

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 09/23/2016

Version 1.6

SECTION 1. Identification**Product identifier**

Product number	100955
Product name	1,2-Dichloroethane EMPLURA®
CAS-No.	107-06-2

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Reagent for analysis, Chemical production
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification**GHS Classification**

Flammable liquid, Category 2, H225
Acute toxicity, Category 4, Oral, H302
Acute toxicity, Category 3, Inhalation, H331
Skin irritation, Category 2, H315
Eye irritation, Category 2A, H319
Carcinogenicity, Category 1B, H350
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling*Hazard pictograms**Signal Word*

Danger

Hazard Statements

H350 May cause cancer.
H225 Highly flammable liquid and vapor.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.

Precautionary Statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	$\text{ClCH}_2\text{CH}_2\text{Cl}$	$\text{C}_2\text{H}_4\text{Cl}_2$ (Hill)
Molar mass	98.96 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

1,2-Dichloroethane (>= 90 % - <= 100 %)

107-06-2

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

Skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Cough, respiratory paralysis, Shortness of breath, Dizziness, Headache, Tiredness, CNS disorders, Coma, death

Indication of any immediate medical attention and special treatment needed

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Water, Foam, Carbon dioxide (CO₂), Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

Hydrogen chloride gas

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions

Do not let product enter drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +2°C to +25°C (+36°F to +77°F).

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>1,2-Dichloroethane 107-06-2</i>			
ACGIH	Time Weighted Average (TWA):	10 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	1 ppm 4 mg/m ³	
	Short Term Exposure Limit (STEL):	2 ppm 8 mg/m ³	
Z1A	Short Term Exposure Limit (STEL):	2 ppm 8 mg/m ³	
	Time Weighted Average (TWA):	1 ppm 4 mg/m ³	
OSHA/Z2	Time Weighted Average (TWA):	50 ppm	
	Ceiling Limit Value:	100 ppm	
	Maximum concentration:	200 ppm	Ceiling Limit Value 5 minutes in any 3 hours

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapors/aerosols are generated.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	of solvents
Odor Threshold	3 - 100 ppm
pH	No information available.
Melting point	-35.5 °C
Boiling point/boiling range	83.5 - 84.1 °C (83.5 - 84.1 °C) at 1,013 hPa
Flash point	13 °C (13 °C) at 1,013 hPa Method: closed cup
Evaporation rate	4.1
Flammability (solid, gas)	No information available.
Lower explosion limit	6.2 %(V)
Upper explosion limit	15.9 %(V)
Vapor pressure	102 hPa at 25 °C (25 °C)
Relative vapor density	4.1 at 20 °C (20 °C)
Density	1.25 g/cm ³ at 20 °C (20 °C)
Relative density	No information available.
Water solubility	7.9 g/l at 25 °C (25 °C) Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	log Pow: 1.45 (20 °C) OECD Test Guideline 107 Bioaccumulation is not expected.
Autoignition temperature	No information available.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Decomposition temperature	300 °C (300 °C)
Viscosity, dynamic	0.82 - 0.84 mPa.s at 20 °C (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	412.6 - 440 °C (412.6 - 440 °C) Method: DIN 51794
Saturated vapor concentration	350 g/m ³ at 20 °C (20 °C)

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

Sensitivity to light

Possibility of hazardous reactions

Exothermic reaction with:

Alkaline earth metals, alkali amides, Nitric acid, nitrogen oxides, Oxidizing agents, Chlorine, powdered magnesium, Zinc

Risk of explosion with:

Alkali metals, powdered aluminum, Powdered metals, Potassium, nitrogen dioxide

Conditions to avoid

Warming.

Exposure to light.

Incompatible materials

various plastics, Light metals, Iron

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Target Organs

Eyes

Skin

Kidneys

Liver

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Central nervous system
cardiovascular system

Acute oral toxicity

LD50 Rat: 770 mg/kg
OECD Test Guideline 401

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

LC50 Rat: 7.8 mg/l; 4 h ; vapor
OECD Test Guideline 403

Irritating to respiratory system.

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

LD50 Rabbit: 4,890 mg/kg
OECD Test Guideline 402

Skin irritation

Rabbit
Result: irritating
OECD Test Guideline 404

Causes skin irritation.

Eye irritation

Causes serious eye irritation.

Sensitization

Local lymph node assay (LLNA) Mouse
Result: negative
Method: OECD Test Guideline 429

Repeated dose toxicity

Subchronic toxicity

Genotoxicity in vivo

Mutagenicity (mammal cell test): micronucleus.
Mouse
Result: negative
Method: OECD Test Guideline 474

CMR effects

Carcinogenicity:
May cause cancer.

Specific target organ systemic toxicity - single exposure

May cause respiratory irritation.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 2B: Possibly carcinogenic to humans 1,2-Dichloroethane 107-06-2
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	Anticipated carcinogen. 1,2-Dichloroethane 107-06-2
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Systemic effects:

CNS disorders, Dizziness, Headache, Tiredness, Coma, respiratory paralysis, death

Absorption may result in damage of the following:

Liver, Kidney

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

flow-through test LC50 Pimephales promelas (fathead minnow): 136 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 155 mg/l; 48 h

OECD Test Guideline 202

Toxicity to algae

static test EbC50 Selenastrum capricornutum (green algae): 166 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

static test EC50 activated sludge: 35,500 mg/l; 3 h

OECD Test Guideline 209

Toxicity to fish (Chronic toxicity)

flow-through test NOEC Danio rerio (zebra fish): 1.82 mg/l; 14 d

US-EPA

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Persistence and degradability

Biodegradability

(External MSDS)

Not rapidly biodegradable

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 1.45 (20 °C)

OECD Test Guideline 107

Bioaccumulation is not expected.

Bioaccumulation

Bioconcentration factor (BCF): 2

; 21 d

OECD Test Guideline 305C

Mobility in soil

Distribution among environmental compartments

Adsorption/Soil

log Koc: 1.58

(experimental)

Mobile in soils

(Lit.)

Other adverse effects

Henry constant

149 Pa·m³/mol

Method: (experimental)

(IUCLID) Distribution preferentially in air.

Surface tension

32.45 mN/m

at 20 °C (20 °C)

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SAFETY DATA SHEET
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

SECTION 14. Transport information

Land transport (DOT)

UN number UN 1184
Proper shipping name ETHYLENE DICHLORIDE
Class 3 (6.1)
Packing group II
Environmentally hazardous --

Air transport (IATA)

UN number UN 1184
Proper shipping name ETHYLENE DICHLORIDE
Class 3 (6.1)
Packing group II
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 1184
Proper shipping name ETHYLENE DICHLORIDE
Class 3 (6.1)
Packing group II
Environmentally hazardous --
Special precautions for user yes
EmS F-E S-D

SECTION 15. Regulatory information

United States of America

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

1,2-Dichloroethane	107-06-2	100 %
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SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

100955

Version 1.6

Product name

1,2-Dichloroethane EMPLURA®

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients

1,2-Dichloroethane

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients

1,2-Dichloroethane

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Ingredients

1,2-Dichloroethane

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

1,2-Dichloroethane

Pennsylvania Right To Know

Ingredients

1,2-Dichloroethane

New Jersey Right To Know

Ingredients

1,2-Dichloroethane

California Prop 65 Components

WARNING: this product contains a chemical known in the State of California to cause cancer.

Ingredients

1,2-Dichloroethane

Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 100955
Product name 1,2-Dichloroethane EMPLURA®

Version 1.6

Labeling

Hazard pictograms



Signal Word

Danger

Hazard Statements

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.

Precautionary Statements

Prevention

P201 Obtain special instructions before use.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Restricted to professional users.

Full text of H-Statements referred to under sections 2 and 3.

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.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

100955

Version 1.6

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1,2-Dichloroethane EMPLURA®

Revision Date 09/23/2016

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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