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MATERIAL
SAFETY
DATA SHEET

No. 3

PRODUCT NAME Allene	**CAS #** 463-49-0
TRADE NAME AND SYNONYMS Allene, Propadiene	**DOT I.D. No.:** UN 2200
CHEMICAL NAME AND SYNONYMS Propadiene, inhibited (D.O.T.)	**DOT Hazard Class:** Division 2.1
ISSUE DATES AND REVISIONS Revised January 1995	**Formula** C_3H_4
	Chemical Family: Diolefin

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT

Allene is defined as a simple asphyxiant (ACGIH 1994-1995). No PEL (8 Hr. TWA) is listed by OSHA (1993). (Continued on Page 4)

SYMPTOMS OF EXPOSURE

Inhalation: Moderate concentrations so as to exclude an adequate supp1y of oxygen to the lungs causes dizziness, drowsiness and eventual unconsciousness. It has been reported to act as an anesthetic at very high concentrations.

Skin and Eye Contact: Is a slight irritant to the skin and mucosal tissues. Due to its rapid rate of evaporation, it can cause tissue freezing or frostbite on dermal contact.

TOXICOLOGICAL PROPERTIES

Has been reported that breathing high concentrations causes an anesthetic effect; however, the major property is the exclusion of an adequate supply of oxygen to the lungs.

Frostbite effects are a change in color of the skin to gray or white possibly followed by blistering .

Persons in ill health where such illness would be aggravated by exposure to allene should nct be allowed to work with or handle this product. (Continued on Page 4)

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO ALLENE. 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. (Continued on Page 4)

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Allene is flammable over a wide range in air.

PHYSICAL DATA

BOILING POINT -29.9°F (-34.4°C)	**LIQUID DENSITY AT BOILING POINT** 41.1 lb/ft^3 (658 kg/m^3)
VAPOR PRESSURE @ 70°F (21.1°C): 107 psia (738 kPa)	**GAS DENSITY AT 70°F. 1 atm** 0.104 1b/ft^3 (1.666 kg/m^3)
SOLUBILITY IN WATER Insoluble	**FREEZING POINT** -213°F (-136°C)
EVAPORATION RATE N/A	**SPECIFIC GRAVITY (AIR=1)** @ 70°F (21.1°C) = 1.39

APPEARANCE AND ODOR Colorless qas witn a sweet olefinic odor.

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Gas	**AUTO IGNITION TEMPERATURE** None established	**FLAMMABLE LIMITS % BY VOLUME (See Page 4)** LEL 2.16 UEL 11.5
EXTINGUISHING MEDIA Water, carbon dioxide, dry chemical		**ELECTRICAL CLASSIFICATION** Class 1, Group not

SPECIAL FIRE FIGHTING PROCEDURES

If possible, stop the flow of allene. Use water spray to cool surrounding containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Allene is heavier than air and may travel a considerable distance to a source of ignition Should flame be extinguished and flow of gas continue, increase ventilation to prevent flammable mixture formation in low areas or pockets.

REACTIVITY DATA

STABILITY Unstable		**CONDITIONS TO AVOID** Easily isomerizes to methyl acetylene in presence of strong bases.
Stable	X	

INCOMPATIBILITY (Materials to avoid) Oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS None

HAZARDOUS POLYMERIZATION May Occur		**CONDITIONS TO AVOID** None
Will Not Occur	X	

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

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.		
VENTILATION Hood with forced ventilation	**LOCAL EXHAUST** To prevent accumulation above the LEL	**SPECIAL** N/A
	MECHANICAL (Gen.) In accordance with electrical codes	**OTHER** N/A
PROTECTIVE GLOVES PVC or rubber in laboratory; as required for cutting and welding		
EYE PROTECTION Safety goggles or glasses		
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower		

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION

DOT Shipping Name: Propadiene inhibited DOT Hazard Class: Division 2.1
DOT Shipping Label: Flammable Gas I.D. No.: UN 2200

SPECIAL HANDLING RECOMMENDATIONS

Use only in well-ventilated areas. Valvc, 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 (<250 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.

For additional recommendations consult Compressed Gas Association's Pamphlets P-1 P-14, and Safety Bulletin SB- 2.

SPECIAL STORAGE RECOMMENDATIONS

Protect cylinders from physical damage. Store in cool dry wel1-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). Cylinders should 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 Smoling or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area.

For additional recommendations consult Compressed Gas Association's Pamphlets P-1 P-14 and Safetv Bulletin SB- 2.

SPECIAL PACKAGING RECOMMENDATIONS

Allene is noncorrosive and may be used with any common structural material.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Earth-ground and bond all lines and equipment associated with the allene system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR). (Continued on Page 4)

*Various Government Agencies (i.e. Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that he is in full compliance.

HEALTH HAZARD DATA

WEIGHTED AVERAGE EXPOSURE LIMIT: (Continued)

Oxygen levels should be maintained at greater than 18 Molar percent at normal atmospheric pressure (pO_2>135 torr).

TOXICOLOGICAL PROPERTIES: (Continued)

Allene is not listed in the IARC, NTP or by OSHA as a carcinogen or potential carcinogen.

RECOMMENDED FIRST AID TREATMENT: (Continued)

Dermal Contact or Frostbite: Remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic “burn” has resulted in blistering of the dermal surface or deep tissue freezing.

SPECIAL PRECAUTIONS

OTHER RECOMMENDATIONS OR PRECAUTIONS: (Continued)

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.

Reporting under SARA, Title III, Section 313 not required.

NFPA 704 No. for allene 1 4 1 None