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MSDS: Disilane

PRODUCT INFORMATION

PRODUCT: Disilane

TRADE NAME: Disilane

CHEMICAL NAME: Disilane or Silicon hexahydride

SYNONYMS: Disilicane

FORMULA: Si_2H_6

CHEMICAL FAMILY: Silicon Hydride

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: 62.2

PRODUCT USE: Various

PRODUCT IDENTIFICATION NUMBER: UN 1954 (compressed or liquified gases, flammable, n.o.s)

HAZARDOUS INGREDIENTS

CHEMICAL ID	CONCENTRATION	CAS #	LD(50)	LC(50)
	100%			
Disilane		1590-87-0		for SiH4 Inhl-Rat 9600 PPM/4H

PHYSICAL DATA

PHYSICAL STATE: Pyrophoric gas and liquid under pressure

APPEARANCE: Colorless, spontaneously combustible gas

ODOR: Not applicable

ODOR THRESHOLD: Not applicable

SPECIFIC GRAVITY (H_2O = 1):	0.902
VAPOR PRESSURE:	285 kPa @ 15°C
VAPOR DENSITY (air = 1):	Not applicable
EVAPORATION RATE:	Not applicable
BOILING POINT:	-14.3°C
FREEZING POINT:	-132.6°C
pH:	Not applicable
GAS DENSITY:	Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Insoluble in water

FIRE OR EXPLOSION HAZARD

CONDITIONS OF FLAMMABILITY:	Spontaneously flammable in air
MEANS OF EXTINCTION:	Shut off supply of disilane. Use water spray to cool surrounding containers. "Stop flow of gas before extinguishing fire".
FLASHPOINT AND METHOD OF DETERMINATION:	Not applicable
UPPER EXPLOSION LIMIT (% BY VOL):	Pyrophoric
LOWER EXPLOSION LIMIT (% BY VOL):	Pyrophoric
AUTO-IGNITION TEMPERATURE:	Pyrophoric
FLAMMABILITY CLASSIFICATION:	Pyrophoric
HAZARDOUS COMBUSTION PRODUCTS:	None
EXPLOSION DATA:	Pyrophoric
SENSITIVITY TO STATIC DISCHARGE:	Pyronphoric

REACTIVITY DATA

CHEMICAL STABILITY:	Unstable; slowly decomposes to silane and hydrogen at ambient temperatures.
INCOMPATIBLE MATERIALS:	Air, halogens and other oxidizers
CONDITIONS OF REACTIVITY:	Pyrophoric
HAZARDOUS DECOMPOSITION PRODUCTS:	Silane and hydrogen

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY:

SKIN CONTACT: Skin burns from ignited disilane are similar to other thermal burns.

SKIN ABSORPTION: None

EYE: None

INHALATION: Symptoms of inhalation are not well defined. It has been reported that breathing this gas may cause headache or nausea.

INGESTION: None

ACUTE OVER EXPOSURE EFFECTS: Since disilane is spontaneously flammable in air (liberating silicon dioxide), its toxicological properties are difficult to determine. Inhalation of low concentrations (probably less than one molar percent) of disilane, so that spontaneous ignition does not occur, could react with basic solutions in the body liberating silicates and hydrogen. Further, with possible hydrolysis in body tissues, silicic acid could be formed.

CHRONIC OVER EXPOSURE EFFECTS: None

EXPOSURE LIMITS: No TWA is established (ACGIH, 1995-1996). Recommend using silane which is a decomposition product of disilane. The TWA for silane is 5 molar ppm (ACGIH 1995-1996).

IRRITANCY OF PRODUCT: Not applicable

SENSITIZATION TO MATERIAL: None known

CARCINOGENICITY, REPRODUCTIVE EFFECTS: None known

TERATOGENICITY, MUTAGENICITY: None known

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: Silane

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Protective gloves as required. Safety goggles or glasses. Safety shoes, safety shower.

SPECIFIC ENGINEERING CONTROLS: Pure disilane is noncorrosive and may be handled in most common structural materials. Carbon steel, stainless steel,

copper, brass Monel®, and Hasteloy® C are the most commonly used materials. It is also compatible with ordinary glass, Pyrex®, and quartz. For gasketing materials, Viton®, Nylon®, Teflon®, and Kel-F® are satisfactory.

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 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. 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 from 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. Disilane cylinders, whether full or empty, should not be stored with other flammable products.

TDG CLASSIFICATION: 2.1

WHMIS CLASSIFICATION: A, B

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 DISILANE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS AND BE COGNIZANT OF EXTREME FIRE AND EXPLOSION HAZARD.

INHALATION: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

EYE CONTACT: Not applicable

SKIN CONTACT: Skin burns from ignited disilane should be treated as with any thermal burn.

PREPARATION INFORMATION

PREPARED BY: Safety Department

DATE PREPARED: 01/01/1999

LAST REVISION DATE: 05/21/2002