODUCTS: None

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY:

SKIN CONTACT: Corrosive and irritating to all mucosal tissue, skin and eyes.

SKIN ABSORPTION: None

EYE: See Skin Contact, above

INHALATION: Corrosive and irritating to the upper and lower respiratory tract. Initial symptoms are irritation of the eyes, nose and throat becoming steadily worse, suffocating and painful. The irritation extends to the chest causing a cough reflex which may be violent and painful and may include the discharge of blood or vomiting with eventual collapse. Other symptoms may include headache, general discomfort and anxiety.

INGESTION: None

ACUTE OVER EXPOSURE EFFECTS: Irritating and corrosive to all living tissue. Toxic level exposure to dermal tissue causes acid-like burns and skin lesions resulting in early necrosis and scarring. Chemical pneumonitis and pulmonary edema result from exposure to the lower respiratory tract and deep lung. Burns to the eye result in lesions and possible loss of vision. Produces no known systemic effects or permanent physiological effect.

CHRONIC OVER EXPOSURE EFFECTS: None known

EXPOSURE LIMITS: TWA = 0.5 molar ppm; STEL = 1 molar ppm

IRRITANCY OF PRODUCT: Irritating to all living tissues

SENSITIZATION TO MATERIAL: Unknown

CARCINOGENICITY, REPRODUCTIVE EFFECTS: None known

TERATOGENICITY, MUTAGENICITY: Cyt-human lymphocyte @ 20 molar ppm

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: Unknown

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: PVC gloves ke-F®/Teflon® gloves. Safety goggles or glasses. Safety shoes, safety shower and eyewash "fountain".

SPECIFIC ENGINEERING CONTROLS: Most metals are corroded by chlorine at ambient temperature if moisture is present. Systems must be kept scrupulously dry. Lead, gold, tantalum and Hasteloy® offer the best corrosion resistance to moist chlorine.

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.

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 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. Do not tamper with (valve) safety device. 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.

TDG CLASSIFICATION: 2.3 (5.1)

WHMIS CLASSIFICATION: A, D1, E

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 CHLORINE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS

INHALATION: Conscious persons should be assisted to an uncontaminated

area and inhale fresh air. Unconscious persons should be moved to an uncontaminated area and given assisted respiration and supplemental oxygen. Keep the victim warm and quiet. Assure that mucous or vomited material does not obstruct the airway by positional drainage.

EYE CONTACT: PERSONS WITH POTENTIAL EXPOSURE TO CHLORINE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eye(s) with copious quantities of water. Part eyelids with fingers 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.

PREPARATION INFORMATION

PREPARED BY: Safety Department

DATE PREPARED: 01/01/1999

LAST REVISION DATE: 01/01/2009

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