

**METHALLYL CHLORIDE, tech-95**

Safety Data Sheet ENEM2040

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Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Substance name	: METHALLYL CHLORIDE, tech-95
Product code	: ENEM2040
Formula	: C4H7Cl
Synonyms	: 3-CHLORO-2-METHYLPROPENE; ISOBUTENYL CHLORIDE
Chemical family	: ESTER

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

info@gelest.com - www.gelest.com**GELEST INC.**Fritz-Klatte-Strasse 8
65933 Frankfurt**Germany**

T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Flammable liquids, Category 2	H225
Acute toxicity (oral), Category 4	H302
Acute toxicity (inhalation:vapour) Category 4	H332
Skin corrosion/irritation, Category 1B	H314
Serious eye damage/eye irritation, Category 1	H318
Skin sensitisation, Category 1	H317
Hazardous to the aquatic environment — Chronic Hazard, Category 2	H411
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapour.
H302+H332 - Harmful if swallowed or if inhaled
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P260 - Do not breathe vapours.
P264 - Wash hands thoroughly after handling.
P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type :

Mono-constituent

Name :

METHALLYL CHLORIDE, tech-95

CAS-No. :

563-47-3

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Methallyl chloride	(CAS-No.) 563-47-3 (EC-No.) 209-251-2 (EC Index-No.) 602-032-00-6	98 - 100	Fam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Chronic 2, H411

Full text of 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 :

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation :

Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact :

Wash with plenty of water/.... Get medical advice/attention.

First-aid measures after eye contact :

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

First-aid measures after ingestion :

Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects :

May cause cancer.

Symptoms/effects after inhalation :

Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. Irritation to the nose, pulmonary edema.

Symptoms/effects after skin contact :

Causes skin irritation.

Symptoms/effects after eye contact :

Causes serious eye irritation.

Symptoms/effects after ingestion :

Swallowing a small quantity of this material will result in serious health hazard.

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4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water fog. Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

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". Equip cleanup crew with proper protection.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.
Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
Storage conditions : Keep container tightly closed. Keep in a cool place. Store locked up.
Incompatible materials : Aluminium chloride. Amines. Iron. Magnesium. Oxidizing agent. Zinc.
Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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Methallyl chloride (563-47-3)		
Lithuania	IPRV (mg/m ³)	0.3 mg/m ³
Romania	OEL TWA (mg/m ³)	80 mg/m ³
Romania	OEL TWA (ppm)	22 ppm
Romania	OEL STEL (mg/m ³)	150 mg/m ³
Romania	OEL STEL (ppm)	41 ppm

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. If exposure is less than 25ppm air supplied respirator operated in a continuous flow mode is recommended. If exposure exceeds 25ppm a self-contained breathing apparatus with a full facepiece is recommended. NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid.
Molecular mass	: 90.55 g/mol
Colour	: Straw yellow.
Odour	: sharp. characteristic.
Odour threshold	: No data available
Refractive index	: 1.427
pH	: No data available
Relative evaporation rate (butylacetate=1)	: > 1
Melting point	: No data available
Freezing point	: -80 °C
Boiling point	: 71 - 72 °C
Flash point	: -10 °C
Auto-ignition temperature	: 482 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour.
Vapour pressure	: 102 mm Hg @ 20°C
Relative vapour density at 20 °C	: 3.13
Relative density	: 0.925
% Volatiles	: 100 %
Solubility	: Slightly. Soluble in water. Water: 0.14 % @ 20°C
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 2.3 - 9.2 vol % (lower; upper)

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9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Aluminium chloride. Amines. Iron. Magnesium. Oxidizing agent. Zinc.

10.6. Hazardous decomposition products

Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed. Harmful if inhaled.

METHALLYL CHLORIDE, tech-95 (563-47-3)

ATE CLP (oral)	500 mg/kg bodyweight
ATE CLP (vapours)	11 mg/l/4h

Methallyl chloride (563-47-3)

LD50 oral rat	580 mg/kg 848 mg/kg
LD50 oral mouse	1370 mg/kg
LD50 dermal rat	> 4000 mg/kg >10,000 mg/kg
LC50 inhalation rat	> 5000 mg/mg ³ 4H

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Chronic Exposure: This product has been reported to be reasonably anticipated to be a human carcinogenic based on NTP. IARC, EPA and OSHA have not identified or classified this compound as a human carcinogen. Mouse feeding and inhalation studies classify this material as an equivocal tumorigenic agent.

Methallyl chloride (563-47-3)

IARC group	3 - Not classifiable
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity, 3 - Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Harmful if swallowed. Harmful if inhaled.

Symptoms/effects after inhalation : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. Irritation to the nose, pulmonary edema.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

Reason for classification : Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life.

Acute aquatic toxicity : Not classified

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Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Methallyl chloride (563-47-3)	
LC50 fish 1	22.5 mg/l <i>Leuciscus idus</i> (bluegill fish)
EC50 <i>Daphnia</i> 1	7.2 mg/l <i>Daphnia magna</i> (24H)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Methallyl chloride (563-47-3)	
Log Pow	1.98

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Additional information : Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2554
UN-No. (IMDG) : 2554
UN-No. (IATA) : 2554
UN-No. (ADN) : 2554
UN-No. (RID) : 2554

14.2. UN proper shipping name

Proper Shipping Name (ADR) : METHYLALLYL CHLORIDE
Proper Shipping Name (IMDG) : METHYLALLYL CHLORIDE
Proper Shipping Name (IATA) : Methylallyl chloride
Proper Shipping Name (ADN) : METHYLALLYL CHLORIDE
Proper Shipping Name (RID) : METHYLALLYL CHLORIDE
Transport document description (ADR) : UN 2554 METHYLALLYL CHLORIDE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG) : UN 2554 METHYLALLYL CHLORIDE, 3, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS (-12°C c.c.)
Transport document description (IATA) : UN 2554 Methylallyl chloride, 3, II, ENVIRONMENTALLY HAZARDOUS
Transport document description (ADN) : UN 2554 METHYLALLYL CHLORIDE, 3, II, ENVIRONMENTALLY HAZARDOUS
Transport document description (RID) : UN 2554 METHYLALLYL CHLORIDE, 3, II, ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 3
Danger labels (ADR) : 3



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IMDG

Transport hazard class(es) (IMDG) : 3
Danger labels (IMDG) : 3



IATA

Transport hazard class(es) (IATA) : 3
Hazard labels (IATA) : 3



ADN

Transport hazard class(es) (ADN) : 3
Danger labels (ADN) : 3



RID

Transport hazard class(es) (RID) : 3
Danger labels (RID) : 3



14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : Yes
Marine pollutant : Yes
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : F1
Limited quantities (ADR) : 11
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02, R001
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T4

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Portable tank and bulk container special provisions (ADR) : TP1
Tank code (ADR) : LGBF
Vehicle for tank carriage : FL
Transport category (ADR) : 2
Special provisions for carriage - Operation (ADR) : S2, S20
Hazard identification number (Kemler No.) : 33
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 3WE

- Transport by sea

Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1, TP13
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : E
Flash point (IMDG) : -12°C c.c.
Properties and observations (IMDG) : Colourless to yellowish, volatile liquid with a penetrating odour. Flashpoint: -12°C c.c.
Explosive limits: 2.3% to 9.3% Immiscible with water. When involved in a fire, may evolve highly toxic phosgene gas. Harmful by inhalation. Irritating to skin, eyes and mucous membranes.

- Air transport

PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 353
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
ERG code (IATA) : 3H

- Inland waterway transport

Classification code (ADN) : F1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

- Rail transport

Classification code (RID) : F1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001, IBC02, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T4
Portable tank and bulk container special provisions (RID) : TP1
Tank codes for RID tanks (RID) : LGBF
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE7

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Hazard identification number (RID) : 33

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

METHALLYL CHLORIDE, tech-95 is not on the REACH Candidate List

METHALLYL CHLORIDE, tech-95 is not on the REACH Annex XIV List

METHALLYL CHLORIDE, tech-95 is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

METHALLYL CHLORIDE, tech-95 is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

% Volatiles : 100 %

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 2, Significantly hazardous to water (Classification according to VwVwS, Annex 1 or 2; ID No. 1196)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor
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Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Sens. 1	Skin sensitisation, Category 1
H225	Highly flammable liquid and vapour.

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H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II) - Custom

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