



Westlake Vinyls, Inc.

MATERIAL SAFETY DATA SHEET

VINYL CHLORIDE

ISSUED: 01/14/03

REVISED: 01/14/03

SECTION I. PRODUCT IDENTIFICATION

| | | |
|---|------------------------|--|
| <u>Manufacturer's Name</u> | <u>Telephone No.</u> | <u>Transportation Emergency Contact</u> |
| Westlake Vinyls, Inc. P O Box 712 2468 Industrial Parkway Calvert City, KY 42029 | 270-395-4151 | CHEMTREC 1-800-424-9300 |
| | <u>Chemical Family</u> | <u>Formula</u> |
| | Vinyl Halide | CH ₂ =CHCl |

CHEMICAL NAME/SYNONYMS: Vinyl Chloride; VCM; VCl; Chloroethylene; Chloroethene

PRODUCT USE: Manufacture of polyvinyl chloride (PVC) plastics and vinyl chloride copolymers

SECTION II. HAZARDOUS INGREDIENTS

| <u>MATERIAL</u> | <u>CAS. NO.</u> | <u>AMT. IN PRODUCT</u> | <u>ACGIH TLV-TWA</u> | <u>OSHA PEL-TWA</u> |
|--|-----------------|------------------------|----------------------|---|
| VINYL CHLORIDE MONOMER ^{1,2,3,4,5,6,7} | 75-01-4 | >99.9% | 5 PPM | 1 PPM (5 PPM TWA for any 15 minute period) |

Vinyl chloride monomer is shown as an OSHA cancer suspect agent (29 CFR 1910.1017), an American Conference of Governmental Industrial Hygienists (ACGIH) confirmed human carcinogen, a National Toxicology Program (NTP) and an International Agency for Research on Cancer (IARC) human carcinogen.

Legislative Footnotes

¹Ingredient listed on SARA Section 313 List of Toxic Chemicals

²Ingredient listed on the *Pennsylvania Hazardous Substances List*

³Ingredient listed on the California listing of *Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*

⁴Ingredient listed on the *Massachusetts Substance List*

⁵*Workplace Hazardous Materials Information System* ingredient found on the Ingredient Disclosure List - Canada

⁶Ingredient listed on the *New Jersey Right to Know Hazardous Substance List*

⁷Substance is listed on *EPA TSCA Inventory*

Notes:

TLV-TWA: *Threshold Limit Value - Time Weighted Average for concentration of the chemical substance in the ambient workplace air. American Conference of Governmental Industrial Hygienists.*

OSHA PEL: *OSHA Permissible Exposure Limit, 8-hour TWA. 29 CFR 1910.1000, 2002.*

SECTION III. PHYSICAL DATA

| | |
|------------------------|--|
| APPEARANCE & ODOR: | Colorless gas. Mild, sweet odor. |
| BOILING POINT: | 7°F (-13.8°C) |
| MELTING POINT: | -245°F (-154°C) |
| MOLECULAR WEIGHT: | 62.5 |
| VAPOR DENSITY: | 2.2 (air = 1) |
| VAPOR PRESSURE (mmHg): | 1300 AT 32°F (0°C) AND 2500 AT 68°F (20°C) |
| SPECIFIC GRAVITY: | 0.97 AT 9°F (-13°C) (Liquid) |
| % VOLATILE: | 100% |
| SOLUBILITY IN WATER: | 0.11 g/100 g @ 77°F (25°C) |
| PHYSICAL STATE: | Gas (Under normal temperatures) |

SECTION IV. FIRE & EXPLOSION HAZARD DATA

| | | |
|--------------------|-------------------------------------|---|
| <u>Flash Point</u> | Self <u>Ignition Temperature</u> | <u>Explosion Limits</u> |
| -108°F (-78°C) | 882°F (472°C) | Lower: 3.6% (LEL) Upper: 33.0% (UEL) |

Notes:

Flash Point Temperature - The lowest initial temperature of air passing around the specimen at which sufficient combustible gas is evolved to be ignited by a small external pilot flame.

Self-Ignition Temperature - The lowest initial temperature of air passing around the specimen at which, in absence of an ignition source, ignition occurs of itself, as indicated by an explosion, flame or sustained glow.

Extinguishing Media

ABC Dry Chemical and Halon

Special Fire Fighting Procedures

Fire fighters should wear a self-contained breathing apparatus (SCBA) under positive pressure and full protective gear to prevent all body contact.

Stopping the flow of gas, rather than extinguishing the fire is usually the best procedure to follow when escaping gas is burning. It may be dangerous to extinguish the flame and allow the gas to continue to flow as an explosive mixture may be formed with air which, if ignited, may cause far greater damage than if the original fire had been permitted to burn. Extinguishing the flame by dry chemical may be desirable where necessary to permit immediate access to shut off the supply.

Unusual Fire and Explosive Hazards

Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by flame, sparks, heaters or other ignition sources at distant locations. Vapors can form flammable mixtures in air.

SECTION V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 5 PPM PERMISSIBLE EXPOSURE LIMIT: 1 PPM

Effects of Overexposure

Overexposure to vinyl chloride vapors can produce dizziness, light headedness, euphoria, nervousness, drowsiness, headache, blurred vision, impaired hearing and confusion.

Extremely high concentrations (>70,000 ppm) may cause unconsciousness and death. Vapor is moderately irritating to the eyes, nose and throat. Liquid vinyl chloride can produce immediate pain and severe irritation and may cause permanent damage to the eyes.

Frostbite may cause permanent damage to the skin. Prolonged exposure to high concentrations may cause degeneration of the ends of the finger bones.

Vinyl chloride has been reported to cause angiosarcoma of the liver, a rare form of liver cancer in humans. Transplacental carcinogenicity has been observed in some long term studies with animals.

PRIMARY ROUTES OF ENTRY: Inhalation, skin and eye contact

SECTION VI. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

Utilize a NIOSH/MSHA approved respirator under the provisions of 29 CFR 1910.134. Read 29 CFR 1910.1017 (G)4 for complete details for selection of respirators for vinyl chloride. In unknown atmospheric concentrations or in concentrations of vinyl chloride above 3,600 ppm, an open-circuit, pressure demand, self-contained breathing apparatus with full face piece is required. If atmospheric concentrations are not over 1,000 ppm, Type C supplied air respirator, continuous flow type, with full or half face piece (helmet or hood) is required.

PROTECTIVE EQUIPMENT

Wear impervious gloves, coveralls, boots and/or other resistant protective clothing. Wear chemical safety goggles and face shield. Have a safety shower/eye wash station readily available in the immediate work area. An impervious full-body encapsulating suit and respiratory protection may be required in some operations. (Remove contaminated clothing promptly and keep contaminated clothing in a closed container. Discard or launder contaminated clothing before reuse. Inform laundry personnel of contaminant hazards.)

***DO NOT SMOKE OR CONSUME FOOD OR BEVERAGES IN THE WORK AREA.
WASH THOROUGHLY AFTER HANDLING THE PRODUCT.***

VENTILATION

Effective exhaust ventilation should always be provided to draw fumes or vapors away from workers to prevent routine inhalation. Ventilation should be adequate to maintain the ambient workplace atmosphere below the legislated levels listed in Section II.

SECTION VII. EMERGENCY & FIRST AID PROCEDURES

INHALATION (Of Process Emissions)

Remove affected individual to fresh air while insuring the rescuers utilize appropriate protective equipment. If breathing has ceased, administer artificial respiration. If no pulse is found, administer cardiopulmonary resuscitation immediately. Avoid mouth to mouth contact. Obtain medical attention immediately.

SKIN CONTACT

Immediately flush contaminated area with lukewarm water for at least 20 minutes. Carefully cut around clothing sticking to damaged skin and remove rest of garment. Obtain immediate medical attention.

EYE CONTACT

Immediately flush eyes with lukewarm water for at least 20 minutes while lifting upper and lower eyelids. Seek medical attention immediately.

INGESTION

Not an anticipated hazard.

SECTION VIII. REACTIVITY DATA

STABILITY

Stable (Hazardous peroxide can form by oxidation with atmospheric oxygen when stored for prolonged periods in the presence of a variety of contaminants.)

HAZARDOUS POLYMERIZATION

Will occur. (Polymerizes in the presence of air, sunlight or heat.)

HAZARDOUS DECOMPOSITION PRODUCTS

Hydrogen chloride gas, carbon monoxide, carbon dioxide, and possibly trace amounts of phosgene and other gases.

INCOMPATIBILITY (Materials to Avoid)

Avoid contact with strong oxidizers. Can cause violent polymerization increasing risks of fire and explosion. Metals such as copper, aluminum and certain catalytic impurities can initiate a violent polymerization.

SECTION IX. SPILL & LEAK PROCEDURE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Restrict access to area until completion of clean-up. Insure clean-up is conducted by trained personnel. Wear appropriate personal protection and ventilate area. Extinguish or remove all ignition sources and remove or isolate flammable and combustible materials. Notify governmental authorities as required. Do not touch spilled material. Prevent material from entering sewers or confined spaces. Stop or reduce leak if safe to do so. Keep materials that can burn away from spilled material. Permit small spills to evaporate. For large spills, dike or flush to ground and allow it to evaporate. Remove contaminated soil and dispose of as hazardous waste.

WASTE DISPOSAL METHOD

Dispose of waste in accordance with all Federal, State and Local regulations. If burned, incinerator should be equipped with a hydrogen chloride scrubber. Contaminated soil and containers must be managed as a hazardous waste (U043).

SECTION X. SPECIAL PRECAUTIONS

MATERIAL HANDLING

Handle under well ventilated conditions. Keep product away from sparks, flames and other ignition sources. Sources of ignition, such as static discharge, should be addressed by the user to prevent the ignition and sudden release of energy.

Post '**NO SMOKING OR OPEN FLAMES**' signs in the areas of use or storage. Bond and ground all containers. Label containers according to OSHA Standards (29 CFR 1910.1017(1)). All wiring and equipment in storage or use areas must be suitable for Class I, Group D.

STORAGE

Store in a cool, dry, well-ventilated area, out of direct sunlight and away from incompatible materials. Store away from heat and ignition sources. Store in suitable, labeled containers. Containers should be tightly closed. When not in use and when empty, protect from damage. Emptied containers may contain residual liquid or vapors which may ignite or explode. Use non-sparking ventilation systems and electrical equipment.

SECTION XI. HAZARD CODES

NFPA 704

(National Fire Protection Association)

Health: 2
Flammability: 4
Reactivity: 2

HMIS

(Hazardous Materials Identification System)

Health: 3
Flammability: 4
Reactivity: 2
Personal Protection: See Sections V & VI of MSDS

Special:

Key: 0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

SECTION XI. LABELING

See last two (2) pages of MSDS.

SECTION XII. USER'S RESPONSIBILITY

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to the user's employees and/or customers. Westlake Monomers Corporation must rely upon the user to utilize this information to develop appropriate work practice guidelines and employee instructional programs specific to the user's operation.

SECTION XIII. DISCLAIMER OF LIABILITY

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable Federal, State and Local laws and regulations remains the responsibility of the user.

PRODUCT LABELING INFORMATION

Product: **Vinyl Chloride**

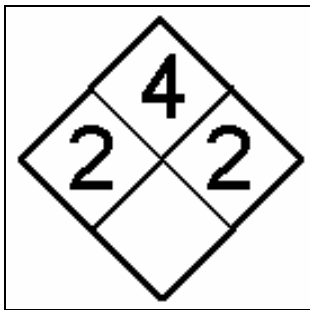
Westlake Monomers Corporation
P O Box 712
Calvert City, KY 42029

Telephone No.: 270-395-4151
Transportation Emergency No.:
CHEMTREC: 1-800-424-9300
Medical Emergency No.:
POISON CENTER: 216-379-8562

READ MATERIAL SAFETY DATA SHEET (MSDS) BEFORE USE

Vinyl Chloride
Contains Vinyl Chloride
Vinyl Chloride is a OSHA Cancer-Suspect Agent

NFPA



HMIS

| | |
|---------------------|---|
| Health | 3 |
| Flammability | 4 |
| Reactivity | 2 |
| Personal Protection | * |

*See MSDS Section VI

CAUTION! Inhalation of the material can cause dizziness, euphoria, nervousness, drowsiness, headache, blurred vision. Extremely high concentrations may cause unconsciousness and death. Vinyl chloride is a confirmed human carcinogen of the liver. **WARNING!** Flammable Gas.

First Aid

Inhalation of process emissions - Remove affected individual to fresh air. Contact a physician immediately.

Eye Contact - Flush eyes with water for at least 20 minutes while lifting upper and lower eyelids. Seek medical attention immediately.

Skin Contact - Immediately flush area with luke warm water for 20 minutes.

Contains: Vinyl Chloride (CAS No. 75-01-4) 100%

SHIPPING INFORMATION

IDENTIFICATION - DOMESTIC TRANSPORTATION

Proper Shipping Name - 172.101(c): Vinyl Chloride, Inhibited or Vinyl Chloride, Stabilized

Technical Names - 172.203(k): N.A.

Hazard Class - 172.101(d): 2.1

UN/NA# - 172.101(e): UN 1086

Haz. Substance (171.8): Vinyl Chloride

Inhalation Hazard - 172.2a(b): N.A.

Reportable Quantity: 1 lb.

Placarded: Flammable Gas

PACKAGING (Part 173)

Packaging Sections (172.101(i)) - Col. 8(a): 173.306

Col. 8(b): 173.304

Col. 8(c): 173.314, 173.315

General Packaging Sections - General 173.24

Package Group: N/A

Hazard Class: Flammable Gas

DANGEROUS GOODS DETERMINATION (38th Edition) IATA

Proper Shipping Name (Col. B): Vinyl Chloride, Inhibited

Class/Division (Col. C): 2.1

UN/ID# (Col. A): UN 1086

U.S. Haz. Substance (US1): RQ, Vinyl Chloride

Carrier Special Provisions (Col. K): A1

Subsidiary Risk (Col. D): None

Other/Inhalation Haz. (US 34):

N.A.

PACKAGING

Max. Qty. Per Pkg. (Cols. H/J): Passenger: Forbidden
Kg.

Cargo: 150

Packaging Instructions (Cols. G/I): Passenger: Forbidden

Cargo: 200

MARKING

A. Proper Shipping Name - 172.301(a)

Technical Name - 172.301(b)

B. UN/NA Number - 172.301(a)

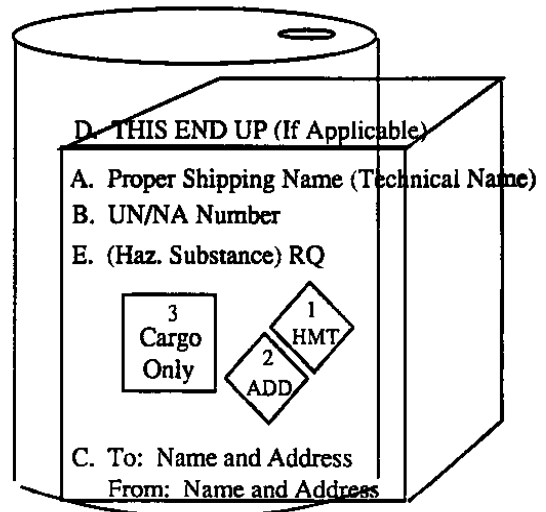
C. Name & Address - 172.301(d)

D. THIS END UP - 172.312(a)

E. Hazardous Substance RQ (Name) (172.324)

ORM Designation - 172.316(a)

Inhalation Hazard - 172.313(a)



DOMESTIC LABELING

1. HMT LABELS (172.400)

2. Additional Subsidiary Hazard (172.402(a))