



Linde Gas LLC (216) 642-6600
 P.O. Box 94737
 Cleveland, Ohio 44101
 www.us.lindegas.com

MATERIAL SAFETY DATA SHEET

No. 155

PRODUCT NAME Vinyl Chloride	CAS # 75-01-4
TRADE NAME AND SYNONYMS Vinyl chloride, inhibited (D.O.T.)	DOT I.D. No.: UN 1086; RQ 1.0 (0.454)
CHEMICAL NAME AND SYNONYMS Vinyl Chloride, Chloroethylene; Chloroethene	DOT Hazard Class: Division 2.1
	Formula C ₂ H ₃ Cl or CH ₂ CHC
ISSUE DATES AND REVISIONS Revised january 1995	Chemical Family: Halogenated Alkene

HEALTH HAZARD DATA

<p>TIME WEIGHTED AVERAGE EXPOSURE LIMIT TWA = 5 molar ppm with an A1 Carcinogen Rating (ACGIH 1994-1995). AI is a confirmed human carcinogen. OSHA 1993. 1910.1017, 8 Hr. TWA = 1 Molar PPM (Continued on Page 4)</p>
<p>SYMPTOMS OF EXPOSURE Inhaling high concentrations causes mild symptoms of drowsiness, blurred vision, staggering gate and tingling and numbness in the extremities. Liquid vinyl chloride may cause severe irritation or burns on skin or eye contact.</p>
<p>TOXICOLOGICAL PROPERTIES Several workers who handled and used vinyl chloride developed a rare form of liver cancer. IARC, NTP and OSHA all list vinyl chloride as a carcinogen. Persons in ill health where such illness would be aggravated by exposure to vinyl chloride should not be allowed to work with or handle this product.</p>
<p>RECOMMENDED FIRST AID TREATMENT PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO VINYL CHLORIDE. 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.</p> <p style="text-align: right;">(Continued an Page 4)</p>

Information contained in this material safety data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this Company or others covering any process, composition of matter or use.
 Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Vinyl chloride polymerizes on exposure to sunlight, heat or in the presence of oxygen or air. The addition of phenol or hydroquinone inhibits the polymerization. It is flammable in air.

PHYSICAL DATA

BOILING POINT 7.3°F (-13.7°C)	LIQUID DENSITY AT BOILING POINT 60.6 lb/ft ³ (971 kg/m ³)
VAPOR PRESSURE @ 70°F (21.1°C) = 52 psia (360 kPa)	GAS DENSITY AT 70°F, 1 atm @ 77°F (25°C) = .164 lb/ft ³ (2.63 kg/m ³)
SOLUBILITY IN WATER Slightly Soluble	FREEZING POINT -244.8°F (-153.8°C)
EVAPORATION RATE N/A (Gas)	SPECIFIC GRAVITY (AIR=1) @ 77°F (25°C) = 2.22
APPEARANCE AND ODOR Colorless gas with a pleasant, sweet odor	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) -108°F (CC)	AUTO IGNITION TEMPERATURE 882°F (472°C)	FLAMMABLE LIMITS % BY VOLUME (See Page 4) LEL 3.6 UEL 33
EXTINGUISHING MEDIA Water, dry chemical, carbon dioxide		ELECTRICAL CLASSIFICATION Class 1, Group Not Specified
SPECIAL FIRE FIGHTING PROCEDURES Attempt to stop the flow of vinyl chloride. Use water spray to cool surrounding containers.		
UNUSUAL FIRE AND EXPLOSION HAZARDS Vinyl chloride vapors are heavier than air and may travel a considerable distance to a source of ignition. Should fire be extinguished and flow of gas continue, increase ventilation to prevent formation of flammable mixtures in low areas or pockets.		

REACTIVITY DATA

STABILITY Unstable		CONDITIONS TO AVOID None
Stable	X	
INCOMPATIBILITY (Materials to avoid) Oxidizers		
HAZARDOUS DECOMPOSITION PRODUCTS None		
HAZARDOUS POLYMERIZATION May Occur	X	CONDITIONS TO AVOID It is inhibited with phenol or hydroquinone to prevent polymerization.
Will Not Occur		

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 TWA	SPECIAL	N/A
	MECHANICAL (Gen.) In accordance with electrical codes	OTHER	N/A
PROTECTIVE GLOVES Most materials except natural rubber			
EYE PROTECTION Safety goggles or glasses			
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower, eyewash "fountain," transparent face shield			

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION			
DOT Shipping Name: Vinyl chloride, inhibited	I.D. No.:	UN 1086; RQ 1.0(0.454)	
DOT Shipping Label: Flammable Gas	DOT Hazard Class:	Division 2.1	
SPECIAL HANDLING RECOMMENDATIONS			
<p>Use only in well-ventilated areas. 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 connectinn cylinder to lower pressure (<150 psiq) piping or systems. Do not heat cylinder by any means to increase tne 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.</p> <p>For additional handling recommendations, consult Compressed Gas Association's Pamphlets I P-1 and P-10.</p>			
SPECIAL STORAGE RECOMMENDATIONS			
<p>Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits.</p> <p>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 beins 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.</p> <p>For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1 and P-10.</p>			
SPECIAL PACKAGING RECOMMENDATIONS			
<p>Most metals except copper and its alloys may be used with vinyl chloride. Copper and its alloys could form explosive acetylides by reacting with the acetylene impurity in the product.</p> <p>Teflon® is the preferred gasketing material.</p>			
OTHER RECOMMENDATIONS OR PRECAUTIONS			
<p>Earth-ground and bond all lines and equipment associated with the vinyl chloride 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).</p>			

(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

TWA DATA: (continued)

(<5 Molar PPM averaged over any period not exceeding 15 minutes) with the prohibition of any personal direct contact with vinyl chloride liquid and it is classified as a cancer suspect agent.

RECOMMENDED FIRST AID TREATMENT: (Continued)

Eye Contact: PERSONS WITH POTENTIAL EXPOSURE TO VINYL CHLORIDE SHOULD NOT WEAR CONTACT LENSES.

Flush contaminated eye(s) with copious quantities of water. Part eyelids with fingers to assure complete flushing. Continue for minimum of 15 minutes. An eye specialist should be summoned promptly.

Skin Contact: Flush affected areas with copious quantities of water. Remove affected clothing as rapidly as possible. A physician should see the patient. Follow the water flush with a soap and water wash.

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.

Vinyl chloride is a toxic chemical and it is subject to the reporting requirements of SARA, Title III, Section 313.