HONG KONG SPECIALTY GASES CO., LTD.
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Cheung Sha Wan, Kln., Hong Kong.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME	CAS#
Dichlorosilane	4109-96-0
TRADE NAME AND SYNONYMS	**DOT I.D. NO.**
Dichlorosilane	UN 2189
CHEMICAL NAME AND SYNONYMS	**DOT HAZARD CLASS**
Dichlorosilane	Division 2.3
ISSUE DATE AND REVISIONS	**FORMULA**
Revised November 2000	SiH_2Cl_2

HEALTH HAZARD DATA

EMERGENCY OVERVIEW

Dichlorosilane is a colorless, flammable, toxic gas at room temperature and atmospheric pressure. It has an irritating odor and it fumes in moist air, being hydrolyzed to hydrochloric acid and a mixture of polymeric siloxanes. It is shipped as a liquefied gas in low pressure steel cylinders at a pressure of 66 kPa (9.6 psig) at 20°C.

SYMPTOMS OF EXPOSURE

Corrosive and irritating to the upper and lower respiratory tracts, skin and eyes. It hydrolyzes very rapidly in water or with the moisture in the air yielding hydrogen chloride. Skin burns and mucousal irritation are like that from exposure to hydrochloric acid. Symptoms include lacrymation, cough, labored breathing and excessive salivary and sputum formation. Excessive irritation of the lungs causes acute pneumonitis and pulmonary edema which could be fatal. Hydrochloric acid burns exhibit severe pain, redness, possible swelling and early necrosis.

TOXICOLOGICAL PROPERTIES

Dichlorosilane is irritating and corrosive to all living tissues. Toxic level exposure to dermal tissue causes hydrochloric acid 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. Residual pulmonary malfunction might also occur. Burns to the eye result in lesions and possible loss of vision.

RECOMMENDED FIRSTAID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO DICHLOROSILANE. RESCUERS SHOULD BE EQUIPPED WITH ADEQUATE PERSONAL PROTECTIVE 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 mucus or vomited material does not obstruct the airway by positional drainage. Delayed pulmonary edema may occur. Keep patient under medical observation for at least 24 hours.

Eye Contact: Persons with potential exposure to dichlorosilane should not wear contact lenses. Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for at least 15 minutes.

Skin Contact: All affected body surfaces be washed with copious quantities of running water for sufficient time. Remove contaminated clothing as rapidly as possible.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Reacts vigorously with water or moist air yielding hydrogen chloride. It is also flammable in air over a very wide range.

PHYSICAL DATA

BOILING POINT 8.4°C (47.1°F)	**CRITICAL TEMPERATURE** 176.0°C
MOLAR SPECIFIC HEAT (25 oC, 1 bar abs, constant volume) 62.053J/mol°K	**CRITICAL PRESSURE** 46.76 bar abs
SOLUBILITY IN WATER Hydrolyzes	**SPECIFIC VOLUME(@21.1 °C, 101.325 kPa)** 239.1 dm^3/kg
EVAPORATION RATE N/A (Gas)	**SPECIFIC GRAVITY (AIR=1)** @ 70°F (21.1°C) = 3.48
APPEARANCE AND ODOR Colorless, flammable, toxic gas with acidic, irritating odor	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 62 °F (C.C.)	**AUTO IGNITION TEMPERATURE** 212 °F (100 °C)	**FLAMMABLE LIMITS % BY VOLUME** LEL 4.1 UEL 98.8
EXTINGUISHING MEDIA Carbon dioxide or dry chemical on small fires. Coarse water spray on large fires.		
SPECIAL FIRE FIGHTING PROCEDURES A coarse water spray should be used on large fires since the hydrolysis reaction to HCl is more rapid than the combustion reaction.		
UNUSUAL FIRE AND EXPLOSION HAZARDS Recognize the potential for ground (water) contamination with hydrochloric acid following a dichlorosilane fire which has been "extinguished" with water.		

REACTIVITY DATA

STABILITY		**CONDITIONS TO AVOID**
Unstable		None
Stable	X	
INCOMPATIBILITY (Materials to avoid) Water, oxidizers		
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride, hydrogen, chlorine and finely divided amorphous silica		
HAZARDOUS POLYMERIZATION		**CONDITIONS TO AVOID**
May Occur		
Will Not Occur	X	None

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

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 in container or container valve, contact your closest supplier location or call the emergency telephone number listed herein.

WASTE DISPOSAL METHOD

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 your supplier. For emergency disposal assistance, contact your closest supplier location or call the emergency telephone number listed herein.

SPECIAL PROTECTION INFORMATION

RESPIRTORY PROTECTION (Specify type)
Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

VENTILATION	**SPECIAL**
Hood with forced ventilation	N/A
MECHANICAL (Gen.)	**OTHER**
N/A	N/A

LOCAL EXHAUST
To prevent accumulation above the celling limit for HCl

PROTECTIVE GLOVES
Natural rubber, PVC or polyethylene (low density)

EYE PROTECTION
Safety goggles or glasses

OTHER PROTECTIVE EQUIPMENT
Safety shoes, safety shower, eyewash "fountain" face shield

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION	
DOT Shipping Name: Dichlorosilane DOT Shipping Label: Toxic Gas; Flammable Gas; Corrosive	DOT Hazard Class: Division 2.3 II I.D. No.: UN 2189

SPECIAL HANDLING AND STORAGE RECOMMENDATIONS
Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125F (52C). Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. 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 (<7S psig) 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. Use a "first in – first out" inventory system to prevent full cylinders being stored for excessive periods of time.

SPECIAL PACKAGING RECOMMENDATIONS
Any materials suitable for use with anhydrous hydrogen chloride may be used with dichlorosilane. Systems and equipment must be kept scrupulously dry.

OTHER RECOMMENDATIONS OR PRECAUTIONS
Earth-ground and bond all lines and equipment associated with the dischlorosilane system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. 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.