Vinyl chloride

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
SDS ID: 1300505
Issue date: 10/2/2015 Revision date: 4/23/2024 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	Vinyl chloride
CAS-No.	:	75-01-4
Product code	:	1300-5-05
Formula	:	C2H3Cl
Synonyms	:	1-Chloroethene; 1-Chloroethylene; Chloroethene; Chloroethylene
Other means of identification	:	MFCD00040415

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Laboratory chemicals Manufacture of substances Scientific research and development

1.3. Supplier

SynQuest Laboratories, Inc. Inc.
P.O. Box 309
Alachua, FL, Alachua, 32615
United States of America
T (386) 462-0788 - F (386) 462-7097
info@synquestlabs.com - www.synquestlabs.com

1.4. Emergency telephone number

Emergency number	:	(844) 523-4086 (3E Company - Account 10069)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable gases Category 1	H220	Extremely flammable gas
Gases under pressure Compressed gas	H280	Contains gas under pressure; may explode if heated
Carcinogenicity Category 1A	H350	May cause cancer

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) :
H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H350 - May cause cancer

Precautionary statements (GHS US) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No

smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : May cause frostbite.

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS US classification
Vinyl chloride (Main constituent)	CAS-No.: 75-01-4	≤ 100	Flam. Gas 1, H220 Press. Gas (Comp.), H280 Carc. 1A, H350

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Get immediate medical advice/attention.

First-aid measures after skin contact : Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention. Immediately flush eyes thoroughly with water for at least 15 minutes.

First-aid measures after ingestion : Due to its physical form, exposure to this chemical is not likely. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

Symptoms/effects after skin contact : Contact with the liquid the may cause cold burns/frostbite.

Symptoms/effects after eye contact : Direct contact with the liquefied gas may cause severe and possibly permanent eye injury due to frostbite from rapid liquid evaporation.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Alcohol resistant foam. Carbon dioxide. Dry powder. Water spray. Use extinguishing media appropriate for surrounding fire.

5.2. Specific hazards arising from the chemical

Fire hazard : Thermal decomposition generates: Carbon oxides. Hydrogen chloride.

Explosion hazard : Contains gas under pressure; may explode if heated. Use water spray or fog for cooling exposed containers.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection".

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Evacuate unnecessary personnel. Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level. Ensure adequate air ventilation. Do not breathe gas, fumes, vapor or spray. May cause suffocation by reducing oxygen available for breathing. Gas/vapor explosive with air within explosion limits. Eliminate every possible source of ignition.

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Stop leak if safe to do so.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Do not breathe fumes, gas, mist, spray, vapors. Wear personal protective equipment. Avoid contact with skin and eyes. Keep away from ignition sources (including static discharges).

Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Securely chain cylinders when in use and protect against physical damage. Ground/bond container and receiving equipment.
Storage conditions : Protect from sunlight. Do not expose to temperatures exceeding 50 ℃.
Incompatible materials : Refer to Section 10 on Incompatible Materials.
Storage area : Store in dry, cool, well-ventilated area.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Vinyl chloride (75-01-4)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	1 ppm
ACGIH chemical category	Confirmed Human Carcinogen
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA	1 ppm
OSHA PEL STEL	5 ppm (see 29 CFR 1910.1017)

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

protective gloves

Eye protection:

Chemical goggles or safety glasses. Face shield

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of inadequate ventilation wear respiratory protection.

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas
Appearance : Colorless gas at ordinary temperature. Colorless liquid below -14 °C (7 °F).
Color : Colorless

Odor	:	mild Sweet
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	-153.7 °C
Freezing point	:	No data available
Boiling point	:	-13.8 °C
Flash point	:	-78 °C (open cup)
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	3330 hPa (at 20 °C)
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	0.911 g/cm³ (at 20 °C)
Solubility	:	Water: 1.1 g/l (at 20 °C)
Partition coefficient n-octanol/water (Log Pow)	:	1.58 (at 22 °C)
Auto-ignition temperature	:	472.22 °C
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions. Stabilized product: Hydroquinone.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Exclude sources of heat, sparks and open flame. Protect from sunlight. Do not expose to temperatures exceeding 50 ℃.

10.5. Incompatible materials

Oxidizing agents. Copper.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified

Acute toxicity (inhalation) : Not classified

Vinyl chloride (75-01-4)	
LD50 oral rat	500 mg/kg
LC50 Inhalation - Rat	18 lb/h (Exposure time: 15 min)
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : May cause cancer.

Vinyl chloride (75-01-4)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
In OSHA Specifically Regulated Carcinogen list	Yes

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not applicable
Viscosity, kinematic : No data available
Symptoms/effects : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.
Symptoms/effects after skin contact : Contact with the liquid the may cause cold burns/frostbite.
Symptoms/effects after eye contact : Direct contact with the liquefied gas may cause severe and possibly permanent eye injury due to frostbite from rapid liquid evaporation.

SECTION 12: Ecological information

12.1. Toxicity

Vinyl chloride (75-01-4)	
LC50 - Fish [1]	210 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)

12.2. Persistence and degradability

Vinyl chloride (75-01-4)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

Vinyl chloride (75-01-4)	
BCF - Fish [1]	(no significant bioaccumulation)
Partition coefficient n-octanol/water (Log Pow)	1.58 (at 22 °C)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : U.S. - RCRA (Resource Conservation Recovery Act) - Basis for Listing - Appendix VII. U.S. - RCRA (Resource Conservation Recovery Act) - Constituents for Detection Monitoring. U.S. - RCRA (Resource Conservation Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic. U.S. - RCRA (Resource Conservation Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261. U.S. - RCRA (Resource Conservation Recovery Act) - List for Hazardous Constituents. U.S. - RCRA (Resource Conservation Recovery Act) - Part 268 Appendix III - Halogenated Organic Compounds (HOCs). U.S. - RCRA (Resource Conservation Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards. U.S. - RCRA (Resource Conservation Recovery Act) - TSD Facilities Ground Water Monitoring. U.S. - RCRA (Resource Conservation Recovery Act) - U Series Wastes - Acutely Toxic Wastes Other Hazardous Characteristics.

Waste treatment methods : Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber.

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

14.1. UN number

DOT NA No : UN1086

UN-No. (TDG) : UN1086

UN-No. (IMDG) : 1086

UN-No. (IATA) : 1086

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Vinyl chloride, stabilized

Proper Shipping Name (TDG) : VINYL CHLORIDE, STABILIZED

Proper Shipping Name (IMDG) : VINYL CHLORIDE, STABILIZED

Proper Shipping Name (IATA) : Vinyl chloride, stabilized

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 2.1

Hazard labels (DOT) : 2.1

TDG

Transport hazard class(es) (TDG) : 2.1

Hazard labels (TDG) : 2.1

IMDG

Transport hazard class(es) (IMDG) : 2.1

Hazard labels (IMDG) : 2.1

IATA

Transport hazard class(es) (IATA) : 2.1

Hazard labels (IATA) : 2.1

14.4. Packing group

Packing group (DOT) : Not applicable

Packing group (TDG) : Not applicable

Packing group (IMDG) : Not applicable

Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN1086

DOT Special Provisions (49 CFR 172.102) : 21 - This material must be stabilized by appropriate means (e.g, addition of chemical inhibitor, purging to remove oxygen) to prevent dangerous polymerization (see 173.21(f) of this subchapter).
387 - When materials are stabilized by temperature control, the provisions of §173.21(f) of this subchapter apply. When chemical stabilization is employed, the person offering the material for transport shall ensure that the level of stabilization is sufficient to prevent the material as packaged from dangerous polymerization at 50 °C (122 °F). If chemical stabilization becomes ineffective at lower temperatures within the anticipated duration of transport, temperature control is required and is forbidden by aircraft. In making this determination factors to be taken into consideration include, but are not limited to, the capacity and geometry of the packaging and the effect of any insulation present, the temperature of the material when offered for transport, the duration of the journey, and the ambient temperature conditions typically encountered in the journey (considering also the season of year), the effectiveness and other properties of the stabilizer employed, applicable operational controls imposed by regulation (e.g.requirements to protect from sources of heat, including other cargo carried at a temperature above ambient) and any other relevant factors. The provisions of this special provision will be effective until January 2, 2019, unless we terminate them earlier or extend them beyond that date by notice of a final rule in the Federal Register.
B44 - All parts of valves and safety relief devices in contact with lading must be of a material which will not cause formation of acetylides.
N86 - UN pressure receptacles made of aluminum alloy are not authorized.
T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 306

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314, 315

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	150 kg
DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	25 - Shade from radiant heat,40 - Stow ‘‘clear of living quarters’’

TDG

UN-No. (TDG)	:	UN1086
TDG Special Provisions	:	155 - (1)If these dangerous goods are stabilized by temperature control, they must be offered for transport, handled and transported in accordance with section 7.1.6 of the UN Recommendations. (2)If chemical stabilization is employed, the person offering the means of containment for transport must ensure that the level of stabilization will prevent a dangerous polymerization of the dangerous goods at a bulk mean temperature of 50°C in the case of a small means of containment or an intermediate bulk container (IBC) or, in the case of a large means of containment that is not an IBC, at a bulk mean temperature of 45°C. (3)If chemical stabilization may become ineffective at lower temperatures within the anticipated duration of transport, temperature control is required. In determining whether chemical stabilization may become ineffective at lower temperatures, the person offering the means of containment for transport must take at least the following the factors into consideration: (a)the capacity and geometry of the means of containment and the effect of any insulation;(b)the temperature of the dangerous goods when offered for transport; (c)the duration of the transport and the seasonal ambient temperature conditions typically encountered during transport; and (d)the effectiveness and other physical or chemical properties of the stabilizer employed. SOR/2017-137
ERAP Index	:	3000
Explosive Limit and Limited Quantity Index	:	0.125 L
Excepted quantities (TDG)	:	E0
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	Forbidden
Emergency Response Guide (ERG) Number	:	116P

IMDG

Special provision (IMDG)	:	386
Limited quantities (IMDG)	:	0
Excepted quantities (IMDG)	:	E0
Packing instructions (IMDG)	:	P200
Tank instructions (IMDG)	:	T50
EmS-No. (Fire)	:	F-D - FIRE SCHEDULE Delta - FLAMMABLE GASES
EmS-No. (Spillage)	:	S-U - SPILLAGE SCHEDULE Uniform - GASES (FLAMMABLE, TOXIC OR CORROSIVE)
Stowage category (IMDG)	:	B
Stowage and handling (IMDG)	:	SW1, SW2
Properties and observations (IMDG)	:	Liquefied, flammable gas. Explosive limits: 4% to 31%. Much heavier than air (2.2).

IATA

PCA Excepted quantities (IATA)	:	E0
PCA Limited quantities (IATA)	:	Forbidden
PCA limited quantity max net quantity (IATA)	:	Forbidden
PCA packing instructions (IATA)	:	Forbidden
PCA max net quantity (IATA)	:	Forbidden
CAO packing instructions (IATA)	:	200
CAO max net quantity (IATA)	:	150kg
Special provision (IATA)	:	A1, A209
ERG code (IATA)	:	10L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Vinyl chloride (75-01-4)
Subject to reporting requirements of United States SARA Section 313

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Vinyl chloride	CAS-No. 75-01-4	100%

15.2. International regulations

CANADA

Vinyl chloride (75-01-4)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Vinyl chloride (75-01-4)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Vinyl chloride (75-01-4)
Listed on IARC (International Agency for Research on Cancer) Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing New Chemical Substances) inventory Listed on KECL/KECI (Korean Existing Chemicals Inventory) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Japanese Pollutant Release and Transfer Register Law (PRTR Law) Listed as carcinogen on NTP (National Toxicology Program) Listed on INSQ (Mexican National Inventory of Chemical Substances) Listed on CICR (Turkish Inventory and Control of Chemicals)

15.3. US State regulations

Vinyl chloride (75-01-4)	
U.S. - California - Proposition 65 - Carcinogens List	Yes
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No

Vinyl chloride (75-01-4)	
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
No significant risk level (NSRL)	3 µg/day
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List

WARNING: This product can expose you to Vinyl chloride, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

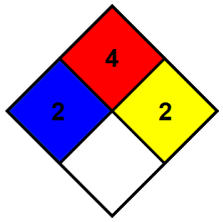
Revision date : 4/23/2024

Full text of H-phrases	
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H350	May cause cancer

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.

NFPA reactivity : 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.



Hazard Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

: * - Chronic (long-term) health effects may result from repeated overexposure

Flammability : 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

Physical : 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Safety Data Sheet (SDS), USA

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is offered solely for your consideration, investigation, and verification. It does not represent any guarantee of the properties of the product nor that the hazard precautions or procedures described are the only ones which exist. SynQuest shall not be held liable or any damage resulting from handling or from contact with the above product.