



DO A 041969
CONFIDENTIAL



The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Page: 1

24-Hour Emergency Phone Number: 517-636-4400

Product: VINYL CHLORIDE MONOMER

Product Code: 91575

Effective Date: 06/18/96 Date Printed: 01/30/98 MSD: 000664

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Vinyl chloride

CAS# 000075-01-4 99.9%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

* Colorless gas or liquid. Sweet odor. Liquid causes frost burns. *
* May be fatal if inhaled. Can cause cancer. Toxic fumes are *
* released in fire situations. Vapors may travel a long distance; *
* ignition and/or flash back may occur. Avoid temperatures above *
* 472C/882F. Do not extinguish. Extremely flammable. Warn public *
* of downwind explosion hazard. Vapor explosion hazard. *

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: If liquid contacts eye, evaporation may cause frostbite-type injury due to rapid cooling.

SKIN: If liquid contacts skin, evaporation may cause frost-bite type injury due to rapid cooling. Skin absorption is unlikely due to physical properties.

INGESTION: Ingestion is unlikely due to physical state.

INHALATION: A single brief (minutes) inhalation exposure to easily attainable concentrations may cause serious adverse effects, even death. Signs and symptoms of excessive exposure

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may be anesthetic or narcotic effects. Signs and symptoms of excessive exposure may be central nervous system effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Excessive exposure may cause lung, liver and kidney effects. Repeated exposures have been reported to produce changes in bone, skin, and vascular system, particularly in the extremities of the body.

CANCER INFORMATION: Has been shown to cause cancer in humans. Has been shown to cause cancer in laboratory animals. For hazard communication purposes under OSHA Standard 29 CFR Part 1910.1200, this chemical is listed as a carcinogen by NTP, IARC, and OSHA.

TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

REPRODUCTIVE EFFECTS: No relevant information found.

4. FIRST AID

EYE: Flush eyes with plenty of water.

SKIN: No adverse effects anticipated by this route of exposure except for frostbite.

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: The following disease states have been observed in industrial workers exposed to vinyl chloride vapors: acroosteolysis, scleroderma, and Raynaud's phenomenon. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

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FLAMMABLE PROPERTIES

FLASH POINT: -78C (~108.4F)

METHOD USED: COC

AUTOIGNITION TEMPERATURE: 472 C

FLAMMABILITY LIMITS

LFL: 3.6 vol. %

UFL: 33.0 vol %

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and not limited to: hydrogen chloride, carbon monoxide.

OTHER FLAMMABILITY INFORMATION: Container may vent and/or rupture due to fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.

EXTINGUISHING MEDIA: Do not extinguish. Once fuel flow has stopped, small fires may be extinguished with water fog or fine spray, carbon dioxide, dry chemical, foam. Stop flow of fuel and allow fire to burn out.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Stop flow of fuel and allow fire to burn out. Do not extinguish. If flames are accidentally extinguished explosive reignition may occur. Eliminate ignition sources. For unignited vapor cloud, use water spray to knock down and control dispersion of vapors. For vapor suppression use fine water spray. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

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PROTECT PEOPLE: For large spills, warn public of downwind explosion hazard. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Check area with explosion meter before reentering area. Ground and bond all containers and handling equipment. Ventilate area of leak or spill. Clear non-emergency personnel from area. Vapor explosion hazard, keep out of sewers.

PROTECT THE ENVIRONMENT: Material may float on water and any run-off may create an explosion or fire hazard ignited. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion.

CLEANUP: If possible, stop the source of leak or release. Knock down and dilute vapors with water fog or spray.

7. HANDLING AND STORAGE

HANDLING: Never use air pressure for transferring product. Use only with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area.

STORAGE: Store away from incompatible materials. See Reactivity & Stability Section. Refer to Exposure Controls/Personal Protection, Section 8, of the MSDS. No smoking or open flame in handling and storage area. Keep containers tightly closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Lethal concentrations may exist in areas with poor ventilation.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: For handling the gas, wear safety glasses. When contact with the liquid (condensed gas) is possible, wear chemical goggles.

SKIN PROTECTION: Use a cloth or leather glove for protection from liquid contact of the skin that may cause frostbite due to rapid cooling.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained

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below the exposure guideline. When respiratory protection is required for certain operations, use an approved positive-pressure supplied-air respirator.

EXPOSURE GUIDELINE(S): Vinyl chloride: ACGIH TLV is 5 ppm, AI; OSHA PEL is 1 ppm TWA, 5 ppm excursion limit averaged over any period not exceeding 15 minutes.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Extremely flammable, colorless gas or liquid under pressure.
ODOR: Sweet odor.
VAPOR PRESSURE: 2524 mmHg, 336 kPa @ 20C
VAPOR DENSITY (Air=1): 2.16
BOILING POINT: -13.83 (+7.11F)
SOLUBILITY IN WATER: <0.1 mole % @ 1 atm & 25C
SPECIFIC GRAVITY: 0.913 @ 20/20C, 68F

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under recommended storage conditions. See storage section.

CONDITIONS TO AVOID: See Hazardous Polymerization Section. Avoid open flames, welding arcs, or other high temperatures sources which induce thermal decomposition. Avoid temperatures above 472C/882F. Product can decompose at elevated temperatures. Avoid moisture. Avoid contact with air.

INCOMPATIBILITY WITH OTHER MATERIALS: See Hazardous Polymerization Section. Avoid contact with oxidizing materials. Avoid contact with metals such as aluminum, aluminum alloys. Avoid contact with air, moist air.

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Hazardous decomposition products may include and are not limited to carbon monoxide, hydrogen chloride. Toxic gases are released during decomposition.

HAZARDOUS POLYMERIZATION: Can occur. Elevated temperatures can cause hazardous polymerization. Polymerization can be catalyzed by air, free radical initiators, moisture, oxygen, sunlight.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

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MUTAGENICITY: Has been shown to have mutagenic activity in bacteria. Animal mutagenicity studies were negative in some cases and positive in other cases. An increased incidence of chromosomal abnormalities has been reported in the lymphocytes of workers exposed to vinyl chloride; the chromosomal breakage frequency returns to normal after reduction of exposure levels.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150). Log octanol/water partition coefficient (log Pow) is 0.36. Log soil organic carbon partition coefficient (log Koc) is estimated to be 1.75-2.14.

DEGRADATION & PERSISTENCE: Degradation is expected in the atmospheric environment within days to weeks. Theoretical oxygen demand (ThOD) is calculated to be 1.28 p/p. Biodegradation may occur under aerobic conditions (in the presence of oxygen).

ECOTOXICITY: No relevant information found.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE DOW CHEMICAL COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/Information On Ingredients).

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted incinerator or other thermal destruction device.

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As a service to its customers, Dow can provide lists of companies which recycle, reprocess or manage chemicals or plastics, and companies that manage used drums. Telephone Dow's Customer Information Center at 800-258-2436 or 517-832-1556 for further details.

14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.): For DOT regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

CANADIAN TDG INFORMATION:

For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
VINYL CHLORIDE	000075-01-4	99.9 %

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and

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REGULATORY INFORMATION (CONTINUED)

is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard
A sudden release of pressure hazard

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986:

WARNING:

This product contains a chemical(s) known to the State of California to cause cancer.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
VINYL CHLORIDE	000075-01-4	NJ1 NJ2 NJ3 PA1 PA2 PA3

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).

NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal

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to 1.0%).

PA2=Pennsylvania Special Hazardous Substance (present at greater than or equal to 0.01%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Category:

Chemical Name	CAS#	RQ	% in Product
Vinyl chloride	CAS# 000075-01-4	1 lb	99.9%

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

- A - compressed gas
 - B1 - flammable gas
 - D2A - possible, probable or known human carcinogen according to classifications by IARC or ACGIH
 - F - dangerously reactive material
- Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following

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REGULATORY INFORMATION (CONTINUED)

ingredients which are Controlled Products and/or on the Ingredient
Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Vinyl chloride	CAS# 000075-01-4	99.9%

16. OTHER INFORMATION

MSDS STATUS: Revised all Sections but 2.

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Product: VINYL CHLORIDE INHIBITED

Effective Date: 06/14/93 Date Printed: 07/13/93 MSD: 000664

Customer Information Center: 800-258-2436

Vinyl chloride CAS# 000075-01-4 99.9%

2. PHYSICAL DATA:

BOILING POINT: -13.83 (+7.11F)
VAP PRESS: 2524 mmHg, 336 kPa @ 20C
VAP DENSITY (Air=1): 2.16
SOL. IN WATER: <0.1 mole % @ 1 atm & 25C
SP. GRAVITY: 0.913 @ 20/20C, 68F
APPEARANCE: Extremely flammable, colorless gas or liquid
under pressure.
ODOR: Faint, sweet odor.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: -78C (-108.4F)
METHOD USED: COC

FLAMMABLE LIMITS
LFL: 3.6 vol. %
UFL: 33.0 vol %

EXTINGUISHING MEDIA: For containment of fire and protection of

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Product: VINYL CHLORIDE INHIBITED

Product Code: 91574

Effective Date: 06/14/93

Date Printed: 07/13/93

MSD: 000664

3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

surrounding equipment only. Water fog, foam, CO2, dry chemical.

FIRE & EXPLOSION HAZARDS: Vapors can form flammable mixtures with air at all normal ambient temperatures. All sources of possible ignition should be avoided in areas where vinyl chloride vapors are present. Autoignition temperature 472C (882F).

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) Avoid exposure to air, oxygen, sunlight, moisture, and all sources of heat or ignition. Autoignites in air at 472C (882F).

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material, and aluminum or aluminum alloys.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, carbon monoxide.

HAZARDOUS POLYMERIZATION: May occur. Avoid exposures to oxygen (air), heat, sunlight, moisture, and free radical initiators or other catalytic impurities.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Remove all sources of ignition; supply ample ventilation, allow only properly protected personnel into the area; do not allow vinyl chloride to enter the sewer system because of explosive hazard.

DISPOSAL METHOD: Incinerate in equipment with a hydrochloric acid scrubber according to local, state, and federal laws and

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Date Printed: 07/13/93

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5. ENVIRONMENTAL AND DISPOSAL INFORMATION: (CONTINUED)

regulations. Contact The Dow Chemical Company for additional information.

6. HEALTH HAZARD DATA:

EYE: If liquid contacts eye, evaporation may cause frostbite-type injury due to rapid cooling.

SKIN CONTACT: If liquid contacts skin, evaporation may cause frost-bite type injury due to rapid cooling.

SKIN ABSORPTION: Skin absorption is unlikely due to physical properties.

INGESTION: Ingestion is unlikely due to physical state.

INHALATION: A single brief (minutes) inhalation exposure to easily attainable concentrations may cause serious adverse effects, even death. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. Signs and symptoms of excessive exposure may be central nervous system effects.

SYSTEMIC & OTHER EFFECTS: Excessive exposure may cause lung, liver and kidney effects. Repeated exposures have been reported to produce changes in bone, skin, and vascular system, particularly in the extremities of the body. Has been shown to cause cancer in humans. Has been shown to cause cancer in laboratory animals. For hazard communication purposes under OSHA Standard 29 CFR Part 1910.1200, this chemical is listed as a carcinogen by NTP, IARC, and OSHA. Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother. Has been shown to have mutagenic activity in bacteria. Results of mutagenicity tests in animals have been negative. An increased incidence of chromosomal abnormalities

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6. HEALTH HAZARD DATA: (CONTINUED)

has been reported in the lymphocytes of workers exposed to vinyl chloride; the chromosomal breakage frequency returns to normal after reduction of exposure levels.

7. FIRST AID:

EYES: Irrigate immediately with water for at least 5 minutes.

SKIN: No adverse effects anticipated by this route of exposure except for frostbite.

INGESTION: No adverse effects anticipated by this route of exposure due to physical properties.

INHALATION: Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.

NOTE TO PHYSICIAN: The following disease states have been observed in industrial workers exposed to vinyl chloride vapors: acroosteolysis, scleroderma, and Raynaud's phenomenon. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): Vinyl chloride: OSHA PEL is 1 ppm TWA, 5 ppm excursion limit average over any period not exceeding 15 minutes; ACGIH TLV is 5 ppm, Al.

VENTILATION: Control airborne concentrations below the exposure guideline. Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

RESPIRATORY PROTECTION: When airborne exposure guidelines and/or

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8. HANDLING PRECAUTIONS: (CONTINUED)

comfort levels may be exceeded, use an approved positive-pressure self-contained breathing apparatus.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation.

EYE PROTECTION: Use chemical goggles. If vapor exposure causes eye discomfort, use a full-face, supplied-air respirator.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Storage should be in an isolated, well-ventilated area. Pits, depressions, and basements should be avoided. Avoid all skin and eye contact. Avoid breathing vapors. Vinyl chloride should always be handled with full recognition of its volatility and its flammability. Keep the material enclosed and eliminate all sources of ignition.

MSDS STATUS: Revised Canadian regulatory information and section 9.

For information regarding state/provincial and federal regulations see the Regulatory Information Section.

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REGULATION INFORMATION: (Not meant to be all-inclusive--selected regulations represented.)

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SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
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SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- An immediate health hazard
- A delayed health hazard
- A fire hazard
- A sudden release of pressure hazard

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MSD: 000664

REGULATORY INFORMATION (CONTINUED)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains a chemical(s) known to the State of California to cause cancer. (See Section 6 of the MSDS for details on carcinogenicity.)

CANADA REGULATIONS

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WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

A
B1
D2A
E

CANADIAN TDG INFORMATION: For guidance, the Transportation of Dangerous Goods Classification for this product is:

Vinyl Chloride/Class2.1/UN1086/ERP2-0011 Permit No: SR 0116A

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The Information Herein Is Given In Good Faith, But No Warranty,
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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A.* MIDLAND, MI 48674 EMERGENCY PHONE: 517-636-4400

PRODUCT CODE: 91637

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PRODUCT NAME: VINYLIDENE CHLORIDE, MEHQ INHIBITED

EFFECTIVE DATE: 06/14/90

DATE PRINTED: 04/02/93

MSD: 000200

1. INGREDIENTS: (% W/W, UNLESS OTHERWISE NOTED)

VINYLIDENE CHLORIDE	CAS# 000075-35-4	99.9%
METHYL ETHER OF HYDROQUINONE (HYDROQUINONE MONOMETHYL ETHER)	CAS# 000150-76-5	0.02%

THIS DOCUMENT IS PREPARED PURSUANT TO THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200). IN ADDITION, OTHER SUBSTANCES LISTED 'HAZARDOUS' PER THIS OSHA STANDARD MAY BE LISTED. WHERE PROPRIETARY INGREDIENT SHOWS, THE IDENTITY MAY BE MADE AVAILABLE AS PROVIDED IN THIS STANDARD.

2. PHYSICAL DATA:

BOILING POINT: 88.7F, 31.5C
VAP PRESS: 498 MMHG @ 20C
VAP DENSITY: (AIR = 1.0) 3.4
SOL. IN WATER: 0.25 WT% @ 25C
SP. GRAVITY: 1.21 25/25C
APPEARANCE: COLORLESS LIQUID.
ODOR: SWEET ODOR.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: -19F, -28C
METHOD USED: TCC

FLAMMABLE LIMITS
LFL: 4.5 VOL %
UFL: 15.5 VOL %

EXTINGUISHING MEDIA: WATER FOG, FOAM, CO2, DRY CHEMICAL.

FIRE & EXPLOSION HAZARDS: KEEP VAPORS AWAY FROM POSSIBLE IGNITION SOURCES.

FIRE-FIGHTING EQUIPMENT: WEAR POSITIVE PRESSURE SELF-CONTAINED

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3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

BREATHING APPARATUS.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) AVOID EXPOSURE TO AIR (OXYGEN). EXPLOSIVE PEROXIDES CAN BE FORMED WHEN STORED IN PRESENCE OF AIR. "DRY" POLYMER CONTAINING PEROXIDES AT GREATER THAN 15% CONCENTRATION CAN BE DETONATED BY SLIGHT MECHANICAL SHOCK OR HEAT.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) WATER, STRONG BASES, OXIDIZING MATERIALS, ALUMINUM AND ITS ALLOYS.

HAZARDOUS DECOMPOSITION PRODUCTS: COMBUSTION PRODUCES HYDROGEN CHLORIDE. INCOMPLETE COMBUSTION ALSO PRODUCES VERY SMALL AMOUNTS OF PHOSGENE AND CHLORINE.

HAZARDOUS POLYMERIZATION: MAY OCCUR. AVOID EXPOSURE TO OXYGEN (AIR) SUNLIGHT, MOISTURE, AND HEAT.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: ELIMINATE ALL SOURCES OF IGNITION. COVER THE LIQUID WITH SAND, ALLOW SAND TO ABSORB MONOMER; REMOVE SAND TO SAFE AREA. DO NOT FLUSH MONOMER TO SEWER SYSTEM.

DISPOSAL METHOD: WHEN DISPOSING OF UNUSED CONTENTS, THE PREFERRED OPTIONS ARE TO SEND TO LICENSED RECLAIMERS, OR TO PERMITTED INCINERATORS. ANY DISPOSAL PRACTICE MUST BE IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. DO NOT DUMP INTO SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER.

6. HEALTH HAZARD DATA:

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6. HEALTH HAZARD DATA: (CONTINUED)

EYE: MAY CAUSE SLIGHT IRRITATION WITH CORNEAL INJURY. IN ANIMALS, IRRITATION HEALED WITHIN 1-2 WEEKS. IN ANIMALS, CORNEAL INJURY HEALED WITHIN 1 WEEK.

SKIN CONTACT: SHORT SINGLE EXPOSURE MAY CAUSE IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY CAUSE IRRITATION, EVEN A BURN; THE INHIBITOR OF THE VINYLIDENE CHLORIDE, IF CONCENTRATED, MAY CAUSE BURNS, ESPECIALLY UPON PROLONGED CONTACT.

SKIN ABSORPTION: A SINGLE PROLONGED SKIN EXPOSURE IS NOT LIKELY TO RESULT IN ABSORPTION OF HARMFUL AMOUNTS. THE DERMAL LD50 HAS NOT BEEN DETERMINED.

INGESTION: SINGLE DOSE ORAL TOXICITY IS LOW. THE LD50 FOR RATS IS 1.5 G/KG (1500 MG/KG). AMOUNTS INGESTED INCIDENTAL TO INDUSTRIAL HANDLING ARE NOT LIKELY TO CAUSE INJURY.

INHALATION: THE LC50 FOR RATS IS 6350 PPM IN 4 HOURS. EXCESSIVE EXPOSURE MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. EXPOSURE TO HIGH CONCENTRATIONS MAY CAUSE UNCONSCIOUSNESS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC EFFECTS AND NAUSEA AND/OR VOMITING.

SYSTEMIC & OTHER EFFECTS: EXCESSIVE EXPOSURE MAY CAUSE KIDNEY, LIVER AND CENTRAL NERVOUS SYSTEM EFFECTS. NOT CARCINOGENIC IN MOST ANIMALS STUDIES, HOWEVER CARCINOGENIC RESPONSE IN MICE WAS LIKELY DUE TO TISSUE INJURY AND NOT DIRECT DNA DAMAGE. BIRTH DEFECTS ARE UNLIKELY. EVEN EXPOSURES HAVING AN ADVERSE EFFECT ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. IN ANIMAL STUDIES, HAS BEEN SHOWN NOT TO INTERFERE WITH REPRODUCTION. RESULTS OF MUTAGENICITY TESTS IN ANIMALS HAVE BEEN NEGATIVE. HAS BEEN SHOWN TO BE NEGATIVE IN SOME IN VITRO ('TEST TUBE') MUTAGENICITY TESTS AND POSITIVE IN OTHERS.

7. FIRST AID:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. CONSULT MEDICAL PERSONNEL.

SKIN: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15

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7. FIRST AID: (CONTINUED)

MINUTES WHILE REMOVING CONTAMINATED CLOTHING. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY IMMEDIATELY.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE MOUTH-TO-MOUTH RESUSCITATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

NOTE TO PHYSICIAN: IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN, AFTER DECONTAMINATION. BECAUSE RAPID ABSORPTION MAY OCCUR THROUGH LUNGS IF ASPIRATED AND CAUSE SYSTEMIC EFFECTS, THE DECISION OF WHETHER TO INDUCE VOMITING OR NOT SHOULD BE MADE BY AN ATTENDING PHYSICIAN. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGEAL CONTROL. DANGER FROM LUNG ASPIRATION MUST BE WEIGHED AGAINST TOXICITY WHEN CONSIDERING EMPTYING THE STOMACH. NO SPECIFIC ANTIDOTE. SUPPORTIVE CARE. TREATMENT BASED ON JUDGMENT OF THE PHYSICIAN IN RESPONSE TO REACTIONS OF THE PATIENT.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): OSHA PEL IS 1 PPM; ACGIH TLV IS 5 PPM (20 PPM STEL).

VENTILATION: CONTROL AIRBORNE CONCENTRATIONS BELOW THE EXPOSURE GUIDELINE. USE ONLY WITH ADEQUATE VENTILATION. LOCAL EXHAUST VENTILATION MAY BE NECESSARY FOR SOME OPERATIONS. LETHAL CONCENTRATIONS MAY EXIST IN AREAS WITH POOR VENTILATION.

RESPIRATORY PROTECTION: USE AN APPROVED AIR-PURIFYING RESPIRATOR IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCY AND OTHER CONDITIONS WHERE THE EXPOSURE GUIDELINE MAY BE GREATLY EXCEEDED, USE AN APPROVED POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS.

SKIN PROTECTION: CLEAN, BODY-COVERING CLOTHING. IN ADDITION, PERMEATION RESISTANT GLOVES, BOOTS, APRON DEPENDING UPON THE EXTENT AND SEVERITY OF EXPOSURE LIKELY.

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8. HANDLING PRECAUTIONS: (CONTINUED)

EYE PROTECTION: CHEMICAL WORKERS GOGGLES. EYE WASH STATIONS AND SAFETY SHOWER SHOULD BE READILY AVAILABLE.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: KEEP DRY; STORE IN ABSENCE OF LIGHT AND UNDER AN INERT ATMOSPHERE CONTAINING LESS THAN 100 PPM OXYGEN. AT NO TIME SHOULD ALUMINUM, OR ALUMINUM ALLOYS COME IN CONTACT WITH VINYLIDENE CHLORIDE MONOMER. PRACTICE CARE TO AVOID EYE AND SKIN CONTACT AND TO PREVENT INHALATION OF VAPORS. RESCUE HARNESS AND LIFELINE FOR ENTERING TANKS OR ENCLOSED STORAGE SPACE ARE RECOMMENDED. ENCLOSED STORAGE SPACE ARE RECOMMENDED.

MSDS STATUS: REVISED SECTION 9 AND RECSHEET.

FOR INFORMATION REGARDING STATE/PROVINCIAL AND FEDERAL REGULATIONS SEE THE REGULATORY INFORMATION SECTION.

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REGULATORY INFORMATION: (NOT MEANT TO BE ALL-INCLUSIVE-- SELECTED REGULATIONS REPRESENTED.)

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U.S. REGULATIONS

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SARA 313 INFORMATION: THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCES SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
VINYLIDENE CHLORIDE	000075-35-4	99.9 %

SARA HAZARD CATEGORY: THIS PRODUCT HAS BEEN REVIEWED ACCORDING TO THE EPA "HAZARD CATEGORIES" PROMULGATED UNDER SECTIONS 311 AND 312 OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 (SARA TITLE III) AND IS CONSIDERED, UNDER APPLICABLE DEFINITIONS, TO MEET THE FOLLOWING CATEGORIES:

AN IMMEDIATE HEALTH HAZARD
A DELAYED HEALTH HAZARD
A FIRE HAZARD

CANADIAN REGULATIONS

=====

THE WORK PLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (W.H.M.I.S.)

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REGULATORY INFORMATION: (CONTINUED)

CLASSIFICATION FOR THIS PRODUCT IS:

B2
D2B

THE TRANSPORTATION OF DANGEROUS GOODS ACT (T.D.G.A.) CLASSIFICATION FOR
THIS PRODUCT IS:

NOT REGULATED

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