

QVC MSDS CODE : D3.0.2-2
MATERIAL SAFETY DATA SHEET

Product: **1,2-DICHLOROETHANE (EDC)** Page:1/10
MSDS No. : 001 **Version : 04** **Date : 19.10.16**

01 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

PRODUCT NAME 1,2-DICHLOROETHANE
 SDS No. 001
 MANUFACTURER Qatar Vinyl Company Ltd.
 P. O. Box 24440, Doha, State of Qatar
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02 - COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME OF THE SUBSTANCE 1,2-DICHLOROETHANE

Chemical Name	Synonyms	EC-NO.	CAS-No.	Concentration	Classification Directive 67/548/EEC	Classification Regulation (EC) No 1272/2008 (GHS)
1,2-Dichloroethane	Ethylene Dichloride	203-458-1	107-06-2	> 98,5%	F; R11 Xn; R20/22 Xi; R36/37/38 Carc. Cat. 2; R45	Flam. Liq. 2; H225 Acute Tox. 4 (Oral); H302 Acute Tox. 3 (Inhalation); H331 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Carc. IB (Oral); H350 STOT SE 3; H335

03 - HAZARDS IDENTIFICATION

MOST IMPORTANT HAZARDS
 HEALTH EFFECTS
 PHYSICAL AND CHEMICAL HAZARDS
 SPECIFIC HAZARDS / EC

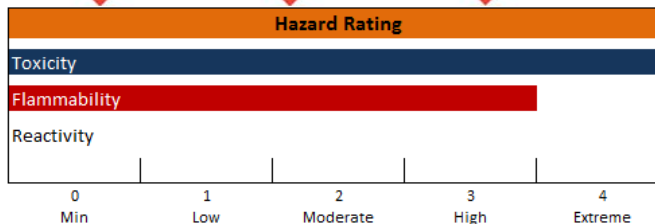
SAFETY INFORMATION : PLEASE READ THIS SHEET CAREFULLY
 May cause cancer
 Flammable liquid, 2, H225
 Thermal decomposition giving toxic and corrosive products.
 Toxic
 May cause cancer, 1B, H350
 Inhalation ; Acute toxicity, 3, H331
 Harmful if swallowed, 4, H302
 Eye Irritant, 2, H319 and Skin irritant, 2, H315
 Specific target organ toxicity – single exposure, 3, Respiratory tract, H335

LABEL ELEMENTS (REGULATION (EC) NO 1272/2008) IN ACCORDANCE WITH GHS

Name:

1, 2-dichloroethane; ethylene dichloride

Hazard pictograms:



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Signal Word : **Danger**
Hazard Statement : **Highly flammable liquid and vapor.
Harmful if swallowed.
Toxic if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer if swallowed.
May cause respiratory irritation.**

Precautionary Statements : **Prevention:**
Obtain special instructions before use.
Keep away from open flames/hot surfaces. - No smoking.
Avoid breathing gas/mist/vapors/spray.
Use personal protective equipment as required.
Response:
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.

Special labeling : **Storage:**
Store in a well-ventilated place. Keep container tightly closed.
Restricted to professional users.
Other hazards : **Potential health effects:**
Harmful by inhalation. Ingestion may cause irritation to mucous membranes.
Irritating to nose, throat and respiratory system
Direct contact with product: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the Product. Burns of the cornea possible
Inhalation: At high vapor/fog concentrations: Neurological disorders
Difficulty in breathing Stomach/intestinal disorders
Chronic exposure: May cause cancer.
Environmental Effects:
Not readily biodegradable. Practically not bioaccumulable
Physical and chemical hazards:
Highly flammable liquid
Thermal decomposition giving toxic and corrosive products
Decomposition products: See chapter 10
Other:
Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating, toxic (PBT), nor very persistent, very bioaccumulating (vPvB).

EMERGENCY OVERVIEW **Other:**
Clear, colorless liquid; sweet chloroform-like odor. Irritating to respiratory tract. Other Acute Effects: intoxication, CNS depression, vomiting, dizziness, diarrhea, liver/kidney damage, cardiac arrhythmia, coma. Death. Possible Human carcinogen. Highly flammable. Reacts violently with amines and finely divided alkali metals.

04 - FIRST AID MEASURES

GENERAL ADVICE **Take off immediately all contaminated clothing (including shoes)**
INHALATION **Move to fresh air, Oxygen or artificial respiration. If needed, hospitalize**
SKIN CONTACT **Wash immediately, abundantly and thoroughly with water.**
EYE CONTACT **Wash immediately and abundantly with water for at least 15 minutes**
If irritation persists, consult an ophthalmologist
INGESTION **Do not induce vomiting**
Hospitalize immediately
PROTECTION OF FIRST-AIDERS **In case of insufficient ventilation, wear suitable respiratory equipment.**
Protective suit.

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INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED: **Notes to physician:**
Treatment: Do not administer catecholamines (because of the cardiac effect caused by the product).

05 - FIRE-FIGHTING MEASURES

EXPLOSIVE LIMITS (vol. % in air)	LEL : 6.2% ; UEL : 15.9%
FLASH POINT	13 °C (56 °F) closed cup
AUTO-IGNITION TEMPERATURE	413 °C (775 °F)
SUITABLE EXTINGUISHING MEDIA	Carbon dioxide (CO2) Foam Dry powder Water spray
SPECIFIC HAZARDS	Highly flammable Vapors form explosive mixture with air. Thermal decomposition giving toxic and corrosive products At high temperature: formation of Hydrogen chloride gas At high temperature : formation of Phosgene
ADVICE FOR FIREFIGHTERS	Specific methods: In case of fire nearby, remove exposed containers. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Prohibit all sources of sparks and ignition - Do not smoke. Special protective actions for fire-fighters: In the event of fire, wear self-contained breathing apparatus. Complete suit protecting against chemicals.

06 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:	Use personal protective equipment. Ensure adequate ventilation. Evacuate non-essential staff and those not equipped with individual protection apparatus. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Prohibit contact with skin and eyes and inhalation of vapors. Prohibit all sources of sparks and ignition - Do not smoke.
ENVIRONMENTAL PROTECTION	Do not release into the environment Do not let the product enter into drains Contain by damming
METHODS FOR CLEANING UP	
Recovery	Pump into an inert labeled emergency container Absorb the remainder with an inert absorbent material - Sand
Disposal	Destroy the product by incineration

07 - HANDLING AND STORAGE

HANDLING	
Technical measures/Precautions	Storage and handling precautions applicable to products : TOXIC, HIGHLY FLAMMABLE, WITH VAPOURS EXPLOSIVE IN AIR Ensure appropriate exhaust and ventilation at machinery Provide showers, eye-baths Provide self-contained breathing apparatus nearby Provide water supplies near the point of use. Provide fire-blanket nearby. Provide electrical earthing of equipment.

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Safe handling advice	Strictly limit the quantities of product in the work area to those which are absolutely necessary for the work in hand. Avoid exposure - obtain special instructions before use. Open drum carefully as content may be under pressure. Avoid splashing and emission of vapors when handling. In case of insufficient ventilation, wear suitable respiratory equipment. Take precautionary measures against static discharges. Do not use air for transfers. Do not use air to dry the equipment. Keep well away from naked flames. Use only explosion-proof equipment. In case of entry into storage areas: Well ventilate empty vats and tanks before entering.
Hygiene measures :	Take off immediately all contaminated clothing. Prohibit contact with skin and eyes and inhalation of vapors. When using do not eat, drink or smoke. Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.
STORAGE Technical measures/Storage conditions	Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not smoke Protect from light Store protected from moisture and heat Provide a catch-tank in a dyke area Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres
Incompatible products	Acids and bases Oxygen - Oxidizing agents Finely divided metals
PACKAGING MATERIALS Recommended	Iron Steel
Prohibited	Light metals and alloys in the presence of moisture, including parts of the installation in contact with the product

08 - EXPOSURE CONTROLS / PERSONAL PROTECTION

PROTECTIVE PROVISIONS	Ensure sufficient air exchange and/or exhaust in work areas. Frequently monitor and control the working atmosphere.
CONTROL PARAMETERS Exposure limits	PEL at QVC site : 1 ppm ; STEL : 2 ppm (based on 1989 OSHA PELs Final Rule, NIOSH RELs and QVC design specifications) FRANCE 1993 : VME= 10 ppm USA-ACGIH 1994 : TLV-TWA = 10 ppm = 40 mg/m3
PERSONAL PROTECTION EQUIPMENT Respiratory protection	Low concentrations or short activity: Full mask. (Respiratory protection complying with EN 141) High concentrations or prolonged activity: Self contained Breathing Apparatus
Hand protection	Splash contact, intermittent and prolonged PVC gloves According to permeation index EN 374: 1 (time elapsed > 10 mins)
Eye protection	Safety glasses/goggles
Skin and body protection :	At the workplace: Combination with delayed penetration, Safety shoes Intervention at incident: Complete chemical protection suit, Complete suit, Rubber or plastic boots
Specific hygiene measures	Prohibit contact with skin and eyes and inhalation of vapors Do not smoke

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09 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE (20°C)	Liquid
COLOUR	Colorless to yellow
ODOUR	Chloroform (approximately)
pH :	No data available
BOILING POINT/RANGE	83.6 °C
MELTING POINT/RANGE	-36 °C
DECOMPOSITION TEMPERATURE	300 °C
FLASH POINT	Closed cup: 13 °C. (DIN 51755 Part 1)
AUTOIGNITION TEMPERATURE	440 °C
EXPLOSIVE LIMITS	
Lower	6.2% in volume
Higher	15.9% in volume
VAPOUR PRESSURE	102.47 hPa , at 25 °C
VAPOUR DENSITY	(20°C) : 4.1 kg/m ³
DENSITY	Liquid (20°C) : 1253 kg/m ³
RELATIVE DENSITY (water=1)	1.2455 at 20 °C
SOLUBILITY	
Water	7.9 g/l at 25 °C
VISCOSITY, Dynamic	0.829 mPa.s (cP), at 20 °C 0.775 mPa.s (cP), at 25 °C
EXPLOSIVE PROPERTIES	Not relevant (due to the chemical structure)
OXIDIZING PROPERTIES	Not relevant (due to the chemical structure)
Solvents	Soluble in : Alcohols Acetone Ethyl Ether Carbon Tetrachloride Aromatic Hydrocarbons
PARTITION COEFFICIENT (n-octanol/water)	log Kow : 1,45 , at 20 °C (OECD Guideline 117)
OTHER DATA	Product sensitive to light Water solubility : 7,9 g/l at 25 °C Olfactory threshold : 10-400 mg/ m ³ Henry's constant : 97.7 Pa.m ³ /mol Surface tension : 32.45 mN/m at 20 °C ; 31.75 mN/m at 25 °C Molecular Weight: 98.96 g/mol

10 - STABILITY AND REACTIVITY

REACTIVITY AND CHEMICAL STABILITY	Stable under recommended storage conditions.
CONDITIONS TO AVOID	Heat, flames and sparks Protect from light Store protected from moisture and heat
MATERIALS TO AVOID	Acids and bases Oxygen - Oxidizing agents ; possible formation of : Explosive compounds or those sensitive to impact Finely divided metals Aluminum - Magnesium - Zinc - Titanium Risk of : Explosive reaction
THERMAL DECOMPOSITION	300°C
HAZARDOUS DECOMPOSITION PRODUCTS	At high temperature: Thermal decomposition giving toxic and corrosive products : , Hydrogen chloride gas, Phosgene

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11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Inhalation

- in man :

Harmful by inhalation.

Effects of breathing high concentrations of vapor may include: Neurological disorders, Stomach/intestinal disorders, Difficulty in breathing, Risk of pulmonary edema, Possible hepato-renal (liver & kidney) problems, Risk of mortality
LC50/4 h/rat: 7,8 mg/l

- in animals :

Harmful if swallowed.

Ingestion

- in man

Ingestion may cause irritation to mucous membranes.

Risk of :

Stomach/intestinal disorders, Neurological disorders, Difficulty in breathing, Possible hepato-renal (liver & kidney) problems, Risk of pulmonary edema, Risk of mortality
LD50/rat: 413 mg/kg

- in animal

Skin-contact

Slightly harmful in contact with skin

- in man

Skin penetration is possible

- in animal

LD50/rabbit: 4.890 mg/kg

LOCAL EFFECTS (Corrosion / Irritation /

Serious eye damage):

Skin-contact

Irritating to skin.

• In man : Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing

Properties of the product. (Direct contact with product)

• In animals: Skin irritation (rabbit)

Eye-contact

Irritating to eyes.

• In man: Possible irritation of eyes, Burns of the cornea possible (Direct contact with product)

• In animals: Eye irritation (rabbit)

Respiratory or skin sensitization :

Inhalation :

No data is available

Skin contact :

Not a skin sensitizer

• **In animals: Not a skin sensitizer (Method : OECD Test Guideline 406 LLNA: Local Lymph Node Assay, guinea pig)**

CMR EFFECTS

Mutagenicity :

Several in vivo and in vitro tests indicate potential genotoxicity

In vitro

Ames test in vitro: Inconclusive results

Chromosome aberration test in vitro: Inconclusive results

In vitro gene mutations test on mammalian cells: positive

In vivo

Micronucleus test in vivo mouse: negative

Sister chromatid exchange assay: positive

Carcinogenicity :

Possible cancer hazard

According to limited available data in animals :

At high dose:

Several localized tumors. (rat, mouse, Different methods of administration)

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Reproductive toxicity :

Fertility:

According to limited available data in animals :

Absence of toxic effects on fertility

NOAEL: 50 mg/kg bw/d (By oral route)

NOAEL: 617 mg/m³ (By inhalation)

Foetal development:

According to available experimental data:

Absence of congenital malformations and embryotoxic effects in rodents at non-toxic doses for the mothers

NOAEL: 158 mg/kg bw/d (By oral route)

NOAEL: 1200 mg/m³ (By inhalation)

SPECIFIC TARGET ORGAN TOXICITY

Single Exposure :

Inhalation: Irritating to nose, throat and respiratory system

Olfactory threshold: 3 - 100 ppm

Repeated exposure:

• In man :

Oral / Inhalation: Nervous problems, Liver disorders, Kidney disorders, Stomach/intestinal disorders

• In animals:

By inhalation: NOAEL= 41.1 mg/m³ (mouse, Several years)

By oral route: NOAEL= 37.5 mg/kg (rat, several months)

12 - ECOLOGICAL INFORMATION

MOBILITY

Rapid evaporation : t_{1/2} life = 3.8 h (calculated)

Distribution among environmental compartments :

Water: 4,85 %

Air: 95,0 %

(Method: Calculation according Mackay, Level I)

Henry constant: 97,7E+00 Pa.m³/mol

Surface tension: 32,45 mN/m 20 °C; 31,75 mN/m 25 °C

Absorption / desorption: In soils and sediments: Slight adsorption , log Koc: 1,5 - 1,6, Koc: 33 (Method: calculated)

PERSISTENCE/DEGRADABILITY

Biodegradation (In water): Not readily biodegradable.

Photodegradation (In air):

Degradation by radicals OH: Overall half-life time: 42 - 73 d

BIOACCUMULATION

Practically not bioaccumulable

Partition coefficient: n-octanol/water: log Kow : 1,45 , at 20 °C (Method: OECD Guideline 117)

Bioconcentration factor (BCF): 2 (21 d, Method: OECD Guideline 305, Lepomis macrochirus (Bluegill sunfish))

**ECOTOXICITY
AQUATIC TOXICITY**

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LISTED IN

The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996, Statutory Instruments number 192 of 1996.
Hazardous Waste Regulation 2005
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. 2003, Statutory Instrument (SI), number 3242, 10 December 2003.
Inventory of Sources and Releases Reporting Form, 1999. Environment Agency, United Kingdom. As amended by 2002 Pollution Inventory Substances Lists, 2002.
Young workers 94/33/EC Banned and/or restricted.
Pregnant workers 92/85/EEC Banned and/or restricted.
UK REGULATION Chip3: Chemical (Hazard Information and Packaging for Supply) Regulations 2002.
Major Accident Hazard Legislation, Highly flammable.

HAZARDOUS SUBSTANCES

F_HIGHLY FLAMMABLE
T_TOXIC
R45_May cause cancer
R11_Highly flammable
R22_Harmful if swallowed
R36/37/38_Irritating to eyes, respiratory system and skin
S53_Avoid exposure - obtain special instructions before use
S45_In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible)

INVENTORIES

Restricted to professional users
EINECS : Conforms to
TSCA (USA) : Conforms to
DSL (Canada): All components of this product are on the Canadian DSL list.
ENCS (Japan) : Conforms to
AICS (Australia) : Conforms to
KECI (KR) : Conforms to
PICCS (PH): Conforms to
IECSC (CN): Conforms to
NZIOC: Does not conform

16 - OTHER INFORMATION

Full text of R, H, EUH-phrases referred to under sections 2 and 3

R11 Highly flammable.
R20/22 Harmful by inhalation and if swallowed.
R36/37/38 Irritating to eyes, respiratory system and skin.
R45 May cause cancer.
H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H350 May cause cancer if swallowed.

RECOMMENDED USES

Restricted to professional users
Organic synthesis
Stripping : Paints and varnishes, Inks
Degreasing : Metals

BIBLIOGRAPHY REFERENCES

Extraction agent (solvent)
Fiche toxicologique INRS : N° 54 : 1,2-DICHLOROETHANE
Restricted to professional users.

FURTHER INFORMATION

NOAEL : No Observed Adverse Effect Level (NOAEL)
LOAEL : Lowest Observed Adverse Effect Level (LOAEL)

THESAURUS:

bw : Body weight
food : oral feed
dw : Dry weight

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This information applies to the PRODUCT AS SUCH and conforming to specifications of QVC.

In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear.

The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely.

However the revision of some data is in progress.

Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes.

The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive.

It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product.

It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.