

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/08/2021

Reviewed on 09/08/2021

1 Identification

- **Product identifier**
- **Trade name:** FORMVAR SOLUTION 1.00%
- **Article number:** 15830, 15830-25-SP, 15830-25
- **CAS Number:**
107-06-2
- **EC number:**
203-458-1
- **Index number:**
602-012-00-7
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** *Danger*· **Hazard-determining components of labeling:***ETHYLENE DICHLORIDE*· **Hazard statements***Highly flammable liquid and vapor.**Harmful if swallowed.**Causes skin irritation.**Causes serious eye irritation.**Suspected of causing cancer.**May cause respiratory irritation.*· **Precautionary statements***Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Keep away from heat/sparks/open flames/hot surfaces. - No smoking.**Ground/bond container and receiving equipment.**Use explosion-proof electrical/ventilating/lighting/equipment.**Use only non-sparking tools.**Take precautionary measures against static discharge.**Avoid breathing dust/fume/gas/mist/vapors/spray**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**Wear protective gloves/protective clothing/eye protection/face protection.**If swallowed: Call a poison center/doctor if you feel unwell.**Rinse mouth.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**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.**Specific treatment (see on this label).**Take off contaminated clothing and wash it before reuse.**If skin irritation occurs: Get medical advice/attention.**If eye irritation persists: Get medical advice/attention.**In case of fire: Use for extinction: CO₂, powder or water spray.**Store in a well-ventilated place. Keep container tightly closed.**Store in a well-ventilated place. Keep cool.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*· **Classification system:**· **NFPA ratings (scale 0 - 4)***Health = 3**Fire = 3**Reactivity = 0*

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- **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
107-06-2 ETHYLENE DICHLORIDE
- **Identification number(s)**
- **EC number:** 203-458-1
- **Index number:** 602-012-00-7

- **Dangerous components:**

63450-15-7	POLYVINYL FORMAL	≤2.5%
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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
Most important symptoms and effects, both acute and delayed No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

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6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· PAC-1:

50 ppm

· PAC-2:

200 ppm

· PAC-3:

300 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

107-06-2 ETHYLENE DICHLORIDE

PEL Long-term value: 50 ppm
Ceiling limit value: 100; 200* ppm
*5-min peak in any 3 hrs

REL Short-term value: 8 mg/m³, 2 ppm
Long-term value: 4 mg/m³, 1 ppm
See Pocket Guide Apps. A and C

TLV Long-term value: 40 mg/m³, 10 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

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9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

- **Form:** Liquid
- **Color:** According to product specification
- **Odor:** Ether-like
- **Odor threshold:** Not determined.

- **pH-value:** Not determined.

- **Change in condition**

- **Melting point/Melting range:** -35.5 °C (-31.9 °F)
- **Boiling point/Boiling range:** 84 °C (183.2 °F)

- **Flash point:** 13 °C (55.4 °F)

- **Flammability (solid, gaseous):** Not flammable.

- **Ignition temperature:** 440 °C (824 °F)

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Not determined.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- **Explosion limits:**

- **Lower:** 6.2 Vol %
- **Upper:** 16 Vol %

- **Vapor pressure at 20 °C (68 °F):** 87 hPa (65.3 mm Hg)

- **Density at 20 °C (68 °F):** 1.25 g/cm³ (10.43125 lbs/gal)

- **Relative density** Not determined.

- **Vapor density** Not determined.

- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with**

- **Water at 20 °C (68 °F):** 8 g/l

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**

- **Dynamic at 20 °C (68 °F):** 0.8 mPas
- **Kinematic:** Not determined.
- **VOC content:** 0.00 %
0.0 g/l / 0.00 lb/gal

- **Solids content:** 0.0 %

- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.

- **Chemical stability**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

- **Possibility of hazardous reactions** No dangerous reactions known.

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- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

107-06-2 ETHYLENE DICHLORIDE

Oral LD50 670 mg/kg (rat)

Dermal LD50 2,800 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

2B

- **NTP (National Toxicology Program)**

R

- **OSHA-Ca (Occupational Safety Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**

- **General notes:**

Water hazard class 3 (Assessment by list): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

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13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA | UNI1184 |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR · IMDG, IATA | Ethylene dichloride
1184 ETHYLENE DICHLORIDE
ETHYLENE DICHLORIDE |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT | <div style="display: flex; align-items: center; gap: 10px;"> </div> |
| <ul style="list-style-type: none"> · Class · Label | 3 Flammable liquids
3, 6.1 |
| <ul style="list-style-type: none"> · ADR | <div style="display: flex; align-items: center; gap: 10px;"> </div> |
| <ul style="list-style-type: none"> · Class · Label | 3 Flammable liquids
3+6.1 |
| <ul style="list-style-type: none"> · IMDG | <div style="display: flex; align-items: center; gap: 10px;"> </div> |
| <ul style="list-style-type: none"> · Class · Label | 3 Flammable liquids
3/6.1 |
| <ul style="list-style-type: none"> · IATA | <div style="display: flex; align-items: center; gap: 10px;"> </div> |
| <ul style="list-style-type: none"> · Class · Label | 3 Flammable liquids
3 (6.1) |

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· Packing group · DOT, ADR, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category · Stowage Code	Warning: Flammable liquids 336 3-03 Liquid halogenated hydrocarbons B SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information: · DOT · Quantity limitations · Hazardous substance:	On passenger aircraft/rail: 1 L On cargo aircraft only: 60 L 100 lbs, 45.4 kg
· ADR · Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

107-06-2 ETHYLENE DICHLORIDE

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

107-06-2 ETHYLENE DICHLORIDE

· **Proposition 65**

· **Chemicals known to cause cancer:**

107-06-2 ETHYLENE DICHLORIDE

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

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· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

B2

· **TLV (Threshold Limit Value established by ACGIH)**

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

107-06-2 ETHYLENE DICHLORIDE

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02

GHS07

GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

ETHYLENE DICHLORIDE

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

May cause respiratory irritation.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

Specific treatment (see on this label).

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Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 09/08/2021 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

*OSHA: Occupational Safety **Health***

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Safety Data Sheet

according to WHS Regulations

Printing date 08.09.2021

Revision: 08.09.2021

1 Identification

· **Product identifier**

· **Trade name:** FORMVAR SOLUTION 1.00%

· **Article number:** 15830, 15830-25-SP, 15830-25

· **CAS Number:**

107-06-2

· **EC number:**

203-458-1

· **Index number:**

602-012-00-7

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

No further relevant information available.

· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: info@emsdiasum.com

www.emsdiasum.com

ProSciTech Pty Ltd

11 Carlton Street, Kirwan QLD 4817 Australia

Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)

Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)

Website: ems.proscitech.com

Emgrid Australia Pty. Ltd.

P.O. Box 118

The Patch VIC 3792

Australia

Tel: 03 9752 1785

Fax: 03 9752 1784

Website: www.emgrid.com.au

· **Further information obtainable from:** Product safety department

· **Emergency telephone number:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

2 Hazard(s) Identification

· **Classification of the substance or mixture**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS08 health hazard

Carc. 2 H351 Suspected of causing cancer.

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AU

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GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 STOT SE 3 H335 May cause respiratory irritation.

· **Label elements**

· **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

· **Hazard pictograms**



GHS02

GHS07

GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labelling:**

ETHYLENE DICHLORIDE

· **Hazard statements**

Highly flammable liquid and vapour.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

May cause respiratory irritation.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Rinse mouth.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

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In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

- **Chemical characterisation: Substances**
- **CAS No. Description**
107-06-2 ETHYLENE DICHLORIDE
- **Identification number(s)**
- **EC number:** 203-458-1
- **Index number:** 602-012-00-7

· **Dangerous components:**

63450-15-7	POLYVINYL FORMAL	≤2.5%
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· **SVHC**

107-06-2	ETHYLENE DICHLORIDE
63450-15-7	POLYVINYL FORMAL

4 First Aid Measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** *In case of unconsciousness place patient stably in side position for transportation.*
- **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** *Call for a doctor immediately.*
- **Information for doctor:**
Most important symptoms and effects, both acute and delayed No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Extinguishing media**
- **Suitable extinguishing agents:** *CO₂, sand, extinguishing powder. Do not use water.*
- **For safety reasons unsuitable extinguishing agents:** *Water with full jet*
- **Special hazards arising from the substance or mixture** *No further relevant information available.*
- **Advice for firefighters**
- **Protective equipment:** *No special measures required.*

AU

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Safety Data Sheet

according to WHS Regulations

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Trade name: **FORMVAR SOLUTION 1.00%**

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6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

107-06-2 ETHYLENE DICHLORIDE

WES	Long-term value: 40 mg/m ³ , 10 ppm
-----	--

- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

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Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· **Form:**

Liquid

· **Colour:**

According to product specification

· **Odour:**

Ether-like

· **Odour threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

· **Melting point/freezing point:**

-35.5 °C

· **Initial boiling point and boiling range:**

84 °C

· **Flash point:**

13 °C

· **Flammability (solid, gas):**

Not applicable.

· **Ignition temperature:**

440 °C

· **Decomposition temperature:**

Not determined.

· **Auto-ignition temperature:**

Not determined.

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· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	6.2 Vol %
· Upper:	16 Vol %
· Vapour pressure at 20 °C:	87 hPa
· Density at 20 °C:	1.25 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water at 20 °C:	8 g/l
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic at 20 °C:	0.8 mPas
· Kinematic:	Not determined.
· Solvent content:	
· VOC (EC)	0.00 %
· Solids content:	0.0 %
· Other information	No further relevant information available.

10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity**

· **LD/LC50 values relevant for classification:**

107-06-2 ETHYLENE DICHLORIDE

Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2,800 mg/kg (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Irritant to skin and mucous membranes.
- **Serious eye damage/irritation** Irritating effect.
- **Respiratory or skin sensitisation** No sensitising effects known.

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- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
Carc. 2


12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN1184
- **UN proper shipping name**
- **ADG** 1184 ETHYLENE DICHLORIDE
- **IMDG, IATA** ETHYLENE DICHLORIDE
- **Transport hazard class(es)**
- **ADG**
- 
- **Class** 3 Flammable liquids.

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· **Label** 3+6.1

· **IMDG**



· **Class** 3 Flammable liquids.
 · **Label** 3/6.1

· **IATA**



· **Class** 3 Flammable liquids.
 · **Label** 3 (6.1)

· **Packing group**
 · **ADG, IMDG, IATA** II

· **Environmental hazards:** Not applicable.

· **Special precautions for user** Warning: Flammable liquids.
 · **Hazard identification number (Kemler code):** 336
 · **EMS Number:** 3-03
 · **Segregation groups** Liquid halogenated hydrocarbons
 · **Stowage Category** B
 · **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADG**
 · **Limited quantities (LQ)** 1L
 · **Excepted quantities (EQ)** Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml
 · **Transport category** 2
 · **Tunnel restriction code** D/E

· **IMDG**
 · **Limited quantities (LQ)** 1L
 · **Excepted quantities (EQ)** Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

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15 Regulatory information

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

· Australian Inventory of Industrial Chemicals

All ingredients are listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

S6

· Australia: Priority Existing Chemicals

None of the ingredients is listed.

· GHS label elements

The substance is classified and labelled according to the Globally Harmonised System (GHS).

· Hazard pictograms



GHS02

GHS07

GHS08

· Signal word *Danger*

· Hazard-determining components of labelling:

ETHYLENE DICHLORIDE

· Hazard statements

Highly flammable liquid and vapour.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

May cause respiratory irritation.

· Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Rinse mouth.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

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If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** Substance is not listed.

· **Seveso category P5c FLAMMABLE LIQUIDS**

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**

107-06-2	ETHYLENE DICHLORIDE
63450-15-7	POLYVINYL FORMAL

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 4: Acute toxicity - oral – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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1 Identification

- **Product identifier**
- **Trade name:** FORMVAR SOLUTION 1.00%
- **Article number:** 15830, 15830-25-SP, 15830-25
- **CAS Number:**
107-06-2
- **EC number:**
203-458-1
- **Index number:**
602-012-00-7
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids - Category 2

H225 Highly flammable liquid and vapour.



GHS08 Health hazard

Carcinogenicity – Category 2

H351 Suspected of causing cancer.



GHS07

Acute Toxicity (Oral) - Category 4

H302 Harmful if swallowed.

Skin Irritation - Category 2

H315 Causes skin irritation.

Eye Irritation - Category 2A

H319 Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure -
Category 3

H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** *Danger*· **Hazard-determining components of labeling:***ETHYLENE DICHLORIDE*· **Hazard statements***Highly flammable liquid and vapour.**Harmful if swallowed.**Causes skin irritation.**Causes serious eye irritation.**Suspected of causing cancer.**May cause respiratory irritation.*· **Precautionary statements***Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.**Ground and bond container and receiving equipment.**Use explosion-proof [electrical/ventilating/lighting] equipment.**Use non-sparking tools.**Take actions to prevent static discharges.**Avoid breathing dust/fume/gas/mist/vapours/spray.**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**Wear protective gloves/protective clothing/eye protection/face protection.**If swallowed: Call a poison center/doctor if you feel unwell.**Rinse mouth.**IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**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.**Specific treatment (see on this label).**Take off contaminated clothing and wash it before reuse.**If skin irritation occurs: Get medical advice/attention.**If eye irritation persists: Get medical advice/attention.**In case of fire: Use for extinction: CO₂, powder or water spray.**Store in a well-ventilated place. Keep container tightly closed.**Store in a well-ventilated place. Keep cool.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*· **Classification system:**· **NFPA ratings (scale 0 - 4)***Health = 3**Fire = 3**Reactivity = 0*

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· **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

3 Composition/Information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
107-06-2 ETHYLENE DICHLORIDE
- **Identification number(s)**
- **EC number: 203-458-1**
- **Index number: 602-012-00-7**

· **Dangerous components:**

63450-15-7	POLYVINYL FORMAL		
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0.1-1% w/w *

* Actual concentration ranges are withheld as a trade secret.

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/ Personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

107-06-2 ETHYLENE DICHLORIDE

EL	STEL: 2 ppm TWA: 1 ppm IARC 2B
EV	TWA: 40 mg/m ³ , 10 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.

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Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

- **Form:** Liquid
- **Color:** According to product specification
- **Odor:** Ether-like
- **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

- **Melting point/Melting range:** -35.5 °C
- **Boiling point/Boiling range:** 84 °C

· **Flash point:** 13 °C

· **Flammability (solid, gaseous):** Not flammable.

· **Ignition temperature:** 440 °C

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

· **Lower:** 6.2 Vol %

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· Upper:	16 Vol %
· Vapor pressure at 20 °C:	87 hPa
· Density at 20 °C:	1.25 g/cm ³
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· Water at 20 °C:	8 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· Dynamic at 20 °C:	0.8 mPas
· Kinematic:	Not determined.
· Solids content:	0.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

107-06-2 ETHYLENE DICHLORIDE

Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2,800 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

2B

· **NTP (National Toxicology Program)**

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12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
*Water hazard class 3 (Assessment by list): extremely hazardous for water
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Danger to drinking water if even extremely small quantities leak into the ground.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · UN-Number · DOT/TDG, ADR, IMDG, IATA | <p style="text-align: center;">UN1184</p> |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT/TDG · ADR · IMDG, IATA | <p style="text-align: center;">Ethylene dichloride
 1184 ETHYLENE DICHLORIDE
 ETHYLENE DICHLORIDE</p> |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT/TDG (Transport dangerous goods): | <div style="display: flex; align-items: center; justify-content: center; gap: 20px;">   </div> |
| <ul style="list-style-type: none"> · Class · Label | <p style="text-align: center;">3 Flammable liquids
 3, 6.1</p> |

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· **ADR**

· **Class** 3 Flammable liquids
 · **Label** 3+6.1

· **IMDG**

· **Class** 3 Flammable liquids
 · **Label** 3/6.1

· **IATA**

· **Class** 3 Flammable liquids
 · **Label** 3 (6.1)

· **Packing group**
 · **DOT/TDG, ADR, IMDG, IATA** II

· **Environmental hazards:** Not applicable.

· **Special precautions for user** Warning: Flammable liquids
 · **Hazard identification number (Kemler code):** 336
 · **EMS Number:** 3-03
 · **Segregation groups** Liquid halogenated hydrocarbons
 · **Stowage Category** B
 · **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT/TDG**
 · **Quantity limitations** On passenger aircraft/rail: 1 L
 On cargo aircraft only: 60 L
 · **Hazardous substance:** 100 lbs, 45.4 kg

· **ADR**

· **Excepted quantities (EQ)** Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

· **IMDG**

· **Limited quantities (LQ)** 1L
 · **Excepted quantities (EQ)** Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

(Contd. on page 9)

CA

Safety Data Sheet

according to HPR, Schedule 1

Printing date 09/08/2021

Reviewed on 09/08/2021

Trade name: FORMVAR SOLUTION 1.00%

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· UN "Model Regulation":

UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

107-06-2 ETHYLENE DICHLORIDE

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Canadian substance listings:

· Canadian Domestic Substances List (DSL)

All ingredients are listed.

· Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)

107-06-2 ETHYLENE DICHLORIDE

- GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS02 GHS07 GHS08

· Signal word Danger

· Hazard-determining components of labeling:

ETHYLENE DICHLORIDE

· Hazard statements

Highly flammable liquid and vapour.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

May cause respiratory irritation.

· Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground and bond container and receiving equipment.

Use explosion-proof [electrical/ventilating/lighting] equipment.

Use non-sparking tools.

Take actions to prevent static discharges.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

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Safety Data Sheet according to HPR, Schedule 1

Printing date 09/08/2021

Reviewed on 09/08/2021

Trade name: FORMVAR SOLUTION 1.00%

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Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of the latest revision of the safety data sheet** 09/08/2021 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 08.09.2021

Revision: 08.09.2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** FORMVAR SOLUTION 1.00%
- **Article number:** 15830, 15830-25-SP, 15830-25
- **CAS Number:**
107-06-2
- **EC number:**
203-458-1
- **Index number:**
602-012-00-7
- **UFI:** YV91-30A0-U004-QJ03
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS08 health hazard

Carc. 1B H350 May cause cancer.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.

(Contd. on page 2)

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Trade name: FORMVAR SOLUTION 1.00%

(Contd. of page 1)

· Hazard pictograms



GHS02 GHS07 GHS08

· Signal word *Danger*

· Hazard-determining components of labelling:

ETHYLENE DICHLORIDE

· Hazard statements

H225 Highly flammable liquid and vapour.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H350 May cause cancer.

H335 May cause respiratory irritation.

· Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

· 3.1 Chemical characterisation: Substances

· CAS No. Description

107-06-2 ETHYLENE DICHLORIDE

· Identification number(s)

· EC number: 203-458-1

· Index number: 602-012-00-7

· Dangerous components:

63450-15-7	POLYVINYL FORMAL	≤2.5%
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· SVHC

107-06-2	ETHYLENE DICHLORIDE
63450-15-7	POLYVINYL FORMAL

GB

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Trade name: FORMVAR SOLUTION 1.00%

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SECTION 4: First aid measures

· 4.1 Description of first aid measures

· General information:

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** Call for a doctor immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media

· **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.

· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.

· 5.3 Advice for firefighters

· **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

· 6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

· 6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· Information about fire - and explosion protection:

Keep ignition sources away - Do not smoke.

Protect from heat.

Protect against electrostatic charges.

Keep respiratory protective device available.

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Trade name: FORMVAR SOLUTION 1.00%

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- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

107-06-2 ETHYLENE DICHLORIDE

WEL	Long-term value: 21 mg/m ³ , 5 ppm Carc; Sk
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- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· Eye protection:



Tightly sealed goggles

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Liquid
· Colour:	According to product specification
· Odour:	Ether-like
· Odour threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

· Melting point/freezing point:	-35.5 °C
· Initial boiling point and boiling range:	84 °C

· Flash point: 13 °C

· Flammability (solid, gas): Not applicable.

· Ignition temperature: 440 °C

· Decomposition temperature: Not determined.

· Auto-ignition temperature: Not determined.

· Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· Explosion limits:

· Lower:	6.2 Vol %
· Upper:	16 Vol %

· Vapour pressure at 20 °C: 87 hPa

· Density at 20 °C:	1.25 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

· Solubility in / Miscibility with

· water at 20 °C: 8 g/l

· Partition coefficient: n-octanol/water: Not determined.

· Viscosity:

· Dynamic at 20 °C:	0.8 mPas
· Kinematic:	Not determined.

· Solvent content:

· VOC (EC) 0.00 %

· Solids content: 0.0 %

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· **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**
Harmful if swallowed.

- **LD/LC50 values relevant for classification:**

107-06-2 ETHYLENE DICHLORIDE

Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2,800 mg/kg (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye irritation.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity**
May cause cancer.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.

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according to 1907/2006/EC, Article 31

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Trade name: FORMVAR SOLUTION 1.00%




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- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- | | |
|---|--------------------------|
| · 14.1 UN-Number | UN1184 |
| · ADR, IMDG, IATA | |
| · 14.2 UN proper shipping name | 1184 ETHYLENE DICHLORIDE |
| · ADR | ETHYLENE DICHLORIDE |
| · IMDG, IATA | |
| · 14.3 Transport hazard class(es) | |
| · ADR | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3+6.1 |
| · IMDG | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3/6.1 |
| · IATA | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3 (6.1) |
| · 14.4 Packing group | II |
| · ADR, IMDG, IATA | |
| · 14.5 Environmental hazards: | Not applicable. |

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Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 08.09.2021

Revision: 08.09.2021

Trade name: FORMVAR SOLUTION 1.00%

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· 14.6 Special precautions for user	Warning: Flammable liquids.
· Hazard identification number (Kemler code):	336
· EMS Number:	3-03
· Segregation groups	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- Directive 2012/18/EU
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category P5c FLAMMABLE LIQUIDS**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**

Sunset date: 2017-11-22

- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 28

· **Regulation (EU) No 649/2012**

Annex I Part 1
Annex I Part 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

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Safety data sheet
according to 1907/2006/EC, Article 31

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Trade name: **FORMVAR SOLUTION 1.00%**

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· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**

107-06-2	ETHYLENE DICHLORIDE
63450-15-7	POLYVINYL FORMAL

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 4: Acute toxicity - oral – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Carc. 1B: Carcinogenicity – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

化学品安全技术说明书

据根根据据根T 16483-2008, GB/T 17519-2013

打印日期 2021.09.08

在 2021.09.08 审核

1 化学品及企业标识

- **产品识别者**
- **化学品中文名称/名称, 化学品俗名或商品名:** FORMVAR SOLUTION 1.00%
- **商品编号:** 15830, 15830-25-SP, 15830-25
- **编号编号编号**
107-06-2
- **欧盟编号:**
203-458-1
- **欧盟编号:**
602-012-00-7
- **相应纯物质或者混合物的相关下位用途及禁止用途** 无相关详细资料。
- **原材料的应用/准备工作进行** 实验室化学物
- **安全技术说明书内供应商详细信息**
- **企业名称:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **可获取更多资料的部门:** Product safety department
- **紧急联系电话号码:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 危险性概述

· 紧急情况概述:

根据产品规格, 液体, 高度易燃液体和蒸气。 吞咽有害。 皮肤接触可能有害。 造成皮肤刺激。 造成严重眼刺激。 可能致癌。 可引起呼吸道刺激。

· GHS危险性类别



火焰

易燃液体 第2类

H225 高度易燃液体和蒸气



健康危害

致癌性 第1B类

H350 可能致癌



急性毒性(经口) 第4类

H302 吞咽有害

皮肤腐蚀/刺激 第2类

H315 造成皮肤刺激

严重眼损伤/眼刺激 类别2A

H319 造成严重眼刺激

特定靶器官系统毒性 (单次接触) 第3类 H335 可引起呼吸道刺激

急性毒性(经皮肤) 第5类

H313 皮肤接触可能有害

(在 2 页继续)

化学品安全技术说明书

据根据据据T 16483-2008, GB/T 17519-2013

打印日期 2021.09.08

在 2021.09.08 审核

化学品中文名称: 化学品俗名或商品名: FORMVAR SOLUTION 1.00%

(在 1 页继续)

- **标签因素**
 - **GHS卷标元素** 本化学物质根据化学物质分类及标记全球协调制度(GHS)进行了分类及标记。
- 图示图示图示



GHS02 GHS07 GHS08

名称名称名称

- **标签上辨别危险的成份:**
1,2-二氯化乙烯 (99 %)
- **危险字句**
高度易燃液体和蒸气
吞咽有害
皮肤接触可能有害
造成皮肤刺激
造成严重眼刺激
可能致癌
可引起呼吸道刺激
- **警戒字句**
- **预防措施**
远离热源/火花/明火/热表面。禁止吸烟
使用防爆的电气/通风/照明/设备
- **事故响应**
如皮肤(或头发)沾染:立即脱掉所有沾染的衣服。用水清洗皮肤/淋浴
如进入眼睛:用水小心冲洗几分钟。如戴隐形眼镜并可方便地取出,取出隐形眼镜。继续冲洗
- **安全储存**
存放处须加锁
- **废弃处置**
处置内装物/容器按照地方/区域/国家/国际规章
- **其他有害性**
- **PBT(残留性、生物浓缩性、毒性物质) 及 vPvB(高残留性、高生物浓缩性物质)评价结果**
- **PBT(残留性、生物浓缩性、毒性物质)** 不适用的
- **vPvB(高残留性、高生物浓缩性物质):** 不适用的

3 成分/组成信息

纯品纯品纯品

- **CAS号 化学名, 通用名**
107-06-2 1,2-二氯化乙烯
- **鉴别编号:**
- **欧盟编号:** 203-458-1
- **欧盟编号:** 602-012-00-7

· 危险的成分:

63450-15-7	乙酸乙烯酯与乙烯醇和1,1'-[亚甲基二氧二(乙烯)]的聚合物	≤2.5%
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4 急救措施

- **应急措施要领**
- **总说明:** 中毒的症状可能会在几个小时以后才出现;因此在发生事故之后起码要有 48 小时的医疗观察。

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(在 2 页继续)

- 吸入吸入吸入一病人不清醒时,请让病人侧 趟以便移动.
- **皮肤接触:** 马上用水和肥皂进行彻底的冲洗.
 - **眼睛接触:** 张开眼睛在流水下冲洗数分钟. 如果症状仍然持续,请咨询医生.
- 食入食入食入马上召唤医生.
- **给医生的资料:**
 - **最重要的急性症状及其影响** 无相关详细资料.
 - **需要及时的医疗处理及特别处理的症状** 无相关详细资料.

5 消防措施

- **灭火方法**
- **灭火的方法和灭火剂:** 使用二氧化碳 (CO₂)、沙粒、灭火粉末. 切勿使用水.
- **为了安全,不适当的灭火剂会:** 使用全喷嘴的水
- **特别危险性** 无相关详细资料.
- **特殊灭火方法**
- **消防人员特殊的防护装备:** 没有要求特别的措施.

6 泄漏应急处理

- **保护措施** 带上保护仪器. 让未受到保护的人们远离.
- **环境保护措施:** 切勿让其进入下水道/水面或地下水.
- **密封及净化方法和材料:**
吸收液体粘合原料 (沙粒、硅藻土、酸性粘合剂、通用粘合剂、锯屑).
根据第 13 条条款弃置受污染物.
确保有足够的通风装置.
切勿用水或水溶清洁剂来冲清.
- **参照其他部分**
有关安全处理的资料请参阅第 7 节.
有关个人防护装备的的资料请参阅第 8 节.
有关弃置的资料请参阅第 13 节.

7 操作处置与储存

- **操作处置**
- **储存** 储存 储存
确保工作间有良好的通风/排气装置.
小心打开及处理贮藏器.
防止气溶胶的形成.
- **有关火灾及防止爆炸的资料:**
远离火源 - 切勿吸烟.
防热.
防静电.
提供呼吸保护装置.
- **混合危险性等安全储存条件**
- **储存** 储存 储存
· **储存库和容器须要达到的要求:** 储存在阴凉的位置.
· **有关使用一个普通的储存设施来储存的资料:** 不需要.
· **有关储存条件的更多资料:**
将容器密封.
储存密封的贮藏器内,并放在阴凉、干爽的位置.
免受接触热力和直接受阳光照射.

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· 具体的最终用户 无相关详细资料。

8 接触控制和个体防护

· 工程控制方法: 没有进一步数据;见第 7 项.

· 控制变数

· 在工作场需要监控的限值成分

107-06-2 1,2-二氯化乙烯

OEL (CN)	PC-STEL: 15 mg/m ³
	PC-TWA: 7 mg/m ³
	G2B

PEL (TW)	PC-TWA: 40 mg/m ³ , 10 ppm
----------	---------------------------------------

· 额外的资料: 制作期间有效的清单将作为基础来使用.

· 泄漏控制

· 个人防护设备:

· 一般保护和卫生措施:

远离食品、饮料和饲料.

立即除去所有的不洁的和被污染的衣服.

在休息之前和工作完毕后请清洗双手.

分开储存保护性衣服.

避免和眼睛及皮肤接触.

· 呼吸系统防护:

如果曾短暂接触或在低污染的情况下,请使用呼吸过滤装置. 如果曾深入或较长时间接触,请使用独立的呼吸保护装置.

· 手防护:



保护手套

手套的物料必须是不渗透性的,且能抵抗该产品/物质/添加剂.

基于缺乏测试,对于产品/制剂/化学混合物,并不会提供手套材料的建议

选择手套材料时,请注意材料的渗透时间,渗透率和降解参数

· 手套材料 选择合适的手套不单取决于材料,亦取决于质量特征,以及来自哪一间生产厂家

· 渗入手套材料的时间 请向劳保手套生产厂家获取准确的破裂时间并观察实际的破裂时间

· 眼睛防护:



密封的护目镜

9 理化特性

· 有关基本物理及化学特性的信息

· 一般说明

外观外观外观

形状形状形状

颜色颜色颜色

气味气味气味

液体

根据产品规格

类似醚

(在 5 页继续)

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(在 4 页继续)

· 嗅觉阈限	未决定.
· pH值:	未决定.
· 条件的更改	
熔点熔点熔点	-35.5 °C
沸点沸点和沸程:	84 °C
闪点闪点闪点	13 °C
· 可燃性 (固体、气体):	不适用的
点火温度温度温度	440 °C
· 分解温度:	未决定.
· 自燃温度温度	未决定.
· 爆炸的危险性:	该产品并非爆炸性的然而有可能形成可爆炸性的空气/蒸汽混合物
爆炸爆炸爆炸:	
较低较低较低	6.2 Vol %
· 较高:	16 Vol %
· 蒸气压 在 20 °C:	87 hPa
· 密度 在 20 °C:	1.25 g/cm ³
· 相对密度	未决定.
气蒸气密度密	未决定.
· 蒸发速率	未决定.
溶解溶解溶解	
· 水 在 20 °C:	8 g/l
辛醇辛醇辛醇分配系数系数	未决定.
· 黏性:	
动态动态动态 在 0 °C:	0.8 mPas
运动运动运动的	未决定.
· 固体成份:	0.0 %
· 其他信息	无相关详细资料。

10 稳定性和反应性

稳定性: 无相关详细资料。

稳定性: 稳定

· 热分解: 避免的情况: 如果遵照规格使用则不会分解.

有害有害有害可能: 未有已知的危险反应.

避免避免避免: 无相关详细资料。

· 不相容的物质: 无相关详细资料。

· 危险的分解产物: 有危险的分解产品.

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11 毒理学信息

· 对毒理学影响的信息

· 急性毒性:

· 与分类相关的 LD/LC50 值:

107-06-2 1,2-二氯化乙烯

口腔	LD50	670 mg/kg (rat)
----	------	-----------------

皮肤	LD50	2,800 mg/kg (rat)
----	------	-------------------

· 重要的刺激影响:

皮肤皮肤刺激皮肤和粘膜。

· 在眼睛上面: 刺激的影响。

· 致敏致敏作用有已知的敏化影响。

· 对以以别别可能产生影响的数据:

· 作用作用致癌致致基基覆覆叠叠、对生殖系统有害)

致癌性 第1B类

12 生态学信息

· 毒害毒性毒性

· 水生毒性: 无相关详细资料。

持久性和降解降解相关详细资料。

· 环境系统习性:

· 潜在的累积累积相关详细资料。

土壤土壤移动性相关详细资料。

· 额外的生态学资料:

· 总括注解:

水危害级别 3 (德国规例) (评估): 对水是极其危险的

即使是小量, 不要让该产品接触地下水、水道或污水系统。

即使是极其小量的产品渗入地下也会对饮用水造成危险。

· PBT(残留性、生物浓缩性、毒性物质) 及 vPvB(高残留性、高生物浓缩性物质)评价结果

· PBT(残留性、生物浓缩性、毒性物质) 不适用的

· vPvB(高残留性、高生物浓缩性物质): 不适用的

其他其他用途用相关详细资料。

13 废弃处置

· 废弃处置方法

建议建议建议能将该产品和家居垃圾一起丢弃. 不要让该产品接触污水系统。

· 受污染的容器和包装:

建议建议建议根据官方的规章来丢弃。

14 运输信息

联合联合国危险货物编号(UN号)

· ADR, IMDG, IATA

UN1184

· UN适当装船名

· ADR

1184 二氯化乙烯

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· 标准标准规定

UN 1184 二氯化乙烯, 3 (6.1), II

15 法规信息

- 对相应纯物质或者混合物的安全、保健及环境法规/法律
- 危险化学品安全管理条例

· 危险化学品目录目录

107-06-2 | 1,2-二氯化乙烯

· 新化学物质环境管理办法

· 国家危险化学品名录

列出所有成分

· GHS卷标元素 本化学物质根据化学物质分类及标记全球协调制度(GHS)进行了分类及标记。

图示图示



GHS02 GHS07 GHS08

名称名称

· 标签上辨别危险的成份:

1,2-二氯化乙烯 (99 %)

· 危险字句

高度易燃液体和蒸气

吞咽有害

皮肤接触可能有害

造成皮肤刺激

造成严重眼刺激

可能致癌

可引起呼吸道刺激

· 警戒字句

· 预防措施

远离热源/火花/明火/热表面。禁止吸烟

使用防爆的电气/通风/照明/设备

· 事故响应

如皮肤(或头发)沾染:立即脱掉所有沾染的衣服。用水清洗皮肤/淋浴

如进入眼睛:用水小心冲洗几分钟。如戴隐形眼镜并可方便地取出,取出隐形眼镜。继续冲洗

· 安全储存

存放处须加锁

· 废弃处置

处置内装物/容器按照地方/区域/国家/国际规章

国家国家规章

· 有关使用限制的资料: 禁止员工接触该危险物料。在某些情况可由当局作出例外决定。

· 化学物质安全性评价: 尚未进行化学物质安全性评价

CN

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16 其他信息

该资料是基于我们目前的知识。然而,这并不构成对任何特定产品特性的担保并且不建立一个法律上有效的合同关系。

缩写:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: 持久性生物累积性有毒物质

vPvB: very Persistent and very Bioaccumulative

易燃液体 第2类: Flammable liquids – Category 2

急性毒性(经口) 第4类: Acute toxicity – Category 4

急性毒性(经皮肤) 第5类: Acute toxicity – Category 5

皮肤腐蚀/刺激 第2类: Skin corrosion/irritation – Category 2

严重眼损伤/眼刺激 类别2A: Serious eye damage/eye irritation – Category 2A

致癌性 第1B类: Carcinogenicity – Category 1B

特定靶器官系统毒性 (单次接触) 第3类: Specific target organ toxicity (single exposure) – Category 3

-CN-

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 08.09.2021

Herziening van: 08.09.2021

RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

- **1.1 Productidentificatie**
- **Handelsnaam:** FORMVAR SOLUTION 1.00%
- **Artikelnummer:** 15830, 15830-25-SP, 15830-25
- **CAS-nummer:**
107-06-2
- **EC-nummer:**
203-458-1
- **Catalogusnummer:**
602-012-00-7
- **UFI:** YV91-30A0-U004-QJ03
- **1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik**
Geen verdere relevante informatie verkrijgbaar.
- **Toepassing van de stof / van de bereiding** Laboratoriumchemicaliën
- **1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad**
- **Fabrikant/leverancier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
-
- Aurion
Binnenhaven 5
6709 PD Wageningen
The Netherlands
Tel: 31 317 415094
Fax: 31 317 415955
email: info@aurion.nl
- **Inlichtingengevende sector:** Product safety department
- **1.4 Telefoonnummer voor noodgevallen:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

RUBRIEK 2: Identificatie van de gevaren

- **2.1 Indeling van de stof of het mengsel**
- **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**



GHS02 vlam

Flam. Liq. 2 H225 Licht ontvlambare vloeistof en damp.



GHS08 gezondheidsgevaar

Carc. 1B H350 Kan kanker veroorzaken.



GHS07

Acute Tox. 4 H302 Schadelijk bij inslikken.

(Vervolg op blz. 2)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 08.09.2021

Herziening van: 08.09.2021

Handelsnaam: FORMVAR SOLUTION 1.00%

(Vervolg van blz. 1)

Skin Irrit. 2 H315 Veroorzaakt huidirritatie.
Eye Irrit. 2 H319 Veroorzaakt ernstige oogirritatie.
STOT SE 3 H335 Kan irritatie van de luchtwegen veroorzaken.

· 2.2 Etiketteringselementen

· Etikettering overeenkomstig Verordening (EG) nr. 1272/2008

De stof product is geclassificeerd en geëtiketteerd volgens de CLP-verordening.

· Gevarenpictogrammen



GHS02 GHS07 GHS08

· Signaalwoord Gevaar

· Gevaaraanduidende componenten voor de etikettering:

1,2-dichloorethaan

· Gevarenaanduidingen

H225 Licht ontvlambare vloeistof en damp.

H302 Schadelijk bij inslikken.

H315 Veroorzaakt huidirritatie.

H319 Veroorzaakt ernstige oogirritatie.

H350 Kan kanker veroorzaken.

H335 Kan irritatie van de luchtwegen veroorzaken.

· Veiligheidsaanbevelingen

P210 Verwijderd houden van warmte, hete oppervlakken, vonken, open vuur en andere ontstekingsbronnen. Niet roken.

P241 Explosieveilige [elektrische/ventilatie-/verlichtings-]apparatuur gebruiken.

P303+P361+P353 BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen [of afdouchen].

P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.

P405 Achter slot bewaren.

P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.

· 2.3 Andere gevaren

· Resultaten van PBT- en zPzB-beoordeling

· **PBT:** Niet bruikbaar.

· **zPzB:** Niet bruikbaar.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

· 3.1 Chemische karakterisering: Stoffen

· CAS-Nr. omschrijving

107-06-2 1,2-dichloorethaan

· Identificatienummer(s)

· **EC-nummer:** 203-458-1

· **Catalogusnummer:** 602-012-00-7

· Gevaarlijke inhoudstoffen:

63450-15-7 POLYVINYL FORMAL

≤2,5%

(Vervolg op blz. 3)

Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 08.09.2021

Herziening van: 08.09.2021

Handelsnaam: FORMVAR SOLUTION 1.00%

(Vervolg van blz. 2)

· SVHC	
107-06-2	1,2-dichloorethaan
63450-15-7	POLYVINYL FORMAL

RUBRIEK 4: Eerstehulpmaatregelen

- **4.1 Beschrijving van de eerstehulpmaatregelen**
- **Algemene informatie:**
Het is mogelijk dat vergiftigingssymptomen pas na vele uren optreden. Om deze reden is medische controle gedurende minstens 48 uur na een ongeval noodzakelijk.
- **Na het inademen:** Bij bewusteloosheid ligging en vervoer in stabiele zijligging.
- **Na huidcontact:** Onmiddellijk met water en zeep afwassen en goed naspoelen.
- **Na oogcontact:**
De ogen gedurende verscheidene minuten onder stromend water afspoelen terwijl de oogspleet geopend blijft. Bij aanhoudende klachten een dokter raadplegen.
- **Na inslikken:** Onmiddellijk arts raadplegen.
- **4.2 Belangrijkste acute en uitgestelde symptomen en effecten** Geen verdere relevante informatie verkrijgbaar.
- **4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling**
Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 5: Brandbestrijdingsmaatregelen

- **5.1 Blusmiddelen**
- **Geschikte blusmiddelen:** CO₂, zand, bluspoeder. Geen water gebruiken.
- **Blusmiddelen die uit veiligheidsoogpunt niet geschikt zijn:** Krachtige waterstraal
- **5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**
Geen verdere relevante informatie verkrijgbaar.
- **5.3 Advies voor brandweelieden**
- **Speciale beschermende kleding:** Geen bijzondere maatregelen nodig.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

- **6.1 Persoonlijke voorzorgsmaatregelen, beschermingsmiddelen en noodprocedures**
Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.
- **6.2 Milieuvoorzorgsmaatregelen:** Niet in de riolering/het oppervlaktewater/het grondwater laten terechtkomen.
- **6.3 Insluitings- en reinigingsmethoden en -materiaal:**
Met vloeistofbindend materiaal (zand, bergmeel, zuurbinder, universele binder, zaagmeel) opnemen.
Besmet materiaal zoals afval volgens punt 13 verwijderen.
Voor voldoende ventilatie zorgen.
Niet met water of waterachtige reinigingsmiddelen wegspoelen.
- **6.4 Verwijzing naar andere rubrieken**
Informatie inzake veilig gebruik - zie hoofdstuk 7.
Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.
Informatie inzake berging - zie hoofdstuk 13.

RUBRIEK 7: Hantering en opslag

- **7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**
Voor goede ventilatie/afzuiging op de werkplaatsen zorgen.
Tanks voorzichtig openen en behandelen.

(Vervolg op blz. 4)

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Aërosolvorming vermijden.

· **Informatie m.b.t. brand- en ontploffingsgevaar:**

Onststekingsbronnen op afstand houden - niet roken.

Beschermen tegen hitte.

Maatregelen treffen tegen ontlading van statische elektriciteit.

Ademhalingstoestellen gereedhouden.

· **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**

· **Opslag:**

· **Eisen ten opzichte van opslagruimte en tanks:** Op een koele plaats bewaren.

· **Informatie m.b.t. gezamenlijke opslag:** Niet noodzakelijk.

· **Verdere inlichtingen over eisen m.b.t. de opslag:**

Tanks ondoordringbaar gesloten houden.

Koel en droog bewaren in goed gesloten vaten.

Tegen hitte en directe zonnestrallen beschermen.

· **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

· **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.

· **8.1 Controleparameters**

· **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:**

107-06-2 1,2-dichloorethaan

WGW | Lange termijn waarde: 7 mg/m³

· **Aanvullende gegevens:** Als basis dienden lijsten die bij opstelling geldig waren.

· **8.2 Maatregelen ter beheersing van blootstelling**

· **Persoonlijke beschermingsvoorzieningen:**

· **Algemene beschermings- en gezondheidsmaatregelen:**

Verwijderd houden van eet- en drinkwaren.

Verontreinigde kleding onmiddellijk uittrekken.

Vóór de pauze en aan het einde van werktijd handen wassen.

Beschermende kleding afzonderlijk bewaren.

Aanraking met de ogen en de huid vermijden.

· **Ademhalingsbescherming:**

Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingstoestel gebruiken.

· **Handbescherming:**



Veiligheidshandschoenen

Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.

Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliënmengsel afgegeven worden.

Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.

· **Handschoenmateriaal**

De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant.

· **Doordringingstijd van het handschoenmateriaal**

De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.

(Vervolg op blz. 5)

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· Oogbescherming:



Nauw aansluitende veiligheidsbril

RUBRIEK 9: Fysische en chemische eigenschappen

· 9.1 Informatie over fysische en chemische basiseigenschappen

· Algemene gegevens

· Voorkomen:

· Vorm:	Vloeistof
· Kleur:	Volgens de produktbeschrijving
· Geur:	Etherachtig
· Geurdrempelwaarde:	Niet bepaald.

· pH-waarde: Niet bepaald.

· Toestandsverandering

· Smelt-/vriespunt:	-35,5 °C
· Beginkookpunt en kooktraject:	84 °C

· Vlampunt: 13 °C

· Ontvlambaarheid (vast, gas): Niet bruikbaar.

· Ontstekingstemperatuur: 440 °C

· Ontledingstemperatuur: Niet bepaald.

· Zelfontbrandingstemperatuur: Niet bepaald.

· Ontploffingseigenschappen: Het produkt is niet ontploffingsgevaarlijk, maar de vorming van ontploffingsgevaarlijke damp-/luchtmengsels is mogelijk.

· Ontploffingsgrenzen:

· Onderste:	6,2 Vol %
· Bovenste:	16 Vol %

· Dampspanning bij 20 °C: 87 hPa

· Dichtheid bij 20 °C:	1,25 g/cm ³
· Relatieve dichtheid	Niet bepaald.
· Dampdichtheid	Niet bepaald.
· Verdampingsnelheid	Niet bepaald.

· Oplosbaarheid in/mengbaarheid met

· Water bij 20 °C: 8 g/l

· Verdelingscoëfficiënt: n-octanol/water: Niet bepaald.

· Viscositeit

· Dynamisch bij 20 °C:	0,8 mPas
· Kinematisch:	Niet bepaald.

· Oplosmiddelgehalte:

· VOC (EG) 0,00 %

· Gehalte aan vaste bestanddelen: 0,0 %

(Vervolg op blz. 6)

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· **9.2 Overige informatie** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 10: Stabiliteit en reactiviteit

- **10.1 Reactiviteit** Geen verdere relevante informatie verkrijgbaar.
- **10.2 Chemische stabiliteit**
- **Thermische afbraak / te vermijden omstandigheden:** Geen afbraak bij gebruik volgens voorschrift.
- **10.3 Mogelijke gevaarlijke reacties** Geen gevaarlijke reacties bekend.
- **10.4 Te vermijden omstandigheden** Geen verdere relevante informatie verkrijgbaar.
- **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
- **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsproducten bekend.

RUBRIEK 11: Toxicologische informatie

- **11.1 Informatie over toxicologische effecten**
- **Acute toxiciteit**
Schadelijk bij inslikken.

· **Indelingsrelevantie LD/LC50-waarden:**

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Oraal	LD50	670 mg/kg (rat)
Dermaal	LD50	2.800 mg/kg (rat)

- **Primaire aandoening:**
- **Huidcorrosie/-irritatie**
Veroorzaakt huidirritatie.
- **Ernstig oogletsel/oogirritatie**
Veroorzaakt ernstige oogirritatie.
- **Sensibilisatie van de luchtwegen/de huid**
Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)**
- **Mutageniteit in geslachtscellen** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Kankerverwekkendheid**
Kan kanker veroorzaken.
- **Giftigheid voor de voortplanting** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **STOT bij eenmalige blootstelling**
Kan irritatie van de luchtwegen veroorzaken.
- **STOT bij herhaalde blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Gevaar bij inademing** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

RUBRIEK 12: Ecologische informatie

- **12.1 Toxiciteit**
- **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
- **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
- **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.
- **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
- **Verdere ecologische informatie:**
- **Algemene informatie:**
Waterbezwaarlijkheid (NL): Z(1) niet afbreekbare stoffen met gevaarlijke eigenschappen voor mens en milieu (carcinogeniteit/mutageniteit/ reprotoxiciteit/bioaccumulerend vermogen/ toxiciteit of persistentie)

(Vervolg op blz. 7)

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- Gevaar voor water klasse 3 (D) (Lijstclassificatie): gevaar voor water groot
 Niet lozen in grondwater, oppervlaktewater of riolering, ook niet in kleine hoeveelheden.
 Gevaar voor drinkwater zelfs bij het uitlopen van zeer geringe hoeveelheden in de ondergrond.
- **12.5 Resultaten van PBT- en zPzB-beoordeling**
 - **PBT:** Niet bruikbaar.
 - **zPzB:** Niet bruikbaar.
 - **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 13: Instructies voor verwijdering

- **13.1 Afvalverwerkingsmethoden**
- **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.

RUBRIEK 14: Informatie met betrekking tot het vervoer

- **14.1 VN-nummer**
- **ADR, IMDG, IATA** UN1184
- **14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN**
- **ADR** 1184 ETHYLEENDICHLORIDE
- **IMDG, IATA** ETHYLENE DICHLORIDE
- **14.3 Transportgevarenklasse(n)**
- **ADR**
- 
 - **klasse** 3 Brandbare vloeistoffen
 - **Etiket** 3+6.1
- **IMDG**
- 
 - **Class** 3 Brandbare vloeistoffen
 - **Label** 3/6.1
- **IATA**
- 
 - **Class** 3 Brandbare vloeistoffen
 - **Label** 3 (6.1)
- **14.4 Verpakkingsgroep:**
- **ADR, IMDG, IATA** II

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· 14.5 Milieugevaren:	Niet bruikbaar.
· 14.6 Bijzondere voorzorgen voor de gebruiker	Waarschuwing: Brandbare vloeistoffen
· Gevaarsidentificatienummer (Kemler-getal):	336
· EMS-nummer:	3-03
· Segregation groups	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code	Niet bruikbaar.
· Transport/verdere gegevens:	

· ADR	
· Beperkte hoeveelheden (LQ)	1L
· Uitgezonderde hoeveelheden (EQ)	Code: E2 Grootste netto hoeveelheid per binnenverpakking: 30 ml Grootste netto hoeveelheid per buitenverpakking: 500 ml
· Vervoerscategorie	2
· Tunnelbeperkingscode	D/E

· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· VN "Model Regulation":	UN 1184 ETHYLEENDICHLORIDE, 3 (6.1), II

RUBRIEK 15: Regelgeving

· 15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel
· SZW-lijst van kankerverwekkende stoffen
107-06-2 1,2-dichloorethaan
· SZW-lijst van mutagene stoffen
geen der bestanddelen staat op de lijst.
· NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid
geen der bestanddelen staat op de lijst.
· NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling
geen der bestanddelen staat op de lijst.
· NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding
geen der bestanddelen staat op de lijst.
· Lijst Zeer Zorgwekkende Stoffen (ZZS)
107-06-2 1,2-dichloorethaan
· Lijst van Potentieel Zeer Zorgwekkende Stoffen
geen der bestanddelen staat op de lijst.
· Richtlijn 2012/18/EU
· Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I De stof is niet aanwezig.
· Seveso-categorie P5c ONTVLAMBARE VLOEISTOFFEN
· Drempelwaarde (ton) voor toepassing van voorschriften voor lagedrempelinrichtingen 5.000 t

(Vervolg op blz. 9)

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- **Drempelwaarde (ton) voor toepassing van voorschriften voor hogedrempelinrichtingen 50.000 t**

- **LIJST VAN AUTORISATIEPLICHTIGE STOFFEN (BIJLAGE XIV)**

Sunset date: 2017-11-22

- **Verordening (EG) nr. 1907/2006 BIJLAGE XVII Beperkingsvoorwaarden: 3, 28**

- **Verordening (EU) Nr. 649/2012**

Annex I Part 1

Annex I Part 3

- **Richtlijn 2011/65/EU betreffende beperking van het gebruik van bepaalde gevaarlijke stoffen in elektrische en elektronische apparatuur - Bijlage II**

geen der bestanddelen staat op de lijst.

- **Nationale voorschriften:**

- **Aanwijzingen m.b.t. tewerkstellingsbeperking:**

Werknemers mogen aan deze gevaarlijke stof niet blootgesteld worden. In uitzonderingsgevallen kan de overheid speciale vergunningen afgeven.

- **Gevaarklasse v. water:**

Waterbezwaarlijkheid (NL): Z(1) niet afbreekbare stoffen met gevaarlijke eigenschappen voor mens en milieu (carcinogeniteit/mutageniteit/ reprotoxiciteit/bioaccumulerend vermogen/ toxiciteit of persistentie)

- **Aanvullende voorschriften, beperkingen en verbodsverordeningen**

- **Zeer zorgwekkende stoffen (SVHC) volgens REACH, artikel 57**

107-06-2	1,2-dichloorethaan
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63450-15-7	POLYVINYL FORMAL
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- **15.2 Chemischeveiligheidsbeoordeling:** Een chemische veiligheidsbeoordeling is niet uitgevoerd.

RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van produkteigenschappen en vestigen geen contractuele rechtsbetrekking.

- **Afkortingen en acroniemen:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Ontvlambare vloeistoffen – Categorie 2

Acute Tox. 4: Acute toxiciteit - oraal – Categorie 4

Skin Irrit. 2: Huidcorrosie/-irritatie – Categorie 2

Eye Irrit. 2: Ernstig oogletsel/oogirritatie – Categorie 2

Carc. 1B: Kankerverwekkendheid – Categorie 1B

STOT SE 3: Specifieke doelorgaantoxiciteit bij eenmalige blootstelling – Categorie 3

Käyttöturvallisuustiedote

1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 08.09.2021

Tarkistus: 08.09.2021

KOHTA 1: Aineen tai seoksen ja yhtiön tai yrityksen tunnistetiedot

- **1.1 Tuotetunniste**
- **Kauppanimike:** FORMVAR SOLUTION 1.00%
- **Artikkelinumero:** 15830, 15830-25-SP, 15830-25
- **CAS-numero:**
107-06-2
- **EY-numero:**
203-458-1
- **Indeksinumero:**
602-012-00-7
- **UFI:** YV91-30A0-U004-QJ03
- **1.2 Aineen tai seoksen merkitykselliset tunnistetut käytöt ja käytöt, joita ei suositella**
Merkittäviä lisätietoja ei ole saatavilla.
- **Aineen / valmisteiden käyttö** Laboratoriokemikaalit
- **1.3 Käyttöturvallisuustiedotteen toimittajan tiedot**
- **Valmistaja/toimittaja:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Tietoja antaa:** Product safety department
- **1.4 Häätöpuhelinnumero:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

KOHTA 2: Vaaran yksilöinti

- **2.1 Aineen tai seoksen luokitus**
- **Luokitus asetuksen (EY) N:o 1272/2008 mukaisesti**



GHS02 liekki

Flam. Liq. 2 H225 Helposti syttyvä neste ja höyry.



GHS08 terveysvaara

Carc. 1B H350 Saattaa aiheuttaa syöpää.



GHS07

Acute Tox. 4 H302 Haitallista nieltynä.

Skin Irrit. 2 H315 Ärsyttää ihoa.

Eye Irrit. 2 H319 Ärsyttää voimakkaasti silmiä.

STOT SE 3 H335 Saattaa aiheuttaa hengitysteiden ärsytystä.

- **2.2 Merkinnät**
- **Merkinnät asetuksen (EY) N:o 1272/2008 mukaisesti** Aine on luokiteltu ja merkitty CLP-asetuksen mukaan.

(jatkuu sivulla 2)

Käyttöturvallisuustiedote

1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 08.09.2021

Tarkistus: 08.09.2021

Kauppanimike: FORMVAR SOLUTION 1.00%

(jatkuu sivulla 1)

· Varoitusmerkit


GHS02 GHS07 GHS08

· Huomiosana Vaara
· Vaaran määrävät komponentit etiketeissä:

etyleenidikloridi

· Vaaralausekkeet

H225 Helposti syttyvä neste ja höyry.

H302 Haitallista nieltynä.

H315 Ärsyttää ihoa.

H319 Ärsyttää voimakkaasti silmiä.

H350 Saattaa aiheuttaa syöpää.

H335 Saattaa aiheuttaa hengitysteiden ärsytystä.

· Turvalausekkeet

P210 Suojaa lämmöltä, kuumilta pinnoilta, kipinöiltä, avotulelta ja muilta sytytyslähteiltä. Tupakointi kielletty.

P241 Käytä räjähdysturvallisia [sähkö/ilmanvaihto/valaisin]laitteita.

P303+P361+P353 JOS KEMIKAALIA JOUTUU IHOLLE (tai hiuksiin): Riisu saastunut vaatetus välittömästi. Huuhto iho vedellä [tai suihkuta].

P305+P351+P338 JOS KEMIKAALIA JOUTUU SILMIIN: Huuhto huolellisesti vedellä usean minuutin ajan. Poista mahdolliset piilolinssit, jos sen voi tehdä helposti. Jatka huuhtomista.

P405 Varastoi lukitussa tilassa.

P501 Hävitä säiliö(t) noudattaen paikallisia/alueellisia/kansallisia/kansainvälisiä määräyksiä.

· 2.3 Muut vaarat
· PBT- ja vPvB-arvioinnin tulokset

· **PBT:** Ei voida käyttää.

· **vPvB:** Ei voida käyttää.

KOHTA 3: Koostumus ja tiedot aineosista

· 3.1 Kemialliset ominaisuudet: Aineet
· CAS-nro. nimike

107-06-2 etyleenidikloridi

· Tunnistusnumero(t)

· **EY-numero:** 203-458-1

· **Indeksinumero:** 602-012-00-7

· Sisältää vaarallisia aineita:

63450-15-7 POLYVINYL FORMAL

≤2,5%

· SVHC

107-06-2 etyleenidikloridi

63450-15-7 POLYVINYL FORMAL

FI

(jatkuu sivulla 3)

Käyttöturvallisuustiedote

1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 08.09.2021

Tarkistus: 08.09.2021

Kauppanimike: FORMVAR SOLUTION 1.00%

(jatkuu sivulla 2)

KOHTA 4: Ensiaputoimenpiteet

· 4.1 Ensiaputoimenpiteiden kuvaus

· Yleisohjeet:

Myrkytysoireet voivat ilmaantua vasta useiden tuntien kuluttua. Tästä syystä henkilöt on pidettävä lääkärin tarkkailun alaisena ainakin 48 tuntia onnettomuuden jälkeen.

· **Hengitettynä:** Tajuton pidettävä ja kuljetettava kyljellään.

· **Ihokosketuksessa:** Pestävä heti vedellä ja saippualla ja huuhdottava hyvin.

· Aineen päästyä silmiin:

Silmiä huuhdotaan luomet auki juoksevan veden alla useita minuutteja. Oireiden kestäessä käännytään lääkärin puoleen.

· **Nieltyä:** Saatettava lääkärin hoitoon.

· **4.2 Tärkeimmät oireet ja vaikutukset, sekä välittömät että viivästyneet** Merkittäviä lisätietoja ei ole saatavilla.

· **4.3 Mahdollisesti tarvittavaa välitöntä lääketieteellistä apua ja erityishoitoa koskevat ohjeet**

Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 5: Palontorjuntatoimenpiteet

· 5.1 Sammutusaineet

· **Sopivat sammutusaineet:** CO₂, hiekka, kuivakemikaalisammutin. Vettä ei saa käyttää.

· **Turvallisuussyistä sopimattomat sammutusaineet:** Täysi vesisuihku

· **5.2 Aineesta tai seoksesta johtuvat erityiset vaarat** Merkittäviä lisätietoja ei ole saatavilla.

· 5.3 Palontorjuntaa koskevat ohjeet

· **Erityinen suojarustus:** Erikoistoimenpiteitä ei tarvita.

KOHTA 6: Toimenpiteet onnettomuuspäästöissä

· 6.1 Varotoimenpiteet, henkilösuojaimet ja menettely hätätilanteessa

Käytettävä suojarustus. Suojautumattomat henkilöt pidettävä loitolla.

· **6.2 Ympäristöön kohdistuvat varotoimet:** Estettävä pääsy viemäriin/pintavesiin/pohjaveteen.

· 6.3 Suojarakenteita ja puhdistusta koskevat menetelmät ja -välineet:

Imettävä nestettä sitovalla aineella (hiekkä, piimaa, hapon sidosaaine, yleisidosaine, sahajauho).

Saastunut aine on jätteenä hävitettävä kohdan 13 mukaisesti.

Huolehdyttävä riittävästä tuuletuksesta.

Ei saa huuhtoa pois vedellä tai vetisillä puhdistusaineilla.

· 6.4 Viittaukset muihin kohtiin

Turvallista käsittelyä koskevia ohjeita kappaleessa 7.

Henkilökohtaista suojarustususta koskevia ohjeita kappaleessa 8.

Aineen hävitystä koskevia ohjeita kappaleessa 13.

KOHTA 7: Käsittely ja varastointi

· 7.1 Turvallisen käsittelyn edellyttämät toimenpiteet

Huolehdyttävä hyvästä tuuletuksesta/imusta työpaikalla.

Säiliöt avattava ja käsiteltävä varovasti.

Vältettävä aerosolin muodostusta.

· Palo- ja räjähdysuojaohjeet:

Eristettävä sytytyslähteistä - tupakanpoltto kielletty.

Suojaa lämmöltä.

Suoritettava toimenpiteet sähköstaattista latausta vastaan.

Pidettävä hengityssuojain käyttövalmiina.

(jatkuu sivulla 4)

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(jatkuu sivulla 3)

- **7.2 Turvallisen varastoinnin edellyttämät olosuhteet, mukaan luettuina yhteensopimattomuudet**
- **Varastointi:**
- **Varastotiloille ja säiliöille asetettavat vaatimukset:** Säilytettävä viileässä paikassa.
- **Yhteisvarastointiohjeet:** Ei tarvita.
- **Lisätietoja varastointiehtoihin:**
Astiat on pidettävä tiiviisti suljettuina.
Varastoitava hyvin suljetuissa astioissa viileässä ja kuivassa paikassa.
Suojattava kuumuudelta ja välittömältä auringonpaisteelta.
- **7.3 Erityinen loppukäyttö** Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 8: Altistumisen ehkäiseminen ja henkilönsuojaimet

- **Lisäohjeita teknisten laitteiden varustukseen:** Ei muita tietoja, ks. kohta 7.
- **8.1 Valvontaa koskevat muuttajat**

· **Aineosat työpaikkakohtaisin valvottavin raja-arvoin:**

107-06-2 etyleenidikloridi

HTP	Lyhytaikaisarvo: 20 mg/m ³ , 5 ppm
	Pitkäaikaisarvo: 4,8* mg/m ³ , 1,2* ppm
	iho; *situvat raja-arvot

- **Lisäohjeet:** Tiedot perustuvat valmistushetkellä voimassaoleviin luetteluihin.
- **8.2 Altistumisen ehkäiseminen**
- **Henkilökohtainen suojavarustus:**
- **Yleiset suoja- ja hygieniatoimenpiteet:**
Pidettävä loitolla elintarvikkeista, juomista ja rehuista.
Likaantuneet, aineen saastuttamat vaatekappaleet on riisuttava välittömästi.
Kädet on pestävä ennen taukoja ja työn päätyttyä.
Suojavaatetus on säilytettävä erikseen.
Vältettävä ihokosketusta ja kosketusta silmiin.
- **Hengityssuoja:**
Lyhytaikaisessa tai vähäisessä altistuksessa hengityssuojasuodin; intensiivisessä tai pitempiaikaisessa rasituksessa ulkoilmasta riippumaton hengityssuojain.
- **Käsisuojus:**



Suojakäsineet

- Käsin materiaalin tulee olla tuotetta/ainetta/valmistetta kestävä ja läpäisemätöntä.
Puuttuvien testien vuoksi suositusta soveltuvasta suojakäsin materiaalista tuotteelle/ valmisteelle / kemikaalikohteelle ei voida antaa.
Suojakäsin materiaalin valinnassa on otettava huomioon läpäisyajat, läpäisevyyskerroin ja kuluminen.
- **Käsin materiaali**
Soveltuvan käsin tyyppin valikoima ei riipu yksinomaan materiaalista vaan myös muista laatuominaisuuksista ja vaihtelee eri valmistajilla.
 - **Käsin materiaalin läpäisy aika**
Tarkka läpäisy aika on selvítettävä suojakäsinevalmistajalta ja sitä on noudatettava.

(jatkuu sivulla 5)

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(jatkuu sivulla 4)

· Silmäsuojus:



Tiiviit suojalasit

KOHTA 9: Fysikaaliset ja kemialliset ominaisuudet

· 9.1 Fysikaalisia ja kemiallisia perusominaisuuksia koskevat tiedot

· Yleiset ohjeet

· Olomuoto:

· Muoto: Neste

· Väri: Tuotenimikkeen mukainen

· Haju: Eetterimäinen

· Hajukynnys: Ei määrätty.

· pH-arvo: Ei määrätty.

· Tilanmuutos

· Sulamis- tai jäätymispiste: -35,5 °C

· Kiehumispiste ja kiehumisalue: 84 °C

· Leimahduspiste: 13 °C

· Syttyvyys (kiinteät aineet, kaasut): Ei voida käyttää.

· Syttymislämpötila: 440 °C

· Hajoamislämpötila: Ei määrätty.

· Itsesyttymislämpötila: Ei määrätty.

· Räjähävyys: Tuote ei ole räjähdysvaarallinen, kuitenkin räjähdysvaarallisten höyry-/ilmaseosten muodostuminen mahdollista.

· Räjähdyksrajat:

· Alempi: 6,2 Vol %

· Ylempi: 16 Vol %

· Höyrypaine 20 °C lämpötilassa: 87 hPa

· Tiheys 20 °C lämpötilassa: 1,25 g/cm³

· Suhteellinen tiheys: Ei määrätty.

· Höyryntiheys: Ei määrätty.

· Haihtumisnopeus: Ei määrätty.

· Liukenevuus/sekoittuvuus

· veteen 20 °C lämpötilassa: 8 g/l

· Jakautumiskerroin: n-oktanoli/vesi: Ei määrätty.

· Viskositeetti:

· Dynaaminen 20 °C lämpötilassa: 0,8 mPas

· Kinemaattinen: Ei määrätty.

· Liuotainepitoisuus:

· VOC (EY) 0,00 %

· Kiinneainepitoisuus: 0,0 %

(jatkuu sivulla 6)

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(jatkuu sivulla 5)

· 9.2 Muut tiedot

Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 10: Stabiilisuus ja reaktiivisuus

- 10.1 Reaktiivisuus Merkittäviä lisätietoja ei ole saatavilla.
- 10.2 Kemiallinen stabiilisuus
- Terminen hajoavuus / vältettävät olosuhteet: Ei hajaantumista määräystenmukaisessa käytössä.
- 10.3 Vaarallisten reaktioiden mahdollisuus Ei tiedossa vaarallisia reaktioita.
- 10.4 Vältettävät olosuhteet Merkittäviä lisätietoja ei ole saatavilla.
- 10.5 Yhteensopimattomat materiaalit: Merkittäviä lisätietoja ei ole saatavilla.
- 10.6 Vaaralliset hajoamistuotteet: Tiedossa ei ole vaarallisia hajoamistuotteita.

KOHTA 11: Myrkyllisyyteen liittyvät tiedot

- 11.1 Tiedot myrkyllisistä vaikutuksista
- Välitön myrkyllisyys
Haitallista nieltynä.

- Luokitellurelevantti LD/LC50-arvot:

107-06-2 etyleenidikloridi

Oraali	LD50	670 mg/kg (rat)
Dermaali	LD50	2.800 mg/kg (rat)

- Ensisijainen ärsyttävä vaikutus:
- Ihosyövyttävyyksihoärsytys
Ärsyttää ihoa.
- Vakava silmävaurio/silmä-ärsytys
Ärsyttää voimakkaasti silmiä.
- Hengitysteiden tai ihon herkistyminen Saatavilla olevien tietojen perusteella luokituskriteerit eivät täyty.
- CMR-vaikutukset eli syöpää aiheuttavat, perimää vaurioittavat ja lisääntymiselle vaaralliset vaikutukset
- Sukusolujen perimää vaurioittavat vaikutukset Saatavilla olevien tietojen perusteella luokituskriteerit eivät täyty.
- Syöpää aiheuttavat vaikutukset
Saattaa aiheuttaa syöpää.
- Lisääntymiselle vaaralliset vaikutukset Saatavilla olevien tietojen perusteella luokituskriteerit eivät täyty.
- Elinkohtainen myrkyllisyys – kerta-altistuminen
Saattaa aiheuttaa hengitysteiden ärsytystä.
- Elinkohtainen myrkyllisyys – toistuva altistuminen
Saatavilla olevien tietojen perusteella luokituskriteerit eivät täyty.
- Aspiraatiovaara Saatavilla olevien tietojen perusteella luokituskriteerit eivät täyty.

KOHTA 12: Tiedot vaarallisuudesta ympäristölle

- 12.1 Myrkyllisyys
- Vesimyrkyllisyys: Merkittäviä lisätietoja ei ole saatavilla.
- 12.2 Pysyvyys ja hajoavuus Merkittäviä lisätietoja ei ole saatavilla.
- 12.3 Biokertyvyys Merkittäviä lisätietoja ei ole saatavilla.
- 12.4 Liikkuvuus maaperässä Merkittäviä lisätietoja ei ole saatavilla.
- Ekologia lisätietoja:
- Yleisohjeita:
Vesistövaarallisuusluokka 3 (listaluokitus): voimakkaasti vesistöä vaarantava
Estetään pääsy pohjaveteen, vesistöihin, viemäristöön; myöskin pieninä määrinä.

(jatkuu sivulla 7)

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(jatkuu sivulla 6)

- Juomavesi vaaraantuu jo pieninten määrien päästessä maaperään.
- 12.5 PBT- ja vPvB-arvioinnin tulokset**
- PBT:** Ei voida käyttää.
- vPvB:** Ei voida käyttää.
- 12.6 Muut haitalliset vaikutukset** Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 13: Jätteiden käsittelyyn liittyvät näkökohdat

- 13.1 Jätteiden käsittelymenetelmät**
- Suositus:** Ei voida hävittää yhdessä talousjätteiden kanssa. Ei saa päästää viemäristöön.
- Puhdistamattomat pakkaukset:**
- Suositus:** Hävitettävä virallisten määräysten mukaisesti.

KOHTA 14: Kuljetustiedot

- 14.1 YK-numero**
- ADR, IMDG, IATA** UN1184
- 14.2 Kuljetuksessa käytettävä virallinen nimi**
- ADR** 1184 ETYLEENIDIKLORIDI
- IMDG, IATA** ETHYLENE DICHLORIDE
- 14.3 Kuljetuksen vaaraluokka**
- ADR**
- 
- luokka** 3 Palavat nesteet
- Lipuke** 3+6.1
- IMDG**
- 
- Class** 3 Palavat nesteet
- Label** 3/6.1
- IATA**
- 
- Class** 3 Palavat nesteet
- Label** 3 (6.1)
- 14.4 Pakkausryhmä**
- ADR, IMDG, IATA** II
- 14.5 Ympäristövaarat:** Ei voida käyttää.

(jatkuu sivulla 8)

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(jatkuu sivulla 7)

· 14.6 Erityiset varotoimet käyttäjälle	Varoitus: <i>Palavat nesteet</i>
· Vaaran tunnus-nro (Kemler-luku):	336
· EMS-numero:	3-03
· Segregation groups	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Kuljetus irtolastina Marpol-sopimuksen II liitteen ja IBC-säännösten mukaisesti	Ei voida käyttää.
· Kuljetus/lisätietoja:	
· ADR	1L
· Rajoitetut määrät (LQ)	Koodi: E2
· Poikkeusmäärät (EQ)	Enimmäisnettomäärä sisäpakkausta kohti: 30 ml Enimmäisnettomäärä ulkopakkausta kohti: 500 ml
· Kuljetuskategoria	2
· Tunnelirajoituskoodi:	D/E
· IMDG	1L
· Limited quantities (LQ)	Code: E2
· Excepted quantities (EQ)	Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1184 ETYLEENIDIKLORIDI, 3 (6.1), II

KOHTA 15: Lainsäädäntöä koskevat tiedot

- **15.1 Nimenomaisesti ainetta tai seosta koskevat turvallisuus-, terveys- ja ympäristösäännökset tai -lainsäädäntö**
- **Direktiivi 2012/18/EU**
- **Nimetyt vaaralliset aineet - LIITE I** Aine ei sisälly
- **Seveso-luokka P5c SYTTYVÄT NESTEET**
- **Soveltamisen vähimmäismäärät (tonneina) alemman tason vaatimukset 5.000 t**
- **Soveltamisen vähimmäismäärät (tonneina) ylemmän tason vaatimukset 50.000 t**

· **LUVANVARAISTEN AINEIDEN LUETTELO (LIITE XIV)**

Sunset date: 2017-11-22

· **NEUVOSTON ASETUS (EY) N:o 1907/2006 LIITE XVII** Rajoitusehdot: 3, 28· **Neuvoston Asetus (EU) N:o 649/2012**

Annex I Part 1

Annex I Part 3

· **Direktiivi 2011/65/EU tiettyjen vaarallisten aineiden käytön rajoittamisesta sähkö- ja elektroniikkalaitteissa - Liite II**

sisältäviä aineita ei ole lueteltu

· **Kansalliset määräykset:**· **Työskenteleyä rajoittavat huomautukset:**

Työntekijöitä ei saa altistaa tälle vaaralliselle aineelle. Virastot voivat erikoistapauksessa antaa poikkeusluvan.

(jatkuu sivulla 9)

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(jatkuu sivulla 8)

· **Muut määräykset, rajoitukset ja kiellot**

· **Erityistä huolta aiheuttavat aineet (SVHC) mukainen REACH, 57 artiklan**

107-06-2	etyleenidikloridi
63450-15-7	POLYVINYL FORMAL

· **15.2 Kemikaaliturvallisuusarviointi: Kemikaaliturvallisuusarviointia ei ole tehty.**

KOHTA 16: Muut tiedot

Annetut tiedot perustuvat tämänhetkisiin tietoihimme. Ne eivät kuitenkaan anna takuuta tuotteen ominaisuuksista eivätkä aikaansaa sopimuksellista oikeussuhdetta.

· **Lyhenteet ja lyhennykset:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Syttyvät nesteet – Katgoria 2

Acute Tox. 4: Välitön myrkyllisyys - suun kautta – Katgoria 4

Skin Irrit. 2: Ihosyövyttävyys/ihoärsytys – Katgoria 2

Eye Irrit. 2: Vakava silmävaurio/silmä-ärsytys – Katgoria 2

Carc. 1B: Syöpää aiheuttavat vaikutukset – Katgoria 1B

STOT SE 3: Elinkohtainen myrkyllisyys (kerta-altistuminen) – Katgoria 3

Fiche de données de sécurité

selon 1907/2006/CE, Article 31

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RUBRIQUE 1: Identification de la substance/du mélange et de la société/l'entreprise

- **1.1 Identificateur de produit**
- **Nom du produit:** FORMVAR SOLUTION 1.00%
- **Code du produit:** 15830, 15830-25-SP, 15830-25
- **No CAS:**
107-06-2
- **Numéro CE:**
203-458-1
- **Numéro index:**
602-012-00-7
- **UFI:** YV91-30A0-U004-QJ03
- **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**
Pas d'autres informations importantes disponibles.
- **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires
- **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**
- **Producteur/fournisseur:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Service chargé des renseignements:** Product safety department
- **1.4 Numéro d'appel d'urgence:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

RUBRIQUE 2: Identification des dangers

- **2.1 Classification de la substance ou du mélange**
- **Classification selon le règlement (CE) n° 1272/2008**



GHS02 flamme

Flam. Liq. 2 H225 Liquide et vapeurs très inflammables.



GHS08 danger pour la santé

Carc. 1B H350 Peut provoquer le cancer.



GHS07

Acute Tox. 4 H302 Nocif en cas d'ingestion.

Skin Irrit. 2 H315 Provoque une irritation cutanée.

Eye Irrit. 2 H319 Provoque une sévère irritation des yeux.

STOT SE 3 H335 Peut irriter les voies respiratoires.

- **2.2 Éléments d'étiquetage**
- **Étiquetage selon le règlement (CE) n° 1272/2008** La substance est classifiée et étiquetée selon le règlement CLP.

(suite page 2)

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· **Pictogrammes de danger**



GHS02 GHS07 GHS08

· **Mention d'avertissement Danger**

· **Composants dangereux déterminants pour l'étiquetage:**

1,2-dichloroéthane

· **Mentions de danger**

H225 Liquide et vapeurs très inflammables.

H302 Nocif en cas d'ingestion.

H315 Provoque une irritation cutanée.

H319 Provoque une sévère irritation des yeux.

H350 Peut provoquer le cancer.

H335 Peut irriter les voies respiratoires.

· **Conseils de prudence**

P210 Tenir à l'écart de la chaleur, des surfaces chaudes, des étincelles, des flammes nues et de toute autre source d'inflammation. Ne pas fumer.

P241 Utiliser du matériel [électrique/de ventilation/d'éclairage] antidéflagrant.

P303+P361+P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau [ou se doucher].

P305+P351+P338 EN CAS DE CONTACT AVEC LES YEUX: Rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

P405 Garder sous clef.

P501 Éliminer le contenu/réceptacle conformément à la réglementation locale/régionale/nationale/internationale.

· **2.3 Autres dangers**

· **Résultats des évaluations PBT et vPvB**

· **PBT:** Non applicable.

· **vPvB:** Non applicable.

RUBRIQUE 3: Composition/informations sur les composants

· **3.1 Caractérisation chimique: Substances**

· **No CAS Désignation**

107-06-2 1,2-dichloroéthane

· **Code(s) d'identification**

· **Numéro CE:** 203-458-1

· **Numéro index:** 602-012-00-7

· **Composants dangereux:**

63450-15-7	POLYVINYL FORMAL	≤2,5%
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· **SVHC**

107-06-2	1,2-dichloroéthane
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63450-15-7	POLYVINYL FORMAL
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(suite page 3)

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Révision: 08.09.2021

Nom du produit: **FORMVAR SOLUTION 1.00%**

(suite de la page 2)

RUBRIQUE 4: Premiers secours

· 4.1 Description des premiers secours

· Remarques générales:

Les symptômes d'intoxication peuvent apparaître après de nombreuses heures seulement; une surveillance médicale est donc nécessaire au moins 48 heures après un accident.

· **Après inhalation:** En cas d'inconscience, coucher et transporter la personne en position latérale stable.

· **Après contact avec la peau:** Laver immédiatement à l'eau et au savon et bien rincer.

· Après contact avec les yeux:

Rincer les yeux, pendant plusieurs minutes, sous l'eau courante en écartant bien les paupières. Si les troubles persistent, consulter un médecin.

· **Après ingestion:** Consulter immédiatement un médecin.

· **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.

· **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**

Pas d'autres informations importantes disponibles.

RUBRIQUE 5: Mesures de lutte contre l'incendie

· 5.1 Moyens d'extinction

· **Moyens d'extinction:** CO₂, sable, poudre d'extinction. Ne pas utiliser d'eau.

· **Produits extincteurs déconseillés pour des raisons de sécurité:** Jet d'eau à grand débit

· 5.2 Dangers particuliers résultant de la substance ou du mélange

Pas d'autres informations importantes disponibles.

· 5.3 Conseils aux pompiers

· **Équipement spécial de sécurité:** Aucune mesure particulière n'est requise.

RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

· 6.1 Précautions individuelles, équipement de protection et procédures d'urgence

Porter un équipement de sécurité. Eloigner les personnes non protégées.

· 6.2 Précautions pour la protection de l'environnement:

Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.

· 6.3 Méthodes et matériel de confinement et de nettoyage:

Recueillir les liquides à l'aide d'un produit absorbant (sable, kieselguhr, neutralisant d'acide, liant universel, sciure).

Évacuer les matériaux contaminés en tant que déchets conformément au point 13.

Assurer une aération suffisante.

Ne pas rincer à l'eau ou aux produits nettoyants aqueux.

· 6.4 Référence à d'autres rubriques

Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.

Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.

Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

RUBRIQUE 7: Manipulation et stockage

· 7.1 Précautions à prendre pour une manipulation sans danger

Veiller à une bonne ventilation/aspiration du poste de travail.

Ouvrir et manipuler les récipients avec précaution.

Éviter la formation d'aérosols.

· Préventions des incendies et des explosions:

Tenir à l'abri des sources d'inflammation - ne pas fumer.

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Tenir à l'abri de la chaleur.

Prendre des mesures contre les charges électrostatiques.

Tenir des appareils de protection respiratoire prêts.

· 7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités

· Stockage:

· **Exigences concernant les lieux et conteneurs de stockage:** Stocker dans un endroit frais.

· **Indications concernant le stockage commun:** Pas nécessaire.

· Autres indications sur les conditions de stockage:

Tenir les emballages hermétiquement fermés.

Stocker au frais et au sec dans des fûts bien fermés.

Protéger de la forte chaleur et du rayonnement direct du soleil.

· 7.3 Utilisation(s) finale(s) particulière(s) Pas d'autres informations importantes disponibles.

RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

· Indications complémentaires pour l'agencement des installations techniques:

Sans autre indication, voir point 7.

· 8.1 Paramètres de contrôle

· Composants présentant des valeurs-seuil à surveiller par poste de travail:

107-06-2 1,2-dichloroéthane

VLEP	Valeur à long terme: 40 mg/m ³ , 10 ppm
CIB	

· Remarques supplémentaires:

Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.

· 8.2 Contrôles de l'exposition

· Equipement de protection individuel:

· Mesures générales de protection et d'hygiène:

Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.

Retirer immédiatement les vêtements souillés ou humectés.

Se laver les mains avant les pauses et en fin de travail.

Conserver à part les vêtements de protection.

Eviter tout contact avec les yeux et avec la peau.

· Protection respiratoire:

En cas d'exposition faible ou de courte durée, utiliser un filtre respiratoire; en cas d'exposition intense ou durable, utiliser un appareil de respiration indépendant de l'air ambiant.

· Protection des mains:



Gants de protection

Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.

À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.

Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.

· Matériau des gants

Le choix de gants appropriés ne dépend pas seulement du matériau, mais également d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre.

· Temps de pénétration du matériau des gants

Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.

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· Protection des yeux:



Lunettes de protection hermétiques

RUBRIQUE 9: Propriétés physiques et chimiques

· 9.1 Informations sur les propriétés physiques et chimiques essentielles

· Indications générales

· Aspect:

· Forme:

Liquide

· Couleur:

Selon désignation produit

· Odeur:

Genre éther

· Seuil olfactif:

Non déterminé.

· valeur du pH:

Non déterminé.

· Changement d'état

· Point de fusion/point de congélation:

-35,5 °C

· Point initial d'ébullition et intervalle d'ébullition:

84 °C

· Point d'éclair

13 °C

· Inflammabilité (solide, gaz):

Non applicable.

· Température d'inflammation:

440 °C

· Température de décomposition:

Non déterminé.

· Température d'auto-inflammabilité:

Non déterminé.

· Propriétés explosives:

Le produit n'est pas explosif; toutefois, des mélanges explosifs vapeur-air peuvent se former.

· Limites d'explosion:

· Inférieure:

6,2 Vol %

· Supérieure:

16 Vol %

· Pression de vapeur à 20 °C:

87 hPa

· Densité à 20 °C:

1,25 g/cm³

· Densité relative

Non déterminé.

· Densité de vapeur:

Non déterminé.

· Taux d'évaporation:

Non déterminé.

· Solubilité dans/miscibilité avec

· l'eau à 20 °C:

8 g/l

· Coefficient de partage: n-octanol/eau:

Non déterminé.

· Viscosité:

· Dynamique à 20 °C:

0,8 mPas

· Cinématique:

Non déterminé.

· Teneur en solvants:

· VOC (CE)

0,00 %

· Teneur en substances solides:

0,0 %

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· 9.2 Autres informations

Pas d'autres informations importantes disponibles.

RUBRIQUE 10: Stabilité et réactivité

- **10.1 Réactivité** Pas d'autres informations importantes disponibles.
- **10.2 Stabilité chimique**
- **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.
- **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.
- **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
- **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
- **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

RUBRIQUE 11: Informations toxicologiques

- **11.1 Informations sur les effets toxicologiques**
- **Toxicité aiguë**
Nocif en cas d'ingestion.

· Valeurs LD/LC50 déterminantes pour la classification:

107-06-2 1,2-dichloroéthane

Oral	LD50	670 mg/kg (rat)
Dermique	LD50	2.800 mg/kg (rat)

- **Effet primaire d'irritation:**
- **Corrosion cutanée/irritation cutanée**
Provoque une irritation cutanée.
- **Lésions oculaires graves/irritation oculaire**
Provoque une sévère irritation des yeux.
- **Sensibilisation respiratoire ou cutanée**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Effets CMR (cancérogène, mutagène et toxique pour la reproduction)**
- **Mutagénicité sur les cellules germinales**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Cancérogénicité**
Peut provoquer le cancer.
- **Toxicité pour la reproduction**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité spécifique pour certains organes cibles - exposition unique**
Peut irriter les voies respiratoires.
- **Toxicité spécifique pour certains organes cibles - exposition répétée**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Danger par aspiration** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

RUBRIQUE 12: Informations écologiques

- **12.1 Toxicité**
- **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
- **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
- **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
- **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.

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- **Autres indications écologiques:**
- **Indications générales:**
Catégorie de pollution des eaux 3 (D) (classification selon liste): très polluant
Ne pas laisser pénétrer dans la nappe phréatique, les eaux ou les canalisations, même pas en petite quantité.
Danger pour l'eau potable dès fuite d'une quantité minime dans le sous-sol.
- **12.5 Résultats des évaluations PBT et VPVB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.
- **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

RUBRIQUE 13: Considérations relatives à l'élimination

- **13.1 Méthodes de traitement des déchets**
- **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.
- **Emballages non nettoyés:**
- **Recommandation:** Evacuation conformément aux prescriptions légales.

RUBRIQUE 14: Informations relatives au transport

- | | |
|---|--|
| <ul style="list-style-type: none"> · 14.1 Numéro ONU · ADR, IMDG, IATA | <p>UN1184</p> |
| <ul style="list-style-type: none"> · 14.2 Désignation officielle de transport de l'ONU · ADR · IMDG, IATA | <p>1184 DICHLORURE D'ÉTHYLÈNE
ETHYLENE DICHLORIDE</p> |
| <ul style="list-style-type: none"> · 14.3 Classe(s) de danger pour le transport | |
| <ul style="list-style-type: none"> · ADR | <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="margin-top: 10px;"> <ul style="list-style-type: none"> · Classe · Étiquette </p> |
| <ul style="list-style-type: none"> · IMDG | <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="margin-top: 10px;"> <ul style="list-style-type: none"> · Class · Label </p> |
| <ul style="list-style-type: none"> · IATA | <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="margin-top: 10px;"> <ul style="list-style-type: none"> · Class · Label </p> |

3 Liquides inflammables.
3+6.1

3 Liquides inflammables.
3/6.1

3 Liquides inflammables.
3 (6.1)

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· 14.4 Groupe d'emballage · ADR, IMDG, IATA	II
· 14.5 Dangers pour l'environnement:	Non applicable.
· 14.6 Précautions particulières à prendre par l'utilisateur · Numéro d'identification du danger (Indice Kemler): · No EMS: · Segregation groups · Stowage Category · Stowage Code	Attention: Liquides inflammables. 336 3-03 Liquid halogenated hydrocarbons B SW2 Clear of living quarters.
· 14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC	Non applicable.
· Indications complémentaires de transport:	
· ADR · Quantités limitées (LQ) · Quantités exceptées (EQ)	1L Code: E2 Quantité maximale nette par emballage intérieur: 30 ml Quantité maximale nette par emballage extérieur: 500 ml
· Catégorie de transport · Code de restriction en tunnels	2 D/E
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· "Règlement type" de l'ONU:	UN 1184 DICHLORURE D'ÉTHYLÈNE, 3 (6.1), II

RUBRIQUE 15: Informations relatives à la réglementation

· 15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement

- Directive 2012/18/UE
- Substances dangereuses désignées - ANNEXE I la substance n'est pas comprise
- Catégorie SEVESO P5c LIQUIDES INFLAMMABLES
- Quantité seuil (tonnes) pour l'application des exigences relatives au seuil bas 5.000 t
- Quantité seuil (tonnes) pour l'application des exigences relatives au seuil haut 50.000 t

· LISTE DES SUBSTANCES SOUMISES À AUTORISATION (ANNEXE XIV)

Sunset date: 2017-11-22

· RÈGLEMENT (CE) N° 1907/2006 ANNEXE XVII Conditions de limitation: 3, 28

· Règlement (CE) N° 649/2012

Annex I Part 1
Annex I Part 3

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· **Directive 2011/65/UE relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques – Annexe II**

Aucun des composants n'est compris.

· **Prescriptions nationales:**

· **Indications sur les restrictions de travail:**

Le personnel ne doit pas être exposé à cette substance dangereuse. Les autorités peuvent autoriser des exceptions dans des cas particuliers.

· **Autres prescriptions, restrictions et règlements d'interdiction**

· **Substances extrêmement préoccupantes (SVHC) selon REACH, article 57**

107-06-2	1,2-dichloroéthane
63450-15-7	POLYVINYL FORMAL

· **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

RUBRIQUE 16: Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

· **Acronymes et abréviations:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Liquides inflammables – Catégorie 2

Acute Tox. 4: Toxicité aiguë - voie orale – Catégorie 4

Skin Irrit. 2: Corrosion cutanée/irritation cutanée – Catégorie 2

Eye Irrit. 2: Lésions oculaires graves/irritation oculaire – Catégorie 2

Carc. 1B: Cancérogénicité – Catégorie 1B

STOT SE 3: Toxicité spécifique pour certains organes cibles (exposition unique) – Catégorie 3

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ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

· **1.1 Produktidentifikator**

· **Handelsname:** **FORMVAR SOLUTION 1,00%**

· **Artikelnummer:** 15830, 15830-25-SP, 15830-25

· **CAS-Nummer:**

107-06-2

· **EG-Nummer:**

203-458-1

· **Indexnummer:**

602-012-00-7

· **UFI:** YV91-30A0-U004-QJ03

· **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**

Keine weiteren relevanten Informationen verfügbar.

· **Verwendung des Stoffes / des Gemisches** Laborchemikalien

· **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**

· **Hersteller/Lieferant:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: info@emsdiasum.com

www.emsdiasum.com

Science Services GmbH

Unterhachinger Str. 75

81737 München Germany

Tel: +49(0)89 18 93 668-0

safety@scienceservices.de

Deutschland: +49 (0)89 19240, 24h Giftnotruf Munchen, www.toxinfo.org

Osterreich: +43 1406 43 43, Gesundheit Osterreich GmbH, 24 h

· **Auskunftgebender Bereich:** Product safety department

· **1.4 Notrufnummer:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

ABSCHNITT 2: Mögliche Gefahren

· **2.1 Einstufung des Stoffs oder Gemischs**

· **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**



GHS02 Flamme

Flam. Liq. 2 H225 Flüssigkeit und Dampf leicht entzündbar.



GHS08 Gesundheitsgefahr

Carc. 1B H350 Kann Krebs erzeugen.

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GHS07

Acute Tox. 4 H302 Gesundheitsschädlich bei Verschlucken.

Skin Irrit. 2 H315 Verursacht Hautreizungen.

Eye Irrit. 2 H319 Verursacht schwere Augenreizung.

STOT SE 3 H335 Kann die Atemwege reizen.

· 2.2 Kennzeichnungselemente

· Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008

Der Stoff ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.

· Gefahrenpiktogramme



GHS02

GHS07

GHS08

· Signalwort Gefahr

· Gefahrbestimmende Komponenten zur Etikettierung:

1,2-Dichlorethan

· Gefahrenhinweise

H225 Flüssigkeit und Dampf leicht entzündbar.

H302 Gesundheitsschädlich bei Verschlucken.

H315 Verursacht Hautreizungen.

H319 Verursacht schwere Augenreizung.

H350 Kann Krebs erzeugen.

H335 Kann die Atemwege reizen.

· Sicherheitshinweise

P210 Von Hitze, heißen Oberflächen, Funken, offenen Flammen und anderen Zündquellen fernhalten. Nicht rauchen.

P241 Explosionsgeschützte [elektrische/Lüftungs-/Beleuchtungs-] Geräte verwenden.

P303+P361+P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen [oder duschen].

P305+P351+P338 BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.

P405 Unter Verschluss aufbewahren.

P501 Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen / internationalen Vorschriften.

· Zusätzliche Angaben:

Nur für gewerbliche Anwender.

· 2.3 Sonstige Gefahren

· Ergebnisse der PBT- und vPvB-Beurteilung

· PBT: Nicht anwendbar.

· vPvB: Nicht anwendbar.

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

· 3.1 Chemische Charakterisierung: Stoffe

· CAS-Nr. Bezeichnung

107-06-2 1,2-Dichlorethan

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- Identifikationsnummer(n)
- EG-Nummer: 203-458-1
- Indexnummer: 602-012-00-7

· Gefährliche Inhaltsstoffe:		
63450-15-7	POLYVINYL FORMAL	≤2,5%

· SVHC		
107-06-2	1,2-Dichlorethan	
63450-15-7	POLYVINYL FORMAL	

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

- **4.1 Beschreibung der Erste-Hilfe-Maßnahmen**
- **Allgemeine Hinweise:**
Vergiftungssymptome können erst nach vielen Stunden auftreten, deshalb ärztliche Überwachung mindestens 48 Stunden nach einem Unfall.
- **Nach Einatmen:** Bei Bewusstlosigkeit Lagerung und Transport in stabiler Seitenlage.
- **Nach Hautkontakt:** Sofort mit Wasser und Seife abwaschen und gut nachspülen.
- **Nach Augenkontakt:**
Augen mehrere Minuten bei geöffnetem Lidspalt unter fließendem Wasser spülen. Bei anhaltenden Beschwerden Arzt konsultieren.
- **Nach Verschlucken:** Sofort Arzt aufsuchen.
- **4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**
Keine weiteren relevanten Informationen verfügbar.
- **4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**
Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

- **5.1 Löschmittel**
- **Geeignete Löschmittel:** CO₂, Sand, Löschpulver. Kein Wasser verwenden.
- **Aus Sicherheitsgründen ungeeignete Löschmittel:** Wasser im Vollstrahl
- **5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**
Keine weiteren relevanten Informationen verfügbar.
- **5.3 Hinweise für die Brandbekämpfung**
- **Besondere Schutzausrüstung:** Keine besonderen Maßnahmen erforderlich.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

- **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**
Schutzausrüstung tragen. Ungeschützte Personen fernhalten.
- **6.2 Umweltschutzmaßnahmen:** Nicht in die Kanalisation/Oberflächenwasser/Grundwasser gelangen lassen.
- **6.3 Methoden und Material für Rückhaltung und Reinigung:**
Mit flüssigkeitsbindendem Material (Sand, Kiesgur, Säurebinder, Universalbinder, Sägemehl) aufnehmen.
Kontaminiertes Material als Abfall nach Abschnitt 13 entsorgen.
Für ausreichende Lüftung sorgen.
Nicht mit Wasser oder wässrigen Reinigungsmitteln wegspülen.
- **6.4 Verweis auf andere Abschnitte**
Informationen zur sicheren Handhabung siehe Abschnitt 7.
Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.

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Informationen zur Entsorgung siehe Abschnitt 13.

ABSCHNITT 7: Handhabung und Lagerung

- **7.1 Schutzmaßnahmen zur sicheren Handhabung**
Für gute Belüftung/Absaugung am Arbeitsplatz sorgen.
Behälter mit Vorsicht öffnen und handhaben.
Aerosolbildung vermeiden.
- **Hinweise zum Brand- und Explosionsschutz:**
Zündquellen fernhalten - nicht rauchen.
Vor Hitze schützen.
Maßnahmen gegen elektrostatische Aufladung treffen.
Atemschutzgeräte bereithalten.
- **7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
- **Lagerung:**
- **Anforderung an Lagerräume und Behälter:** An einem kühlen Ort lagern.
- **Zusammenlagerungshinweise:** Nicht erforderlich.
- **Weitere Angaben zu den Lagerbedingungen:**
Behälter dicht geschlossen halten.
In gut verschlossenen Gebinden kühl und trocken lagern.
Vor Hitze und direkter Sonnenbestrahlung schützen.
- **Lagerklasse:**
- **Klassifizierung nach Betriebsicherheitsverordnung (BetrSichV):** Entzündbare Flüssigkeiten
- **7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

- **Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.

- **8.1 Zu überwachende Parameter**

- **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**

107-06-2 1,2-Dichlorethan

TRGS 910	Toleranzkonzentration: 4 mg/m ³ , 1 ppm, Überschreitungsfaktor: 8 Akzeptanzkonzentration: 0,8 mg/m ³ , 0,2 ppm
----------	---

- **Zusätzliche Hinweise:** Als Grundlage dienen die bei der Erstellung gültigen Listen.

- **8.2 Begrenzung und Überwachung der Exposition**

- **Persönliche Schutzausrüstung:**

- **Allgemeine Schutz- und Hygienemaßnahmen:**

Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.

Beschmutzte, getränkte Kleidung sofort ausziehen.

Vor den Pausen und bei Arbeitsende Hände waschen.

Getrennte Aufbewahrung der Schutzkleidung.

Berührung mit den Augen und der Haut vermeiden.

- **Atemschutz:**

Bei kurzzeitiger oder geringer Belastung Atemfiltergerät; bei intensiver bzw. längerer Exposition umluftunabhängiges Atemschutzgerät verwenden.

(Fortsetzung auf Seite 5)

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· **Handschutz:**

Schutzhandschuhe

Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein. Aufgrund fehlender Tests kann keine Empfehlung zum Handschuhmaterial für das Produkt / die Zubereitung / das Chemikaliengemisch abgegeben werden.

Auswahl des Handschuhmaterials unter Beachtung der Durchbruchzeiten, Permeationsraten und der Degradation.

· **Handschuhmaterial**

Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich.

· **Durchdringungszeit des Handschuhmaterials**

Die genaue Durchbruchzeit ist beim Schutzhandschuhhersteller zu erfahren und einzuhalten.

· **Augenschutz:**

Dichtschließende Schutzbrille

ABSCHNITT 9: Physikalische und chemische Eigenschaften

· **9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften**· **Allgemeine Angaben**· **Aussehen:**

· Form:	Flüssigkeit
· Farbe:	Gemäß Produktbezeichnung
· Geruch:	Etherartig
· Geruchsschwelle:	Nicht bestimmt.

· pH-Wert:	Nicht bestimmt.
-------------------	-----------------

· **Zustandsänderung**

· Schmelzpunkt/Gefrierpunkt:	-35,5 °C
· Siedebeginn und Siedebereich:	84 °C

· Flammpunkt:	13 °C
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· Entzündbarkeit (fest, gasförmig):	Nicht anwendbar.
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· Zündtemperatur:	440 °C
--------------------------	--------

· Zersetzungstemperatur:	Nicht bestimmt.
---------------------------------	-----------------

· Selbstentzündungstemperatur:	Nicht bestimmt.
---------------------------------------	-----------------

· Explosive Eigenschaften:	Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.
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· **Explosionsgrenzen:**

· Untere:	6,2 Vol %
· Obere:	16 Vol %

· Dampfdruck bei 20 °C:	87 hPa
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· Dichte bei 20 °C:	1,25 g/cm ³
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· Relative Dichte	Nicht bestimmt.
· Dampfdichte	Nicht bestimmt.
· Verdampfungsgeschwindigkeit	Nicht bestimmt.
· Löslichkeit in / Mischbarkeit mit Wasser bei 20 °C:	8 g/l
· Verteilungskoeffizient: n-Octanol/Wasser:	Nicht bestimmt.
· Viskosität:	
· Dynamisch bei 20 °C:	0,8 mPas
· Kinematisch:	Nicht bestimmt.
· Lösemittelgehalt:	
· VOC (EU)	0,00 %
· Festkörpergehalt:	0,0 %
· 9.2 Sonstige Angaben	Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 10: Stabilität und Reaktivität

- **10.1 Reaktivität** Keine weiteren relevanten Informationen verfügbar.
- **10.2 Chemische Stabilität**
- **Thermische Zersetzung / zu vermeidende Bedingungen:**
Keine Zersetzung bei bestimmungsgemäßer Verwendung.
- **10.3 Möglichkeit gefährlicher Reaktionen** Keine gefährlichen Reaktionen bekannt.
- **10.4 Zu vermeidende Bedingungen** Keine weiteren relevanten Informationen verfügbar.
- **10.5 Unverträgliche Materialien:** Keine weiteren relevanten Informationen verfügbar.
- **10.6 Gefährliche Zersetzungsprodukte:** Keine gefährlichen Zersetzungsprodukte bekannt.

ABSCHNITT 11: Toxikologische Angaben

11.1 Angaben zu toxikologischen Wirkungen

- **Akute Toxizität**
Gesundheitsschädlich bei Verschlucken.

· Einstufungsrelevante LD/LC50-Werte:

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Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2.800 mg/kg (rat)

- **Primäre Reizwirkung:**
- **Ätz-/Reizwirkung auf die Haut**
Verursacht Hautreizungen.
- **Schwere Augenschädigung/-reizung**
Verursacht schwere Augenreizung.
- **Sensibilisierung der Atemwege/Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **CMR-Wirkungen (krebserzeugende, erbgutverändernde und fortpflanzungsgefährdende Wirkung)**
- **Keimzell-Mutagenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Karzinogenität**
Kann Krebs erzeugen.
- **Reproduktionstoxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Spezifische Zielorgan-Toxizität bei einmaliger Exposition**
Kann die Atemwege reizen.

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- **Spezifische Zielorgan-Toxizität bei wiederholter Exposition**
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Aspirationsgefahr** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.


ABSCHNITT 12: Umweltbezogene Angaben

- **12.1 Toxizität**
- **Aquatische Toxizität:** Keine weiteren relevanten Informationen verfügbar.
- **12.2 Persistenz und Abbaubarkeit** Keine weiteren relevanten Informationen verfügbar.
- **12.3 Bioakkumulationspotenzial** Keine weiteren relevanten Informationen verfügbar.
- **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
- **Weitere ökologische Hinweise:**
- **Allgemeine Hinweise:**
Wassergefährdungsklasse 3 (Listeneinstufung): stark wassergefährdend
Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen, auch nicht in kleinen Mengen.
Trinkwassergefährdung bereits beim Auslaufen geringster Mengen in den Untergrund.
- **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.
- **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 13: Hinweise zur Entsorgung

- **13.1 Verfahren der Abfallbehandlung**
- **Empfehlung:** Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.
- **Ungereinigte Verpackungen:**
- **Empfehlung:** Entsorgung gemäß den behördlichen Vorschriften.

ABSCHNITT 14: Angaben zum Transport

- | | |
|---|-------------------------------|
| 14.1 UN-Nummer | |
| ADR, IMDG, IATA | UN1184 |
| 14.2 Ordnungsgemäße UN-Versandbezeichnung | |
| ADR | 1184 ETHYLENDICHLORID |
| IMDG, IATA | ETHYLENE DICHLORIDE |
| 14.3 Transportgefahrenklassen | |
| ADR | |
|  | |
| Klasse | 3 Entzündbare flüssige Stoffe |
| Gefahrzettel | 3+6.1 |

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· **IMDG**

· **Class** 3 Entzündbare flüssige Stoffe
 · **Label** 3/6.1

· **IATA**

· **Class** 3 Entzündbare flüssige Stoffe
 · **Label** 3 (6.1)

· **14.4 Verpackungsgruppe**

· **ADR, IMDG, IATA** II

· **14.5 Umweltgefahren:** Nicht anwendbar.

· **14.6 Besondere Vorsichtsmaßnahmen für den Verwender**

Achtung: Entzündbare flüssige Stoffe

· **Nummer zur Kennzeichnung der Gefahr (Kemler-Zahl):** 336

· **EMS-Nummer:** 3-03

· **Segregation groups** Liquid halogenated hydrocarbons

· **Stowage Category** B

· **Stowage Code** SW2 Clear of living quarters.

· **14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code** Nicht anwendbar.

· **Transport/weitere Angaben:**· **ADR**

· **Begrenzte Menge (LQ)** 1L

· **Freigestellte Mengen (EQ)** Code: E2

Höchste Nettomenge je Innenverpackung: 30 ml

Höchste Nettomenge je Außenverpackung: 500 ml

· **Beförderungskategorie** 2

· **Tunnelbeschränkungscode** D/E

· **IMDG**

· **Limited quantities (LQ)** 1L

· **Excepted quantities (EQ)** Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1184 ETHYLENDICHLORID, 3 (6.1), II

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ABSCHNITT 15: Rechtsvorschriften

- **15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch**
- Richtlinie 2012/18/EU
- **Namentlich aufgeführte gefährliche Stoffe - ANHANG I** Der Stoff ist nicht enthalten.
- **Seveso-Kategorie P5c ENTZÜNDBARE FLÜSSIGKEITEN**
- **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren Klasse** 5.000 t
- **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der oberen Klasse** 50.000 t

· VERZEICHNIS DER ZULASSUNGSPFLICHTIGEN STOFFE (ANHANG XIV)

Sunset date: 2017-11-22

- **VERORDNUNG (EG) Nr. 1907/2006 ANHANG XVII** Beschränkungsbedingungen: 3, 28

· **Verordnung (EU) Nr. 649/2012**

Annex I Part 1

Annex I Part 3

- **Richtlinie 2011/65/EU zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten – Anhang II**

Keiner der Inhaltsstoffe ist enthalten.

· **Nationale Vorschriften:**

· **Hinweise zur Beschäftigungsbeschränkung:**

Arbeitnehmer dürfen diesem Gefahrstoff nicht ausgesetzt sein. Im Einzelfall kann die Behörde Ausnahmen zulassen.

· **Technische Anleitung Luft:**

Klasse	Anteil in %
III	99,0

- **Wassergefährdungsklasse: WGK 3 (Listeneinstufung):** stark wassergefährdend.

· **Sonstige Vorschriften, Beschränkungen und Verbotsverordnungen**

Das Produkt unterliegt der Anlage 2 der Chemikalienverbotsverordnung (ChemVerbotsV) - Anforderungen in Bezug auf die Abgabe

· **Besonders besorgniserregende Stoffe (SVHC) gemäß REACH, Artikel 57**

107-06-2	1,2-Dichlorethan
63450-15-7	POLYVINYL FORMAL

- **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde nicht durchgeführt.

ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis.

· **Abkürzungen und Akronyme:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

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*LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**SVHC: Substances of Very High Concern**vPvB: very Persistent and very Bioaccumulative**Flam. Liq. 2: Entzündbare Flüssigkeiten – Kategorie 2**Acute Tox. 4: Akute Toxizität - oral – Kategorie 4**Skin Irrit. 2: Hautreizende/-ätzende Wirkung – Kategorie 2**Eye Irrit. 2: Schwere Augenschädigung/Augenreizung – Kategorie 2**Carc. 1B: Karzinogenität – Kategorie 1B**STOT SE 3: Spezifische Zielorgan-Toxizität (einmalige Exposition) – Kategorie 3*

DE

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 08.09.2021

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SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

· **1.1 Identificatore del prodotto**

· **Denominazione commerciale:** FORMVAR SOLUTION 1.00%

· **Articolo numero:** 15830, 15830-25-SP, 15830-25

· **Numero CAS:**

107-06-2

· **Numeri CE:**

203-458-1

· **Numero indice:**

602-012-00-7

· **UFI:** YV91-30A0-U004-QJ03

· **1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati**

Non sono disponibili altre informazioni.

· **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio

· **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**

· **Produttore/fornitore:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: info@emsdiasum.com

www.emsdiasum.com

Societa Italiana Chimici

Via Rio Nell Ellba 140

00138 Rome, Italy

Tel: 39 06 8800211

Fax: 39 30 06 8815313

Web: www.sichim.com

· **Informazioni fornite da:** Product safety department

· **1.4 Numero telefonico di emergenza:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

SEZIONE 2: Identificazione dei pericoli

· **2.1 Classificazione della sostanza o della miscela**

· **Classificazione secondo il regolamento (CE) n. 1272/2008**



GHS02 fiamma

Flam. Liq. 2 H225 Liquido e vapori facilmente infiammabili.



GHS08 pericolo per la salute

Carc. 1B H350 Può provocare il cancro.



GHS07

Acute Tox. 4 H302 Nocivo se ingerito.

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Skin Irrit. 2 H315 Provoca irritazione cutanea.
Eye Irrit. 2 H319 Provoca grave irritazione oculare.
STOT SE 3 H335 Può irritare le vie respiratorie.

2.2 Elementi dell'etichetta**Etichettatura secondo il regolamento (CE) n. 1272/2008**

La sostanza è classificata ed etichettata conformemente al regolamento CLP.

Pittogrammi di pericolo

GHS02 GHS07 GHS08

Avvertenza Pericolo**Componenti pericolosi che ne determinano l'etichettatura:**

1,2-dicloroetano

Indicazioni di pericolo

H225 Liquido e vapori facilmente infiammabili.

H302 Nocivo se ingerito.

H315 Provoca irritazione cutanea.

H319 Provoca grave irritazione oculare.

H350 Può provocare il cancro.

H335 Può irritare le vie respiratorie.

Consigli di prudenza

P210 Tenere lontano da fonti di calore, superfici calde, scintille, fiamme libere o altre fonti di accensione. Non fumare.

P241 Utilizzare impianti [elettrici/di ventilazione/d'illuminazione] a prova di esplosione.

P303+P361+P353 IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliersi di dosso immediatamente tutti gli indumenti contaminati. Sciacquare la pelle [o fare una doccia].

P305+P351+P338 IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

P405 Conservare sotto chiave.

P501 Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

2.3 Altri pericoli**Risultati della valutazione PBT e vPvB**

PBT: Non applicabile.

vPvB: Non applicabile.

SEZIONE 3: Composizione/informazioni sugli ingredienti

3.1 Caratteristiche chimiche: Sostanze**Numero CAS**

107-06-2 1,2-dicloroetano

Numeri di identificazione

Numeri CE: 203-458-1

Numero indice: 602-012-00-7

Sostanze pericolose:

63450-15-7	POLYVINYL FORMAL	≤2,5%
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· SVHC	
107-06-2	1,2-dicloroetano
63450-15-7	POLYVINYL FORMAL

SEZIONE 4: Misure di primo soccorso

- **4.1 Descrizione delle misure di primo soccorso**
- **Indicazioni generali:**
I sintomi di avvelenamento possono comparire dopo molte ore, per tale motivo è necessaria la sorveglianza di un medico nelle 48 ore successive all'incidente.
- **Inalazione:** Se il soggetto è svenuto provvedere a tenerlo durante il trasporto in posizione stabile su un fianco.
- **Contatto con la pelle:** Lavare immediatamente con acqua e sapone sciacquando accuratamente.
- **Contatto con gli occhi:**
Lavare con acqua corrente per diversi minuti tenendo le palpebre ben aperte. Se persiste il dolore consultare il medico.
- **Ingestione:** Chiamare subito il medico.
- **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.
- **4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**
Non sono disponibili altre informazioni.

SEZIONE 5: Misure antincendio

- **5.1 Mezzi di estinzione**
- **Mezzi di estinzione idonei:** CO₂, sabbia, polvere. Non usare acqua.
- **Mezzi di estinzione inadatti per motivi di sicurezza:** Getti d'acqua
- **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.
- **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
- **Mezzi protettivi specifici:** Non sono richiesti provvedimenti particolari.

SEZIONE 6: Misure in caso di rilascio accidentale

- **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza**
Indossare equipaggiamento protettivo. Allontanare le persone non equipaggiate.
- **6.2 Precauzioni ambientali:** Impedire infiltrazioni nella fognatura/nelle acque superficiali/nelle acque freatiche.
- **6.3 Metodi e materiali per il contenimento e per la bonifica:**
Raccogliere il liquido con materiale assorbente (sabbia, tripoli, legante di acidi, legante universale, segatura).
Smaltimento del materiale contaminato conformemente al punto 13.
Provvedere ad una sufficiente areazione.
Non dilavare con acqua o detergenti liquidi.
- **6.4 Riferimento ad altre sezioni**
Per informazioni relative ad una manipolazione sicura, vedere capitolo 7.
Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.
Per informazioni relative allo smaltimento vedere Capitolo 13.

SEZIONE 7: Manipolazione e immagazzinamento

- **7.1 Precauzioni per la manipolazione sicura**
Accurata ventilazione/aspirazione nei luoghi di lavoro.
Aprire e manipolare i recipienti con cautela.
Evitare la formazione di aerosol.

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- **Indicazioni in caso di incendio ed esplosione:**
Tenere lontano da fonti di calore, non fumare.
Proteggere dal calore.
Adottare provvedimenti contro cariche elettrostatiche.
Tener pronto il respiratore.
- **7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità**
- **Stoccaggio:**
- **Requisiti dei magazzini e dei recipienti:** Conservare in ambiente fresco.
- **Indicazioni sullo stoccaggio misto:** Non necessario.
- **Ulteriori indicazioni relative alle condizioni di immagazzinamento:**
Mantenere i recipienti ermeticamente chiusi.
Conservare in luogo fresco e asciutto in fusti ben chiusi.
Proteggere dal calore e dai raggi diretti del sole.
- **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.
- **8.1 Parametri di controllo**

· **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:**

107-06-2 1,2-dicloroetano

TWA	Valore a lungo termine: 40,5 mg/m ³ , 10 ppm
A4	

- **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.
- **8.2 Controlli dell'esposizione**
- **Mezzi protettivi individuali:**
- **Norme generali protettive e di igiene del lavoro:**
Tenere lontano da cibo, bevande e foraggi.
Togliere immediatamente gli abiti contaminati.
Lavarsi le mani prima dell'intervallo o a lavoro terminato.
Custodire separatamente l'equipaggiamento protettivo.
Evitare il contatto con gli occhi e la pelle.
- **Maschera protettiva:**
Nelle esposizioni brevi e minime utilizzare la maschera; nelle esposizioni più intense e durature indossare l'autorespiratore.
- **Guanti protettivi:**



Guanti protettivi

Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.
A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.
Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.

- **Materiale dei guanti**
La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro.
- **Tempo di permeazione del materiale dei guanti**
Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.

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· **Occhiali protettivi:**

Occhiali protettivi a tenuta

SEZIONE 9: Proprietà fisiche e chimiche

· 9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali

· Indicazioni generali

· **Aspetto:**

Liquido

· **Forma:**· **Colore:**

In conformità con la denominazione del prodotto

· **Odore:**

Simile all'etere

· **Soglia olfattiva:**

Non definito.

· **valori di pH:**

Non definito.

· **Cambiamento di stato**· **Punto di fusione/punto di congelamento:**

-35,5 °C

· **Punto di ebollizione iniziale e intervallo di ebollizione:**

84 °C

· **Punto di infiammabilità:**

13 °C

· **Infiammabilità (solidi, gas):**

Non applicabile.

· **Temperatura di accensione:**

440 °C

· **Temperatura di decomposizione:**

Non definito.

· **Temperatura di autoaccensione:**

Non definito.

· **Proprietà esplosive:**

Prodotto non è esplosivo, è tuttavia possibile la formazione di miscele di vapori/aria esplosive.

· **Limiti di infiammabilità:**· **Inferiore:**

6,2 Vol %

· **Superiore:**

16 Vol %

· **Tensione di vapore a 20 °C:**

87 hPa

· **Densità a 20 °C:**1,25 g/cm³· **Densità relativa**

Non definito.

· **Densità di vapore:**

Non definito.

· **Velocità di evaporazione**

Non definito.

· **Solubilità in/Miscibilità con**· **acqua a 20 °C:**

8 g/l

· **Coefficiente di ripartizione: n-ottanolo/acqua:**

Non definito.

· **Viscosità:**· **Dinamica a 20 °C:**

0,8 mPas

· **Cinematica:**

Non definito.

· **Tenore del solvente:**· **VOC (CE)**

0,00 %

· **Contenuto solido:**

0,0 %

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· 9.2 Altre informazioni

Non sono disponibili altre informazioni.

SEZIONE 10: Stabilità e reattività

- **10.1 Reattività** Non sono disponibili altre informazioni.
- **10.2 Stabilità chimica**
- **Decomposizione termica/ condizioni da evitare:** Il prodotto non si decompone se utilizzato secondo le norme.
- **10.3 Possibilità di reazioni pericolose** Non sono note reazioni pericolose.
- **10.4 Condizioni da evitare** Non sono disponibili altre informazioni.
- **10.5 Materiali incompatibili:** Non sono disponibili altre informazioni.
- **10.6 Prodotti di decomposizione pericolosi:** Non sono noti prodotti di decomposizione pericolosi.

SEZIONE 11: Informazioni tossicologiche

- **11.1 Informazioni sugli effetti tossicologici**
- **Tossicità acuta**
Nocivo se ingerito.

· **Valori LD/LC50 rilevanti per la classificazione:**

107-06-2 1,2-dicloroetano

Orale	LD50	670 mg/kg (rat)
Cutaneo	LD50	2.800 mg/kg (rat)

- **Irritabilità primaria:**
- **Corrosione/irritazione cutanea**
Provoca irritazione cutanea.
- **Lesioni oculari gravi/irritazioni oculari gravi**
Provoca grave irritazione oculare.
- **Sensibilizzazione respiratoria o cutanea**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)**
- **Mutagenicità delle cellule germinali**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Cancerogenicità**
Può provocare il cancro.
- **Tossicità per la riproduzione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione singola**
Può irritare le vie respiratorie.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Pericolo in caso di aspirazione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

SEZIONE 12: Informazioni ecologiche

- **12.1 Tossicità**
- **Tossicità acquatica:** Non sono disponibili altre informazioni.
- **12.2 Persistenza e degradabilità** Non sono disponibili altre informazioni.
- **12.3 Potenziale di bioaccumulo** Non sono disponibili altre informazioni.
- **12.4 Mobilità nel suolo** Non sono disponibili altre informazioni.

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- **Ulteriori indicazioni in materia ambientale:**
- **Ulteriori indicazioni:**
Pericolosità per le acque classe 3 (D) (Classif. secondo le liste): molto pericoloso
Non immettere nelle acque freatiche, nei corsi d'acqua o nelle fognature, anche in piccole dosi.
Pericolo per le acque potabili anche in caso di perdite nel sottosuolo di quantità minime di prodotto.
- **12.5 Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.
- **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

SEZIONE 13: Considerazioni sullo smaltimento

- **13.1 Metodi di trattamento dei rifiuti**
- **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.
- **Imballaggi non puliti:**
- **Consigli:** Smaltimento in conformità con le disposizioni amministrative.

SEZIONE 14: Informazioni sul trasporto

- | | |
|---|--|
| · 14.1 Numero ONU
· ADR, IMDG, IATA | UN1184 |
| · 14.2 Nome di spedizione dell'ONU
· ADR
· IMDG, IATA | 1184 DICLORURO DI ETILENE
ETHYLENE DICHLORIDE |
| · 14.3 Classi di pericolo connesso al trasporto | |
| · ADR | |
|  | |
| · Classe
· Etichetta | 3 Liquidi infiammabili
3+6.1 |
| · IMDG | |
|  | |
| · Class
· Label | 3 Liquidi infiammabili
3/6.1 |
| · IATA | |
|  | |
| · Class
· Label | 3 Liquidi infiammabili
3 (6.1) |

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· 14.4 Gruppo di imballaggio	II
· ADR, IMDG, IATA	
· 14.5 Pericoli per l'ambiente:	Non applicabile.
· 14.6 Precauzioni speciali per gli utilizzatori	Attenzione: Liquidi infiammabili
· N° identificazione pericolo (Numero Kemler):	336
· Numero EMS:	3-03
· Segregation groups	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Trasporto di rifiuti secondo l'allegato II di MARPOL ed il codice IBC	Non applicabile.
· Trasporto/ulteriori indicazioni:	
· ADR	
· Quantità limitate (LQ)	1L
· Quantità esenti (EQ)	Codice: E2 Quantità massima netta per imballaggio interno: 30 ml Quantità massima netta per imballaggio esterno: 500 ml
· Categoria di trasporto	2
· Codice di restrizione in galleria	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1184 DICLORURO DI ETILENE, 3 (6.1), II

SEZIONE 15: Informazioni sulla regolamentazione

· 15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela

- Direttiva 2012/18/UE
- Sostanze pericolose specificate - ALLEGATO I La sostanza non è contenuta
- Categoria Seveso P5c LIQUIDI INFIAMMABILI
- Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia inferiore 5.000 t
- Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia superiore 50.000 t

· ELENCO DELLE SOSTANZE SOGGETTE AD AUTORIZZAZIONE (ALLEGATO XIV)

Sunset date: 2017-11-22

· REGOLAMENTO (CE) n. 1907/2006 ALLEGATO XVII Restrizioni: 3, 28

· Regolamento (UE) N. 649/2012

Annex I Part 1
Annex I Part 3

· Direttiva 2011/65/UE sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche - Allegato II

Nessuno dei componenti è contenuto.

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· **Disposizioni nazionali:**

· **Indicazioni relative alla limitazione delle attività lavorative:**

Il personale non deve essere esposto a questa sostanza pericolosa L'autorità può ammettere nei singoli casi delle eccezioni.

· **Ulteriori disposizioni, limitazioni e decreti proibitivi**

· **Sostanze estremamente preoccupanti (SVHC) ai sensi della regolamento REACH, articolo 57**

107-06-2	1,2-dicloroetano
63450-15-7	POLYVINYL FORMAL

· **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

SEZIONE 16: Altre informazioni

I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.

· **Abbreviazioni e acronimi:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Liquidi infiammabili – Categoria 2

Acute Tox. 4: Tossicità acuta per via orale – Categoria 4

Skin Irrit. 2: Corrosione/irritazione della pelle – Categoria 2

Eye Irrit. 2: Gravi lesioni oculari/irritazione oculare – Categoria 2

Carc. 1B: Cancerogenicità – Categoria 1B

STOT SE 3: Tossicità specifica per organi bersaglio (esposizione singola) – Categoria 3

물질안전보건자료 GHS에 따라 라다

인쇄일자: 2021.09.08

개정: 2021.09.08

1 화학제품과 회사에 관한 정보

제품제품제명

- **제품명:** FORMVAR SOLUTION 1.00%
- **상품번호:** 15830, 15830-25-SP, 15830-25
- **번호번호번호**
107-06-2
- **EC 의번호:**
203-458-1

색인색인번호:

602-012-00-7

해당 해당 물질이나 혼합물과 관련된 위험도 및 사용 금지용도 추가적인 정보가 존재하지 않습니다.

- **제품의 권고 용도와 사용 제한** (실화 학품)
- **안전데이터표(Safety Data Sheet) 내 공급업체 관련 정보**
- **제조사/수입자/유통업체 정보**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

Samchang Commercial Co., Ltd.
Yeo Eui Do
PO Box 1110
Seoul, Korea
Tel: 82 2 703 3040
Fax: 82 2 717 3298

Daedok Science, Co. Ltd.
34141 E10 Korea Advanced Institute of Science
Guseong-Dong, Yuseong-gu, Daejeon,
Korea
Phone: 82 42 710 2091
Fax: 82 42 367 0005
Website: www.labsmro.com

- **추가적인 정보** (화학제품 안전 부서)
- **비상연락 전화번호:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 유해성·위험성

- **순물질 또는 혼합물**의 분류



화염

인화성 액체 – 구분 2

H225 고인화성 액체 및 증기



건강에 위험

발암성 – 구분 1B

H350 암을 일으킬 수 있음

(2 쪽에 계속)

물질안전보건자료 GHS에 따라라따

인쇄일자: 2021.09.08

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(1 쪽부터계속)



급성 독성 - 경구 - 구분 4	H302 삼키면 유해함
피부 부식성/피부 자극성 - 구분 2	H315 피부에 자극을 일으킴
심한 눈 손상성/눈 자극성 - 구분 2	H319 눈에 심한 자극을 일으킴
특정표적장기 독성 - 1회 노출 - 구분 3	H335 호흡 자극성을 일으킬 수 있음

· 라벨 표기 요소

· 라벨 라벨 요소

본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

· 그림문자



GHS02



GHS07



GHS08

· 신호어 위험

· 상표상에 명확히 위험성이 표시된 성분:

1,2-이염화에탄

유해 ~~유해~~ ~~유해~~ ~~유해~~ 문구

고인화성 액체 및 증기

삼키면 유해함

피부에 자극을 일으킴

눈에 심한 자극을 일으킴

암을 일으킬 수 있음

호흡 자극성을 일으킬 수 있음

· 예방 조차 문구 문구

열·스파크·화염·고열로부터 멀리하시오 - 금연

폭발 방지용 전기·환기·조명·장비를 사용하시오.

피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하시오. 피부를 물로 씻으시오/샤워하시오

눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면 콘택트렌즈를 제거하시오. 계속 씻으시오.

밀봉하여 저장하시오.

(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하시오.

기타 기타 유해성

· PBT(잔류성, 생물농축성, 독성물질) 및 vPvB(고 잔류성, 고 생물농축성 물질)에 해당하지 않음

· PBT(잔류성, 생물농축성, 독성물질)에 해당사항 없음.

· vPvB(고 잔류성, 고 생물농축성 물질)에 해당사항 없음.

3 구성성분의 명칭 및 함유량

· 화학적 특성: 화학물질

· CAS-번호 표시

107-06-2 1,2-이염화에탄

식별식별 번호

· EC 의번호: 203-458-1

색인색인 번호: 602-012-00-7

(3 쪽에 계속)

물질안전보건자료 GHS에 따라라따

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(3 쪽부터계속)

정 전기 의 충 전 으로부터 보호한다.
호흡보호장비를항상비치한다.

· **혼합 위험성** **안전 정보** **위험 조건**
보관보관보관

- **안전한 저장** **성형** **방법** 가운 장 소 에 보 관한다.
- **하 나 의 공 통 공 용 보 관 설 비 에 대 한 대 량 보 관 보 관 장 비** **요 없 음**
- **보 관 조 건 에 관 한 주 가 정 보** **정 보**
용기를새지않게밀폐한채보관한다.
밀폐된용기속에서늘하고건조하게보관한다.
열이나직사광선으로부터보호한다.
- **구 체 적 최 종 최 종 자** 추가적인 정보가 존재하지 않습니다.

8 노출방지 및 개인보호구

· **첨단시설 디자입에 대한 추가정보:** 더 이상 의 자료는 없음. 항 목 7 을 참고하시 오.

통제 ~~물질~~ ~~번호~~ 변수

· **화학물질의 노출기준, 생물학적 노출기준 등:**

107-06-2 1,2-이염화에탄

TLV (KR)	장기간의값: 10 ppm 발암성 1B
BOELV (EU)	장기간의값: 8.2 mg/m ³ , 2 ppm Skin
PEL (US)	장기간의값: 50 ppm 최고노출기준: 100; 200* ppm *5-min peak in any 3 hrs
REL (US)	단기간의값: 8 mg/m ³ , 2 ppm 장기간의값: 4 mg/m ³ , 1 ppm See Pocket Guide Apps. A and C
TLV (US)	장기간의값: 40 mg/m ³ , 10 ppm

· **추 가 정 보** 정 보 조 할 당 시 에 유 효 한 목 록 을 기 초 로 사 용 했 다.

노출 ~~통제~~ ~~통제~~ 통제

개인 ~~개인~~ ~~개인~~ 개인 보호구

· **일반적보호조치및위생조치:**

- 식료 품, 음 료 수 와 사 료 로 부 터 멀 리 떨 어 뜨 려 놓 는 다.
- 더 러 워 지 거 나 음 료 수 가 물 은 옷 은 즉 시 탈 의 한 다.
- 휴 식 전 이 나 작 업 이 끝 날 때 마 다 손 을 씻 는 다.
- 방 호 복 은 따 로 보 관 한 다.
- 눈 과 피 부 와 의 접 촉 은 피 한 다.

· **호흡기 보호보호**

단 시간 또는 경 미 한 오 염 의 경 우 에 는 호 흡 여 과 기 를 사 용 한 다. 심 각 한 또 는 장 기 간 노 출 시 에 는 호 흡 보 호 장 비 를 사 용 한 다.

보 수 보 호 보 호



보 호 용 장 갑

장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성있어야한다.
테스트를 하지 않았기 때문에 제품 / 조제 / 화학 혼합물에 적합한 장갑재질에 대한 추천이 없다.
투과 시간, 침투율과 저하를 고려해서 장갑 재료를 선택한다.

(5 쪽에계속)

물질안전보건자료 GHS에 따라라따

인쇄일자: 2021.09.08

개정: 2021.09.08

제품명: FORMVAR SOLUTION 1.00%

(4 쪽부터계속)

- **장갑 의재료**
적합한장갑의선정은재질차이뿐아니라품질기준의차이도고려하여이루어져야하고제조업자에따라서도다르게선정되어야한다.
 - **장갑 재료 의 투과시간** 정확한관통시간은보호장갑제조자에의하여인지되고, 준수되어야한다.
- 부호 보호부호**



꼭조이는보안경

9 물리화학적 특성

기본 물리화학적 특성에 대한 정보

· 일반정보	
외형외형외형	
· 물리적 상태	액체
· 색:	제품 표시에 따름
냄새냄새냄새	에테르종류의
· 후각역치	알맞지않다.
· pH:	알맞지않다.
· 상태변화	
· 녹는점/어는점:	-35.5 °C
초기초기끓는점과 끓는점범위범위	84 °C
· 인화점:	13 °C
· 인화성고체기체기체	해당사항 없음.
· 점화온도:	440 °C
분해온도온도	알맞지않다.
· 자기점화:	알맞지않다.
· 폭발위험:	이제품은폭발위험성이없지만, 폭발가능성이있는증기화합물/공기화합물의형성가능성이있다.
인화 인화 인화폭발 폭발 위험 상한 상한 하한	
· 아래로:	6.2 Vol %
위로위로위로	16 Vol %
· 증기압 의경우 20 °C:	87 hPa
밀도밀도밀도경우 20 °C:	1.25 g/cm ³
비중비중비중	알맞지않다.
· 증기밀도:	알맞지않다.
증발증발증발 속도	알맞지않다.
· 용해도:	
· 물 의경우 20 °C:	8 g/l
· n 옥탄올/물 분배계수:	알맞지않다.
점도점도점도	
· 역학성 의경우 20 °C:	0.8 mPas
· 동점성:	알맞지않다.

(6 쪽에계속)

물 집안정보건자료

GHS에 따라라따

인쇄일자: 2021.09.08

개정: 2021.09.08

제품명: FORMVAR SOLUTION 1.00%

(5 쪽부터계속)

· 용매내용물	
· VOC (EU)	0.00 %
· 고체양함량함량	0.0 %
기타 정보정보	추가적인 정보가 존재하지 않습니다.

10 안정성 및 반응성

- **반응성** 추가적인 정보가 존재하지 않습니다.
- **화학적 안정성**
- **화학적 안정성 및 유해 반응의 가능성 / 피해이탈 조건** 규정에 따라 사용 할 경우 해체는 없다
- **유해반응 가능성** 위험한 반응으로는 알려지지 않았다.
- **피해이탈 조건** 추가적인 정보가 존재하지 않습니다.
- **혼합 혼합물 혼합물** 추가적인 정보가 존재하지 않습니다.
- **유해분해물질:** 위험성 있는 분해물들은 알려지지 않았다.

11 독성에 관한 정보

· **독성학적 영향에 대한 정보**
급성 **독성독성** 독성

· LD/LC50-수 체에 대한 분류
107-06-2 1,2-이염화에탄
구강의 LD50 670 mg/kg (rat)
피부의 LD50 2,800 mg/kg (rat)

- **입체적 자극효과**
- **피부 피부 자극성 또는 자극성:** 피부와 점막을 자극한다.
- **심한 심한 자극성 또는 자극성:** 자극
- **감각화:** 민감한 영향이 없는 것으로 알려져 있다.
- **다음 다음 종류 의 잠재적인 효과에 대한 정보**
- **CMR 효과 유발, 유발 변이성 그 결과 독성 독성 특성**
발암성 - 구분 1B

12 환경에 미치는 영향

독성독성독성

- **수생독성:** 추가적인 정보가 존재하지 않습니다.
- **지속성 및 분해성** 추가적인 정보가 존재하지 않습니다.
- **환경 시스템에서의 행동:**
- **생물농축 잠재성** 추가적인 정보가 존재하지 않습니다.
- **토양내 이동성** 추가적인 정보가 존재하지 않습니다.
- **추가적인 생태학 정보**
- **일반 열점 특징**
- **수질오염등급 3 (목록분류):** 심하게 수질 오염이 된 지하수나, 하천으로 또는 하수도망에도 닿지 않게 한다. 역시 극소수의 양이라도 안 된다. 지하수로 아주 미세한 양이 유입 되었을 경우 엔 이미 식수 오염 상태이다
- **PBT(잔류성, 생물농축성, 물질물질) 및 vPvB(고 잔류성, 고 생물농축성 물질)에 대한 결과**
- **PBT(잔류성, 생물농축성, 물질물질) 당 사항 없음.**
- **vPvB(고 잔류성, 고 생물농축성 물질) 당 사항 없음.**

(7 쪽에 계속)

물질안전보건자료

GHS에 따라

인쇄일자: 2021.09.08

개정: 2021.09.08

제품명: FORMVAR SOLUTION 1.00%




기타기타 **부작용** 추가적인 정보가 존재하지 않습니다.

(6 쪽부터 계속)

13 폐기시 주의사항

- 폐기물 처리 방법
권고 권고 권고 생활 쓰레기와 함께 처리되어서는 안 된다. 하수도망으로 유입되어서는 안 된다.
- 비위생적 포장 포장
권고 권고 권고 국외의 지침에 입각한 쓰레기 처리.

14 운송에 필요한 정보

유엔 유엔 유엔 번호	UN1184
· ADR, IMDG, IATA	
적정적정적정명	1184 ETHYLENE DICHLORIDE ETHYLENE DICHLORIDE
· ADR	
· IMDG, IATA	
교통 교통 교통 위험 클래스	
· ADR	
	
등급 등급 등급	3 발화성용액
· 위험물 라벨라벨	3+6.1
· IMDG	
	
· Class	3 발화성용액
· Label	3/6.1
· IATA	
	
· Class	3 발화성용액
· Label	3 (6.1)
· 용기 등급	
· ADR, IMDG, IATA	II
· 환경적 유해물질:	해당사항 없음.
· 이동시 특별 취급 조치	경고: 발화성용액
위험 위험 위험 코드	336
· E 번호 번호 번호	3-03
· Segregation groups	Liquid halogenated hydrocarbons

(8 쪽에 계속)

물질안전보건자료 GHS에 따라라다

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(7 쪽부터계속)

· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크물질 운송 운송	해당사항 없음.
· 운송/추가정보	
· ADR 한정 한량 (수량 제한)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
운송 운송 운송 구분	2
터널 터널 터널 코드	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN번호	UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

15 법적 규제현황

· 산업안전보건법에 의해 규제	
제조제조금지물질:	
어떠한내용물도 목록화되어있지않다	
· 허가대상물질:	
어떠한내용물도 목록화되어있지않다	
· 관리대상유해물질:	
107-06-2 1,2-이염화에탄	
· 관리대상 유해물 종류 종류 화합물: 118	
· 작업환경측정 대상 유해인자	
	1A80
· 특수건강 집합 대상 유해인자	
	1A75
해당 해당 물질 또는 혼합물에 대한 안전보건자료 작성 의무를 법률	
· Korean Existing Chemical Inventory	
	KE-10121
· 화학물질관리법	
· 사고대비물질	
어떠한내용물도 목록화되어있지않다	
· 금지물질	
어떠한내용물도 목록화되어있지않다	
· 제한물질	
어떠한내용물도 목록화되어있지않다	

(9 쪽에계속)

물질안전보건자료 GHS에 따라라따

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(8 쪽부터 계속)

· 유독물질

107-06-2 1,2-이염화에탄

· 허가물질

107-06-2 1,2-이염화에탄

· 위험물안전관리법 (위험물 및 지정수량) 제 4: 200 리터

등록명목명칭(또는) 선제대상 화학물질

어떠한내용물도목록화되어있지않다

· ‘21년까지 등록하여야 할 암, 돌연변이, 생식능력 이상을 일으키거나 일으킬 우려가 있는 기존화학물질

어떠한내용물도목록화되어있지않다

· 중점관리물질(양) 지정지정

· 표1 중점관리물질(제관전)관련관련

어떠한내용물도목록화되어있지않다

· 표2 중점관리물질(제관전)관련관련

어떠한내용물도목록화되어있지않다

· (라벨) 라벨(라벨) 요소

본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

· 그림문자



GHS02 GHS07 GHS08

· 신호어 위험

· 상표상에 명확히 위험성이 표시된 성분:

1,2-이염화에탄

유해/위험/위험 문구

고인화성 액체 및 증기

삼키면 유해함

피부에 자극을 일으킴

눈에 심한 자극을 일으킴

암을 일으킬 수 있음

호흡 자극성을 일으킬 수 있음

· 예방조치 문구문구

열·스파크·화염·고열로부터 멀리하십시오 - 금연

폭발 방지용 전기·환기·조명·장비를 사용하십시오.

피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하십시오. 피부를 물로 씻으시오/샤워하십시오

· 눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면 콘택트렌즈를 제거하십시오. 계속 씻으시오.

밀봉하여 저장하십시오.

(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하십시오.

· 국내규정:

· 사용제한에 대한정보

노동자들은 이러한 위험물질을 내버리지 말아야 한다. 개별적인 경우에 관청은 예외를 허가할 수 있다.

· 화학물질 안전성 평가

화학물질 안전성 평가가 수행되지 않음

KR

(10 쪽에 계속)

물질안전보건자료

GHS에 따라라따

인쇄일자: 2021.09.08

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(9 쪽부터계속)

16 그 밖의 참고사항

이보고는우리지식에대한오늘날의상태에대하여평가하고있다, 하지만이보고서는생산특성에관한보증은
기술했지않았으며계약적인법률관계에기반을두고있지도않다

최초 최초 **작성일자**: 2021.09.08

개정개정 **개정수명** 최종 **개정일자**: 1 / 2021.09.08

· **약어와 두문자어:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

KR

Helaiian Data Keselamatan menurut P.U.(A) 310/2013

Tarikh cetak 08.09.2021

Disemak semula pada 08.09.2021

1 Pengenalan bahan kimia berbahaya dan pembekal

- **Pengenal pasti produk**
- **Nama dagang:** FORMVAR SOLUTION 1.00%
- **Nombor artikel:** 15830, 15830-25-SP, 15830-25
- **Nombor CAS:**
107-06-2
- **Nombor EC:**
203-458-1
- **Nombor EU:**
602-012-00-7
- **Kegunaan yang disarankan bagi bahan dan sekatan penggunaan** Tiada maklumat lanjut yang diperoleh.
- **Penggunaan bahan/sediaan** Bahan kimia makmal

- **Perincian pembekal risalah data keselamatan**
- **Pengilang/Pembekal:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Maklumat lanjut dapat diperoleh daripada:** Product safety department
- **Nombor telefon kecemasan:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Pengenalan bahaya

- **Pengelasan bahan atau campuran**



Nyalaan

Cec. M. Bkr 2 H225 Cecair dan wap amat mudah terbakar.



Bahaya kesihatan

Kars. 1B H350 Boleh menyebabkan kanser.



Toks. Akut 4 H302 Memudaratkan jika tertelan.

Kreng. Kulit 2 H315 Menyebabkan kerengsaan kulit.

Kreng. Mata 2 H319 Menyebabkan kerengsaan mata yang serius.

STOT SE 3 H335 Boleh menyebabkan kerengsaan pernafasan.

- **Melabelkan unsur**

- **Unsur label GHS** Bahan ini dikelaskan dan dilabelkan menurut Sistem Terharmoni Global (GHS).

(Bersambung ke halaman 2)

Helaiian Data Keselamatan menurut P.U.(A) 310/2013

Tarikh cetak 08.09.2021

Disemak semula pada 08.09.2021

Nama dagang: FORMVAR SOLUTION 1.00%

(Sambungan halaman 1)

· **Piktogram bahaya**



· **Kata isyarat Bahaya**

· **Komponen pelabelan yang menentukan bahaya:**

1,2-dikloroetana

· **Pernyataan Bahaya**

Cecair dan wap amat mudah terbakar.

Memudaratkan jika tertelan.

Menyebabkan kerengsaan kulit.

Menyebabkan kerengsaan mata yang serius.

Boleh menyebabkan kanser.

Boleh menyebabkan kerengsaan pernafasan.

· **Pernyataan Berjaga-jaga**

Jauhkan daripada haba/percikan api/nyalaan terbuka/permukaan panas – Dilarang merokok.

Gunakan kelengkapan elektrik/pengalihudaraan/pencahayaan yang tahan letupan.

JIKA TERKENA KULIT (atau rambut): Segera tanggalkan/buka semua pakaian yang tercemar. Basuh kulit dengan air/pancuran air.

JIKA TERKENA MATA: Bilas berhati-hati dengan air selama beberapa minit. Tanggalkan kanta lekap, jika ada dan dapat dilakukan dengan mudah. Teruskan membilas.

Simpan di tempat berkunci.

Lupuskan kandungan/bekas menurut peraturan tempatan/wilayah/kebangsaan/antarabangsa.

· **Bahaya lain**

· **Keputusan penilaian PBT dan vPvB**

· **PBT:** Tidak berkenaan

· **vPvB:** Tidak berkenaan

3 Komposisi dan maklumat mengenai ramuan bahan kimia berbahaya

· **Ciri kimia: Bahan**

· **Keterangan No. CAS**

107-06-2 1,2-dikloroetana

· **Nombor pengenaltian**

· **Nombor EC:** 203-458-1

· **Nombor EU:** 602-012-00-7

· **Komponen berbahaya :**

63450-15-7	POLYVINYL FORMAL	≤2.5%
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4 Langkah-langkah pertolongan cemas

· **Keterangan langkah pertolongan cemas**

· **Maklumat am:**

Gejala keracunan boleh berlaku selepas beberapa jam, maka rawatan perubatan hendaklah diberikan sekurang-kurangnya 48 jam selepas kemalangan.

· **Jika tersedut:**

Jika mangsa tidak sedarkan diri, letakkan pesakit dengan stabil dalam kedudukan mengiring untuk diangkat.

· **Jika terkena kulit:** Segera basuh dengan air dan sabun serta bilas bersih-bersih.

(Bersambung ke halaman 3)

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(Sambungan halaman 2)

- **Jika terkena mata:**
Bilas mata sambil membukanya di bawah air yang mengalir selama beberapa minit. Jika gejala berterusan, hubungi doktor.
- **Jika tertelan:** Segera hubungi doctor.
- **Maklumat untuk doktor:**
- **Gejala dan kesan paling penting, akut dan lewat** Tiadak maklumat lanjut yang diperoleh.
- **Arahan bagi apa-apa rawatan perubatan dan rawatan khas yang diperlukan**
Tiadak maklumat lanjut yang diperoleh.

5 Langkah-langkah pemadaman kebakaran

- **Bahan pemadam api**
- **Agen pemadam yang sesuai:** CO₂, pasir, serbuk pemadam kebakaran. Jangan gunakan air.
- **Agen pemadam yang tidak sesuai untuk tujuan keselamatan:** Air dalam pancutan penuh
- **Bahaya khusus yang timbul daripada bahan atau campuran** Tiadak maklumat lanjut yang diperoleh.
- **Panduan kepada pemadam kebakaran**
- **Kelengkapan perlindungan:** Tiada langkah khusus diperlukan.

6 Langkah-langkah pelepasan tidak sengaja

- **Langkah perlindungan diri, kelengkapan pelindung dan prosedur kecemasan**
Pakai kelengkapan perlindungan. Jauhkan mereka yang tidak dilindung dari kawasan tercemar.
- **Langkah perlindungan alam sekitar:** Jangan biarkannya memasuki pembentung/air permukaan atau tanah.
- **Kaedah dan bahan untuk pembendungan dan pembersihan:**
Serap dengan bahan cecair pengikat (pasir, diatomit, pengikat asid, pengikat semesta, habuk papan)
Lupuskan bahan tercemar sebagai sisa mengikut perkara 13.
Pastikan pengalihan mencukupi.
Jangan jirus dengan air atau agen pencuci akueus.
- **Rujukan ke bahagian lain**
Lihat Bahagian 7 untuk maklumat pengendalian yang selamat.
Lihat Bahagian 8 untuk maklumat kelengkapan perlindungan diri.
Lihat Bahagian 13 untuk maklumat pelupusan.

7 Pengendalian dan penyimpanan

- **Pengendalian:**
- **Langkah perlindungan untuk pengendalian selamat**
Pastikan pengalihan/ekzos yang mencukupi di tempat kerja.
Buka dan kendalikan bekas dengan cermat.
Elakkan pembentukan aerosol.
- **Maklumat kebakaran dan perlindungan daripada letupan:**
Jauhkan dari punca pencucuhan - Dilarang merokok.
Lindungi daripada haba.
Lindungi daripada cas-cas elektrostatik.
Pastikan alat perlindungan pernafasan sentiasa ada.
- **Keadaan untuk penyimpanan selamat, termasuk apa-apa ketakserasian**
- **Penyimpanan:**
- **Keperluan yang mesti dipenuhi oleh bilik stor dan ruang simpanan.** Simpan di tempat sejuk.
- **Maklumat penyimpanan di dalam satu tempat penyimpanan yang biasa:** Tidak diperlukan.
- **Maklumat lanjut tentang syarat penyimpanan:**
Pastikan bekas sentiasa bertutup rapat.

(Bersambung ke halaman 4)

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(Sambungan halaman 3)

- Simpan di tempat yang sejuk dan kering di dalam bekas bertutup rapat.
- Lindungi daripada haba dan pancaran terus cahaya matahari.
- **Kegunaan akhir yang khusus** Tiada maklumat lanjut yang diperolehi.

8 Kawalan pendedahan dan perlindungan diri

- **Maklumat tambahan tentang reka bentuk kemudahan teknikal:** Tiada maklumat lanjut, lihat perkara 7.

- **Parameter kawalan**

- **Ramuan dengan nilai had yang memerlukan pemantauan di tempat kerja:**

107-06-2 1,2-dikloroetana

PEL	Nilai jangka panjang: 40 mg/m ³ , 10 ppm
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- **Maklumat tambahan:** Senarai yang sah semasa pembuatan digunakan sebagai asas.

- **Kawalan pendedahan**

- **Kelengkapan perlindungan diri:**

- **Langkah perlindungan dan kebersihan am:**

- Jauhkan daripada makanan, minuman dan makanan haiwan.
- Segera tanggalkan semua pakaian yang tercemar dan kotor.
- Basuh tangan sebelum berhenti rehat dan apabila kerja selesai.
- Simpan pakaian perlindungan secara berasingan.
- Elakkan daripada terkena mata dan kulit.

- **Perlindungan pernafasan:**

Jika berlaku pendedahan sekejap atau sedikit pencemaran, gunakan alat penapis pernafasan. Jika berlaku pendedahan yang intensif atau berpanjangan, gunakan alat pernafasan perlindungan serba lengkap.

- **Perlindungan tangan:**



Sarung tangan pelindung.

Bahan sarung tangan hendaklah telus dan kalis terhadap produk/bahan/sediaan.

Oleh sebab tiada ujian yang dijalankan, maka tiada syor bagi bahan sarung tangan yang boleh diberikan untuk produk/sediaan/campuran kimia.

Pemilihan bahan sarung tangan berdasarkan waktu penembusan, kadar pembauran dan degradasi.

- **Bahan sarung tangan**

Pemilihan sarung tangan yang sesuai bukan hanya bergantung pada bahannya, tetapi juga tanda kualiti lainnya serta perbezaannya daripada satu pengeluar dengan pengeluar yang lain.

- **Jangka masa penyerapan bahan sarung tangan**

Waktu kemunculan yang tepat hendaklah diperolehi pengeluar sarung tangan pelindung dan hendaklah dipatuhi.

- **Perlindungan mata:**



Gogal bertutup rapat

MY

(Bersambung ke halaman 5)

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(Sambungan halaman 4)

9 Sifat fizikal dan kimia

<ul style="list-style-type: none"> · Maklumat tentang ciri fizik dan kimia · Maklumat Am · Rupa: · Bentuk: Cecair · Warna: Mengikut spesifikasi produk · Bau: Seperti eter · Ambang bau: Tidak ditentukan. 	
· Nilai pH:	Tidak ditentukan.
<ul style="list-style-type: none"> · Perubahan pada keadaan · Takat lebur/takat beku: -35.5 °C · Takat didih awal dan julat didih: 84 °C 	
· Takat kilat:	13 °C
· Kemudahbakaran (pepejal, gas)	Tidak berkenaan
· Suhu pencucuhan:	440 °C
· Suhu penguraian:	Tidak ditentukan.
· Suhu pengautocucuhan	Tidak ditentukan.
· Bahaya letupan:	Produk tidak mudah meletup. Walau bagaimanapun, pembentukan campuran udara/wap mungkin berlaku.
<ul style="list-style-type: none"> · Had letupan : · Bawah: 6.2 Vol % · Atas: 16 Vol % 	
· Tekanan wap pada 20 °C:	87 hPa
<ul style="list-style-type: none"> · Ketumpatan pada 20 °C: 1.25 g/cm³ · Ketumpatan bandingan: Tidak ditentukan. · Ketumpatan wap: Tidak ditentukan. · Kadar penyejatan: Tidak ditentukan. 	
<ul style="list-style-type: none"> · Keterlarutan dalam / Keterlarutcampuran dengan · Air pada 20 °C: 8 g/l 	
· Pekali sekatan: n-oktanol/air	Tidak ditentukan.
<ul style="list-style-type: none"> · Kelikatan: · Dinamik pada 20 °C: 0.8 mPas · Kinematik: Tidak ditentukan. 	
<ul style="list-style-type: none"> · Kandungan pepejal: 0.0 % · Maklumat lain: Tiadak maklumat lanjut yang diperoleh. 	

10 Kestabilan dan kereaktifan

- Kereaktifan Tiadak maklumat lanjut yang diperoleh.
- Kestabilan kimia
- Penguraian terma/keadaan yang perlu dielakkan: Tiada penguraian jika digunakan mengikut spesifikasi.
- Kemungkinan tindak balas berbahaya Tiada tindak balas berbahaya yang diketahui.
- Keadaan yang perlu dielakkan Tiadak maklumat lanjut yang diperoleh.
- Bahan tidak serasi: Tiadak maklumat lanjut yang diperoleh.

(Bersambung ke halaman 6)

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(Sambungan halaman 5)

· **Produk penguraian yang berbahaya:** Tiada produk penguraian berbahaya yang diketahui.

11 Maklumat toksikologi

- **Maklumat tentang kesan toksikologi**
- **Ketoksikan akut:**

- **Nilai LD/LC50 yang berkaitan untuk pengelasan:**

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Oral	LD50	670 mg/kg (rat)
Derma	LD50	2,800 mg/kg (rat)

- **Kesan kerengsaan primer:**
- **Kakisan atau kerengsaan kulit** Merengsa kepada kulit dan mukus membran.
- **Kerosakan atau kerengsaan mata yang serius** Kesan merengsa.
- **Pemekaan pernafasan / kulit** Tiada kesan pemekaan yang diketahui.
- **Maklumat bagi kumpulan berikut tentang kesan yang mungkin timbul.**
- **Kesan CMR (karsinogen, mutagen dan gangguan kesuburan)**
Kars. 1B

12 Maklumat ekologi

- **Ketoksikan**
- **Ketoksikan akuatik:** Tiadak maklumat lanjut yang diperoleh.
- **Keterusan dan keterdegradasikan** Tiadak maklumat lanjut yang diperoleh.
- **Kelakuan dalam sistem alam sekitar:**
- **Potensi bioakumulatif** Tiadak maklumat lanjut yang diperoleh.
- **Mobiliiti di dalam tanah** Tiadak maklumat lanjut yang diperoleh.
- **Maklumat tambahan ekologi:**
- **Nota am:**
Bahaya air kelas 3 (Peraturan Jerman) (Penilaian mengikut senarai): amat berbahaya kepada air
Jangan biarkan produk memasuki air tanah, saluran air atau sistem pemptungan, walaupun sedikit.
Bahaya kepada air minuman walaupun dalam amat sedikit produk kebocoran yang memasuki tanah
- **Keputusan penilaian PBT dan vPvB**
- **PBT:** Tidak berkenaan
- **vPvB:** Tidak berkenaan
- **Kesan buruk yang lain** Tiadak maklumat lanjut yang diperoleh.

13 Maklumat pelupusan

- **Kaedah rawatan sisa**
- **Syor:**
Tidak boleh dilupuskan bersama dengan sampah isi rumah. Jangan biarkan produk memasuki sistem pemptungan.
- **Pembungkusan yang tidak bersih:**
- **Syor:** Pelupusan mestilah dijalankan menurut peraturan rasmi

MY

(Bersambung ke halaman 7)

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(Sambungan halaman 6)

14 Maklumat pengangkutan

<ul style="list-style-type: none"> · Nombor UN · ADR, IMDG, IATA 	UN1184
<ul style="list-style-type: none"> · Nama penghantaran UN yang betul · ADR · IMDG, IATA 	1184 ETHYLENE DICHLORIDE ETHYLENE DICHLORIDE
<ul style="list-style-type: none"> · pengangkutan kelas bahaya · ADR 	<div style="display: flex; align-items: center; gap: 10px;">   </div>
<ul style="list-style-type: none"> · Kelas · Label 	3 Cecair mudah terbakar. 3+6.1
<ul style="list-style-type: none"> · IMDG 	<div style="display: flex; align-items: center; gap: 10px;">   </div>
<ul style="list-style-type: none"> · Class · Label 	3 Cecair mudah terbakar. 3/6.1
<ul style="list-style-type: none"> · IATA 	<div style="display: flex; align-items: center; gap: 10px;">   </div>
<ul style="list-style-type: none"> · Class · Label 	3 Cecair mudah terbakar. 3 (6.1)
<ul style="list-style-type: none"> · Kumpulan pembungkusan · ADR, IMDG, IATA 	II
<ul style="list-style-type: none"> · Hazard persekitaran: 	Tidak berkenaan
<ul style="list-style-type: none"> · Langkah perlindungan khas untuk pengguna · Kod bahaya (Kemler): · Nombor EMS: · Segregation groups · Stowage Category · Stowage Code 	Amaran: Cecair mudah terbakar. 336 3-03 Liquid halogenated hydrocarbons B SW2 Clear of living quarters.
<ul style="list-style-type: none"> · Pengangkutan dalam pukal menurut Lampiran II MARPOL73/78 dan Kod IBC 	Tidak berkenaan
<ul style="list-style-type: none"> · Pengangkutan/Maklumat Tambahan: 	<ul style="list-style-type: none"> · ADR · Excepted quantities (EQ)
	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

(Bersambung ke halaman 8)

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(Sambungan halaman 7)

- | | |
|--|---|
| <ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) | <p style="text-align: center;">1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml</p> |
| <ul style="list-style-type: none"> · "Peraturan Model" UN: | <p style="text-align: center;">UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II</p> |

15 Maklumat pengawalseliaan

- **Peraturan/undang-undang keselamatan, kesihatan dan persekitaran khusus untuk bahan atau campuran tersebut**

- **Senarai Rujukan Bahan Berbahaya Alam Sekitar**

107-06-2	1,2-dikloroetana
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- **Unsur label GHS** Bahan ini dikelaskan dan dilabelkan menurut Sistem Terharmoni Global (GHS).
- **Piktogram hazard**



GHS02 GHS07 GHS08

- **Perkataan isyarat Bahaya**
- **Komponen pelabelan yang menentukan bahaya:**
1,2-dikloroetana
- **Pernyataan hazard**
Cecair dan wap amat mudah terbakar.
Memudaratkan jika tertelan.
Menyebabkan kerengsaan kulit.
Menyebabkan kerengsaan mata yang serius.
Boleh menyebabkan kanser.
Boleh menyebabkan kerengsaan pernafasan.
- **Pernyataan langkah perlindungan**
Jauhkan daripada haba/percikan api/nyalaan terbuka/permukaan panas – Dilarang merokok.
Gunakan kelengkapan elektrik/pengalihudaraan/pencahayaan yang tahan letupan.
JIKA TERKENA KULIT (atau rambut): Segera tanggalkan/buka semua pakaian yang tercemar. Basuh kulit dengan air/pancuran air.
JIKA TERKENA MATA: Bilas berhati-hati dengan air selama beberapa minit. Tanggalkan kanta lekap, jika ada dan dapat dilakukan dengan mudah. Teruskan membilas.
Simpan di tempat berkunci.
Lupuskan kandungan/bekas menurut peraturan tempatan/wilayah/kebangsaan/antarabangsa.
- **Peraturan kebangsaan:**
- **Maklumat had kegunaan:**
Pekerja tidak dibenarkan terdedah kepada bahan berbahaya ini. Pengecualian boleh dibuat oleh pihak berkuasa dalam kes tertentu.
- **Penilaian keselamatan bahan kimia:** Penilaian Keselamatan Bahan Kimia belum dilakukan.

MY

(Bersambung ke halaman 9)

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(Sambungan halaman 8)

16 Maklumat lain

Maklumat ini berdasarkan maklumat kami yang terkini. Walau bagaimanapun, ini tidak akan menjadi jaminan bagi apa-apa ciri produk yang khusus dan tidak akan mewujudkan hubungan kontraktual yang sah dari segi undang-undang.

· **Singkatan dan akronim:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Cec. M. Bkr 2: Cecair mudah terbakar – Kategori 2

Toks. Akut 4: Ketoksikan akut – Kategori 4

Kreng. Kulit 2: Kakisan atau kerengsaan kulit – Kategori 2

Kreng. Mata 2: Kerosakan mata atau kerengsaan mata yang serius – Kategori 2

Kars. 1B: Kekarsinogenan – Kategori 1B

STOT SE 3: Ketoksikan organ sasaran khusus (pendedahan tunggal) – Kategori 3

MY

安全資料表

據根據據據性化學品標示及通識規則

打印日期 2021.09.08

在 2021.09.08 審核

1 化學品與廠商資料

- 產品識別者
- 化學品中文名稱名稱名稱化學品俗名或商品名: FORMVAR SOLUTION 1.00%
- 商品編號: 15830, 15830-25-SP, 15830-25
- GHS編號編號編號
107-06-2
- 歐盟編號:
203-458-1
- 歐盟編號:
602-012-00-7
- 相應純物質或者混合物的相關下位用途及禁止用途 無相關詳細資料。
- 原材料的應用/準備工作進行 實驗室化學物
- 安全技術說明書內供應商詳細信息
- 企業名稱:
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- 可獲取更多資料的部門: Product safety department
- 緊急聯繫電話號碼:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 危害辨識資料

· 緊急情況概述:

根據產品規格，液體，高度易燃液體和蒸氣。吞食有害。皮膚接觸可能有害。造成皮膚刺激。造成嚴重眼睛刺激。可能致癌。可能造成呼吸道刺激。

· GHS危險性類別



火焰

易燃液體 第2級

H225 高度易燃液體和蒸氣



健康危險

致癌物質 第1B級

H350 可能致癌



急毒性物質(吞食) 第4級

H302 吞食有害

腐蝕/刺激皮膚物質 第2級

H315 造成皮膚刺激

嚴重損傷/刺激眼睛物質 第2A級

H319 造成嚴重眼睛刺激

特定標的器官系統毒性物質(單一暴露) 第3級

H335 可能造成呼吸道刺激

急毒性物質(皮膚) 第5級

H313 皮膚接觸可能有害

(在 2 頁繼續)

安全資料表

據根據據據性化學品標示及通識規則

打印日期 2021.09.08

在 2021.09.08 審核

化學品中文名稱名稱名稱化學品俗名或商品名：FORMVAR SOLUTION 1.00%

(在 1 頁繼續)

- 標籤因素
 - GHS標籤元素 本化學物質根據化學物質分類及標記全球協調制度(GHS)進行了分類及標記。
- 圖示圖示圖示



GHS02 GHS07 GHS08

名稱名稱名稱

- 標籤上辨別危險的成份：
 - 1,2- 二氯化乙烯
- 危險字句
 - 高度易燃液體和蒸氣
 - 吞食有害
 - 皮膚接觸可能有害
 - 造成皮膚刺激
 - 造成嚴重眼睛刺激
 - 可能致癌
 - 可能造成呼吸道刺激
- 警戒字句
- 預防措施
 - 遠離熱源/火花/明火/熱表面。 - 禁止抽菸。
 - 使用防爆的電氣/通風/照明/設備。
- 事故響應
 - 如皮膚(或頭髮)沾染：立即移除或脫掉所有沾染的衣物。用水沖洗/淋洗皮膚。
 - 如進入眼睛：用水小心清洗數分鐘。如帶隱形眼鏡且可方便地取出，取出隱形眼鏡。繼續清洗。
- 安全貯存
 - 加鎖存放。
- 廢棄處置
 - 按照地方/區域/國家/國際法規處理內容物之廢棄/容器。
- 其他有害性
 - PBT(殘留性、生物濃縮性、毒性物質) 及 vPvB(高殘留性、高生物濃縮性物質)評價結果
 - PBT(殘留性、生物濃縮性、毒性物質) 不適用的
 - vPvB(高殘留性、高生物濃縮性物質): 不適用的

3 成分辨識資料

純品純品純品

- CAS號 化學名, 通用名
 - 107-06-2 1,2- 二氯化乙烯
- 鑒別編號：
- 歐盟編號: 203-458-1
- 歐盟編號: 602-012-00-7

· 危險的成分:

63450-15-7	乙酸乙烯酯與乙烯醇和1,1'-[亞甲基二氧二(乙烯)]的聚合物	≤2.5%
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4 急救措施

- 應急措施要領
- 總說明: 中毒的症狀可能會在幾個小時以後才出現;因此在發生事故之後起碼要有 48 小時的醫療觀察。

(在 3 頁繼續)

安全資料表

據根據據據性化學品標示及通識規則

打印日期 2021.09.08

在 2021.09.08 審核

化學品中文名稱名稱名稱化學品俗名或商品名：FORMVAR SOLUTION 1.00%

(在 2 頁繼續)

- 吸入吸入吸入一病人不清醒時,請讓病人側躺以便移動。
- **皮膚接觸:** 馬上用水和肥皂進行徹底的沖洗。
 - **眼睛接觸:** 張開眼睛在流水下沖洗數分鐘. 如果症狀仍然持續,請諮詢醫生。
- 食入食入食入上召喚醫生。
- **給醫生的資料:**
 - **最重要的急性性症狀及其影響** 無相關詳細資料。
 - **需要及時的醫療處理及特別處理的症狀** 無相關詳細資料。

5 滅火措施

- **滅火方法**
- **滅火的方法和滅火劑:** 使用二氧化碳 (CO2)、沙粒、滅火粉末. 切勿使用水。
- **為了安全,不適當的滅火劑會:** 使用全噴嘴的水
- **特別危險性** 無相關詳細資料。
- **特殊滅火方法**
- **消防人員特殊的防護裝備:** 沒有要求特別的措施。

6 洩漏處理方法

- **保護措施** 帶上保護儀器. 讓未受到保護的人們遠離。
- **環境保護措施:** 切勿讓其進入下水道/水面或地下水。
- **密封及淨化方法和材料:**
吸收液體粘合原料 (沙粒、矽藻土、酸性粘合劑、通用粘合劑、鋸屑)。
根據第 13 條條款棄置受汙染物。
確保有足夠的通風裝置。
切勿用水或水溶清潔劑來沖清。
- **參照其他部分**
有關安全處理的資料請參閱第 7 節。
有關個人保護裝備的資料請參閱第 8 節。
有關棄置的資料請參閱第 13 節。

7 安全處置與儲存方法

- **操作處置**
- **儲存** 儲存儲存
確保工作間有良好的通風/排氣裝置。
小心打開及處理貯藏器。
防止氣溶膠的形成。
- **有關火災及防止爆炸的資料:**
遠離火源 - 切勿吸煙。
防熱。
防靜電。
提供呼吸保護裝置。
- **混合危險性等安全儲存條件**
- **儲存** 儲存儲存
· **儲存庫和容器須要達到的要求:** 儲存在陰涼的位置。
· **有關使用一個普通的儲存設施來儲存的資料:** 不需要。
· **有關儲存條件的更多資料:**
將容器密封。
儲存密封的貯藏器內,並放在陰涼、幹爽的位置。
免受接觸熱力和直接受陽光照射。

(在 4 頁繼續)

安全資料表

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· 具體的最終用戶 無相關詳細資料。

8 暴露預防措施

· 工程控制方法: 沒有進一步數據;見第 7 項.

· 控制變數

· 在工作場需要監控的限值成分

107-06-2 1,2- 二氯化乙烯

PEL (TW) PC-TWA: 40 mg/m³, 10 ppmOEL (CN) PC-STEL: 15 mg/m³PC-TWA: 7 mg/m³

G2B

· 額外的資料: 制作期間有效的清單將作為基礎來使用.

· 遺漏控制

· 個人防護設備:

· 一般保護和衛生措施:

遠離食品、飲料和飼料.

立即除去所有的不潔的和被污染的衣服.

在休息之前和工作完畢後請清洗雙手.

分開儲存保護性衣服.

避免和眼睛及皮膚接觸.

· 呼吸系統防護:

如果會短暫接觸或在低污染的情況下,請使用呼吸過濾裝置. 如果會深入或較長時間接觸,請使用獨立的呼吸保護裝置.

· 手防護:



保護手套

手套的物料必須是不滲透性的,且能抵抗該產品/物質/添加劑.

基於缺乏測試,對於產品/制劑/化學混合物,並不會提供手套材料的建議

選擇手套材料時,請注意材料的滲透時間,滲濾率和降解參數

· 手套材料 選擇合適的手套不單取決於材料,亦取決於質量特征,以及來自哪一間生產廠家

· 滲入手套材料的時間 請向勞保手套生產廠家獲取準確的破裂時間並觀察實際的破裂時間

· 眼睛防護:



密封的護目鏡

9 物理及化學性質

· 有關基本物理及化學特性的資訊

· 一般說明

外觀外觀外觀

形狀形狀形狀

顏色顏色顏色

氣味氣味氣味

液體

根據產品規格

類似醚

(在 5 頁繼續)

安全資料表

據根據據據性化學品標示及通識規則

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(在 4 頁繼續)

· 嗅覺閾限	未決定.
· pH值:	未決定.
· 條件的更改	
熔點熔點熔點	-35.5 °C
沸點沸點沸點和沸程:	84 °C
閃點閃點閃點	13 °C
· 可燃性 (固體、氣體):	不適用的
點火點度溫度溫度	440 °C
· 分解溫度:	未決定.
· 自燃溫度:	未決定.
· 爆炸的危險性:	該產品並非爆炸性的然而有可能形成可爆炸性的空氣/蒸汽混合物
爆炸爆炸極限:	
較低較低較低	6.2 Vol %
· 較高:	16 Vol %
· 蒸氣壓 在 20 °C:	87 hPa
· 密度 在 20 °C:	1.25 g/cm ³
· 相對密度	未決定.
氣體氣密度	未決定.
· 蒸發速率	未決定.
溶解溶解溶解	
· 水 在 20 °C:	8 g/l
辛醇辛醇辛醇配係數係	未決定.
· 黏性:	
動態動態動態0 °C:	0.8 mPas
運動運動運動學的	未決定.
· 固體成份:	0.0 %
· 其他資訊	無相關詳細資料。

10 安定性及反應性

應反應性應相關詳細資料。

穩定穩定穩定

· 熱分解避免條件: 如果遵照規格使用則不會分解.

有害有害反應可能: 未有已知的危險反應.

避免避免條件: 無相關詳細資料。

· 不相容的物質: 無相關詳細資料。

· 危險的接觸產物: 有危險的分解產品.

-TW-

(在 6 頁繼續)

安全資料表

據根據據據性化學品標示及通識規則

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(在 5 頁繼續)

11 毒性資料

- 對毒性學影響的資訊
- 急性毒性:

· 與分類相關的 LD/LC50 值:

107-06-2 1,2- 二氯化乙烯

口腔	LD50	670 mg/kg (rat)
皮膚	LD50	2,800 mg/kg (rat)

要的對個個個個個影響:

皮膚皮膚皮膚刺激皮膚和粘膜。

- 在眼睛上面: 刺激的影響。

致敏致敏致敏致敏有已知的敏化影響。

對以對以對個別可能產生影響的資料:

- 作用作用作用致致致致致致、對生殖系統有害)
- 致癌物質 第1B級

12 生態資料

- 毒態毒性毒性

- 水生毒性: 無相關詳細資料。

持久性和降解降解降解相關詳細資料。

- 環境系統習性:

- 潛在的累積累積相關詳細資料。

土壤土壤土壤移動性相關詳細資料。

- 額外的生態學資料:

- 總括注解:

水危害級別 3 (德國規例) (評估): 對水是極其危害的
即使是小量, 不要讓該產品接觸地下水、水道或汗水系統。
即使是極其小量的產品滲入地下也會對飲用水造成危險。

- PBT(殘留性、生物濃縮性、毒性物質) 及 vPvB(高殘留性、高生物濃縮性物質) 評價結果

- PBT(殘留性、生物濃縮性、毒性物質) 不適用

- vPvB(高殘留性、高生物濃縮性物質): 不適用

其他其他其他相關詳細資料。

13 廢棄處置方法

- 廢棄處置方法

建議建議建議將該產品和家居垃圾一起丟棄. 不要讓該產品接觸汗水系統。

- 受污染的容器和包裝:

建議建議建議根據官方的規章來丟棄。

14 運送資料

聯合聯聯聯危險危險危險編號(UN號)

- ADR, IMDG, IATA

UN1184

- UN適當裝船名

- ADR

1184 ETHYLENE DICHLORIDE

(在 7 頁繼續)

安全資料表







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(在 6 頁繼續)

· IMDG, IATA	ETHYLENE DICHLORIDE
運輸運輸運輸等級	
· ADR	
 	
· 級別	3 易燃液體
· 標籤	3+6.1
· IMDG	
 	
· Class	3 易燃液體
· Label	3/6.1
· IATA	
 	
· Class	3 易燃液體
· Label	3 (6.1)
· 包裝組別	
· ADR, IMDG, IATA	II
· 危害環境:	不適用的
· 用戶特別預防措施	警告: 易燃液體
· 危險編碼:	336
· 標碼號碼號碼	3-03
· Segregation groups	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· MARPOL73/78(針對船舶引起的海洋污染預防協約 件附件書書書根據根據C國際國際國際貨物編碼)值大量大量 運送運送運送	不適用的
運輸運輸運輸外的資料:	
· ADR	
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

(在 8 頁繼續)

安全資料表

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· UN "標準規定":

UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

15 法規資料

- 對相應純物質或者混合物的安全、保健及環境法規/法律
- 優先管理化學品之指定及運作管理辦法

附表附表對於未滿十八歲羈縻羈縻後未滿女年女性雙工具危害性之化學品

沒有列出成份

二條二條二條二條

107-06-2 | 1,2- 二氯化乙烯

二條二條二條二條

沒有列出成份

· 新化學物質及既有化學物質資料登錄辦法 英

沒有列出成份

國現國現國現國現

列出所有成分

· TCSCA

列管編號編號編號

75/01

· 毒性分類

4

制濃濃濃濃濃濃濃(%)

15

· 大量運作基準基公斤)

-

· 新化學物質及既有化學物質資料登錄辦法, 附表六

沒有列出成份

· TCSI - Taiwan Chemical Substance Inventory

列出所有成分

· GHS標識元素 本化學物質根據化學物質分類及標記全球協調制度(GHS)進行了分類及標記。

圖示圖示圖示



GHS02 GHS07 GHS08

名稱名稱名稱

· 標籤上辨別危險的成份:

1,2- 二氯化乙烯

· 危險字句

高度易燃液體和蒸氣

吞食有害

皮膚接觸可能有害

造成皮膚刺激

(在 9 頁繼續)

安全資料表

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(在 8 頁繼續)

造成嚴重眼睛刺激
可能致癌
可能造成呼吸道刺激

· **警戒字句**

· **預防措施**

遠離熱源/火花/明火/熱表面。 - 禁止抽菸。
使用防爆的電氣/通風/照明/設備。

· **事故響應**

如皮膚(或頭髮)沾染：立即移除或脫掉所有沾染的衣物。用水沖洗/淋洗皮膚。
如進入眼睛：用水小心清洗數分鐘。如帶隱形眼鏡且可方便地取出，取出隱型眼鏡。繼續清洗。

· **安全貯存**

加鎖存放。

· **廢棄處置**

按照地方/區域/國家/國際法規處理內容物之廢棄/容器。

國家國家國規章規章

- **有關使用限制的資料:** 禁止員工接觸該危險物料. 在某些情況可由當局作出例外決定.
- **化學物質安全性評價:** 尚未進行化學物質安全性評價

16 其他資料

該資料是基於我們目前的知識。然而,這並不構成對任何特定產品特性的擔保並且不建立一個法律上有效的合同關係。

· **縮寫:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: 持久性生物累積性有毒物質

vPvB: very Persistent and very Bioaccumulative

易燃液體 第2級: Flammable liquids – Category 2

急性物質(吞食) 第4級: Acute toxicity – Category 4

急性物質(皮膚) 第5級: Acute toxicity – Category 5

腐蝕/刺激皮膚物質 第2級: Skin corrosion/irritation – Category 2

嚴重損傷/刺激眼睛物質 第2A級: Serious eye damage/eye irritation – Category 2A

致癌物質 第1B級: Carcinogenicity – Category 1B

特定標的器官系統毒性物質(單一暴露) 第3級: Specific target organ toxicity (single exposure) – Category 3

Sikkerhetsdatablad

iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 08.09.2021

revidert den: 08.09.2021

Avsnitt 1: Identifikasjon av stoffet/stoffblandingen og av selskapet/foretaket

- **1.1 Produktidentifikator**
- **Handelsnavn:** FORMVAR SOLUTION 1.00%
- **Artikkelnummer:** 15830, 15830-25-SP, 15830-25
- **CAS-nummer:**
107-06-2
- **EC nummer:**
203-458-1
- **EF-nummer:**
602-012-00-7
- **UFI:** YV91-30A0-U004-QJ03
- **1.2 Relevante identifiserte bruksområder for stoffet eller stoffblandingen og bruk som frarådes**
Ikke noe mer relevant informasjon tilgjengelig.
- **Bruk av stoffet/ tilberedning** laboratoriekjemikalier
- **1.3 Opplysninger om leverandøren av sikkerhetsdatabladet**
- **Produsent/leverandør:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Avdeling for nærmere informasjon:** Product safety department
- **1.4 Nødtelefonnummer**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

Avsnitt 2: Fareidentifikasjon

- **2.1 Klassifisering av stoffet eller stoffblandingen**
- **Klassifisering i henhold til EC-forskrift nr.1272/2008**



GHS02 Flamme

Flam. Liq. 2 H225 Meget brannfarlig væske og damp.



GHS08 Helsefare

Carc. 1B H350 Kan forårsake kreft.



GHS07

Acute Tox. 4 H302 Farlig ved svelging.

Skin Irrit. 2 H315 Irriterer huden.

Eye Irrit. 2 H319 Gir alvorlig øyeirritasjon.

STOT SE 3 H335 Kan forårsake irritasjon av luftveiene.

- **2.2 Merkingselementer**
- **Merking iht. bestemmelse (EC) Nr. 1272/2008**
Substansen er klassifisert og merket i henhold til CLP-forordningen.

(fortsatt på side 2)

Sikkerhetsdatablad

iflg. forordning (EF) nr. 1907/2006, Artikkel 31

Trykkdato: 08.09.2021

revidert den: 08.09.2021

Handelsnavn: FORMVAR SOLUTION 1.00%

(fortsatt fra side 1)

· Farepiktogrammer



GHS02 GHS07 GHS08

· Varselord Fare

· Farebestemmende komponenter ved etikettering:

1,2-dikloreten

· Faresetninger

H225 Meget brannfarlig væske og damp.

H302 Farlig ved svelging.

H315 Irriterer huden.

H319 Gir alvorlig øyeirritasjon.

H350 Kan forårsake kreft.

H335 Kan forårsake irritasjon av luftveiene.

· Sikkerhetssetninger

P210 Holdes vekk fra varme, varme overflater, gnister, åpen ild og andre antenningskilder. Røyking forbudt.

P241 Bruk elektrisk materiell/ventilasjonsmateriell/belysningsmateriell som er eksplosjonssikkert.

P303+P361+P353 VED HUDKONTAKT (eller håret): Tilsølte klær må fjernes straks. Skyll [eller dusj] huden med vann.

P305+P351+P338 VED KONTAKT MED ØYNENE: Skyll forsiktig med vann i flere minutter. Fjern eventuelle kontaktlinser dersom dette enkelt lar seg gjøre. Fortsett skyllingen.

P405 Oppbevares innelåst.

P501 Innholdet / emballasjen skal avhendes i henhold til de lokale / regionale / nasjonale / internasjonale forskrifter.

· 2.3 Andre farer

· Resultater av PBT- og vPvB-vurdering

· PBT: Ikke brukbar.

· vPvB: Ikke brukbar.

Avsnitt 3: Sammensetning/opplysninger om bestanddeler

· 3.1 Kjemisk karakterisering: Stoffer

· CAS-nr. betegnelse

107-06-2 1,2-dikloreten

· Identifikasjonsnummer(numre)

· EC nummer: 203-458-1

· EF-nummer: 602-012-00-7

· Farlige innholdstoffer:

63450-15-7 POLYVINYL FORMAL

≤2,5%

· SVHC

107-06-2 1,2-dikloreten

63450-15-7 POLYVINYL FORMAL

NO

(fortsatt på side 3)

Sikkerhetsdatablad

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Avsnitt 4: Førstehjelpstiltak

- **4.1 Beskrivelse av førstehjelpstiltak**
- **Generelle informasjoner:**
 Forgifningssymptomer kan også oppstå etter mange timer. Personer må derfor ha legetilsyn i minst 48 timer etter en ulykke.
- **Etter innånding:** Ved bevisstløshet lagring og transport i stabil sidestilling.
- **Etter hudkontakt:** Vask straks med vann og sepe og skylld godt etterpå.
- **Etter øyekontakt:**
 Skyll øynene med åpne øyenlukk i flere minutter under rennende vann. Ved fortsatt besvær tilkall lege.
- **Etter svelging:** Søk lege straks.
- **4.2 De viktigste symptomene og virkningene, både akutte og forsinkede**
 Ikke noe mer relevant informasjon tilgjengelig.
- **4.3 Angivelse av om umiddelbar legehjelp og spesialbehandling er nødvendig**
 Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 5: Brannsløkkingstiltak

- **5.1 Sløkkingsmidler**
- **Egnede slukningsmidler:** CO₂, sand, slukningspulver. Bruk ikke vann.
- **Av sikkerhetsgrunner ikke egnede slukningsmidler:** Vann i full stråle
- **5.2 Særlige farer knyttet til stoffet eller stoffblandingen** Ikke noe mer relevant informasjon tilgjengelig.
- **5.3 Råd til brannmannskaper**
- **Spesielt verneutstyr:** Ingen spesielle tiltak nødvendig.

Avsnitt 6: Tiltak ved utilsiktede utslipp

- **6.1 Personlige forsiktighetsregler, personlig verneutstyr og nødrutiner**
 Ta på beskyttelsesdrakt. Hold ubeskyttede personer borte.
- **6.2 Forsiktighetsregler med hensyn til miljø** La ikke produktet komme ned i kloakk/overflatevann/grunnvann.
- **6.3 Metoder og materialer for oppsamling og rensing**
 Ta opp stoffet med væskebindende materiale (sand, kiselgur, syrebindemiddel, universalbindemiddel, sagflis).
 Bortskaff kontaminert materiale som avfall i.h.t. punkt 13.
 Sørg for tilstrekkelig ventilasjon.
 Skyll ikke bort med vann eller med vannholdige rengjøringsmidler.
- **6.4 Henvisning til andre avsnitt**
 Informasjoner om sikker håndtering, se kapittel 7.
 Informasjoner om personlig beskyttelsesutstyr, se kapittel 8.
 Informasjoner om bortskaffelse/deponering, se kapittel 13.

Avsnitt 7: Håndtering og lagring

- **7.1 Forsiktighetsregler for sikker håndtering**
 Sørg for god ventilasjon/avsugning på arbeidsplassen.
 Beholderne må åpnes og håndteres forsiktig.
 Unngå aerosoldannelse.
- **Henvisninger om brann- og eksplosjonsvern:**
 Bruk av åpen ild forbudt - røyking forbudt.
 Beskytt mot varme.
 Gjør tiltak mot elektrostatisk oppladning.
 Hold åndedrettsbeskyttelse i beredskap.

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- **7.2 Vilkår for sikker lagring, herunder eventuelle uforenligheter**
- **Lagring:**
- **Krav til lagerrom og beholdere:** Lagres på et kjølig sted.
- **Informasjoner om felles lagring:** Ikke nødvendig.
- **Ytterligere informasjoner om lagervilkårene:**
Hold beholderne tett lukket.
Lagres kjølig og tørt i godt tillukkede beholdere.
Beskyttes mot varme og direkte solpåvirkning.
- **7.3 Særlig(e) sluttanvendelse(r)** Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 8: Eksponeringskontroll / personlig verneutstyr

- **Ytterligere informasjoner om utforming av tekniske anlegg:** Ingen ytterligere informasjoner, se punkt 7.
- **8.1 Kontrollparametere**

· **Komponenter med grenseverdier for arbeidsplass som må overholdes:**

107-06-2 1,2-dikloreten

AG	Langtidsverdi: 4 mg/m ³ , 1 ppm
H K	

- **Ytterligere informasjoner:** Basis: listene som var gyldige ved oppstillingen.
- **8.2 Eksponeringskontroll**
- **Personlig verneutstyr:**
- **Generelle verne- og hygienetiltak:**
Holdes adskilt fra næringsmidler, drikkevarer og førstoffer.
Fjern omgående forurensede, gjennomvåtede klær.
Vask hendene før arbeidspauser og ved arbeidets slutt.
Beskyttelsesklær må oppbevares adskilt.
Unngå berøring med øyne og hud.
- **Åndedrettsvern:**
Ved korttidig eller liten belastning åndedrettsfilterapparat; ved intensiv eller lengre utsetting: bruk omluft-uavhengig åndedrettsbeskyttelsesapparat.
- **Håndvern:**



Beskyttelseshansker

- Hanskematerialet må være ugjennomtrengelig og bestandig overfor produktet /stoffet /blandingen.
På grunn av manglende tester kan det ikke gis noen anbefaling om hanskemateriale for produktet / tilberedningsprosessen/kjemikalieblanding.
Hanskematerialet velges under hensyntagen til holdbarhetstid, gjennomtrengelighet og degradering.
- **hanskemateriale**
Valget av egnet hanske er ikke bare avhengig av materiale, men også av andre kvalitetskjenner og er forskjellig fra produsent til produsent.
 - **gjennomtrengingstid for hanskemateriale**
Den nøyaktige holdbarhetstiden må bringes på det rene hos hanskeprodusenten og overholdes.

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· Øyevern:



Tettsittende vernebrille

Avsnitt 9: Fysiske og kjemiske egenskaper

· 9.1 Opplysninger om grunnleggende fysiske og kjemiske egenskaper

· alminnelige opplysninger

· Utseende:

· Form:	Væske
· Farge:	i.h.t. produktbetegnelse
· Lukt:	Eterlignende
· Lukterskel:	Ikke bestemt.

· pH-verdi: Ikke bestemt.

· Tilstandsendring

· Smeltepunkt/frysepunkt:	-35,5 °C
· Startkokepunkt og kokeområde:	84 °C

· Flammepunkt: 13 °C

· Antennelighet (fast stoff, gass): Ikke brukbar.

· Antennelsestemperatur: 440 °C

· Nedbrytingstemperatur: Ikke bestemt.

· Selvantennelsestemperatur: Ikke bestemt.

· Eksplosive egenskaper: Produktet er ikke eksplosjonsfarlig. Dannelse av eksplosjonsfarlige damp-/luftblandinger er dog mulig.

· Eksplosjonsgrenser:

· Nedre:	6,2 Vol %
· Øvre	16 Vol %

· Damptrykk ved 20 °C: 87 hPa

· Tetthet ved 20 °C: 1,25 g/cm³

· Relativ tetthet: Ikke bestemt.

· Damptetthet: Ikke bestemt.

· Fordampingshastighet: Ikke bestemt.

· Løslighet i / blandbarhet med

· vann ved 20 °C: 8 g/l

· Fordelingskoeffisient; n-oktanol/vann: Ikke bestemt.

· Viskositet:

· Dynamisk ved 20 °C: 0,8 mPas

· Kinematisk: Ikke bestemt.

· Løsningsmiddelandel:

· VOC (EF) 0,00 %

· Andel faste stoffer: 0,0 %

(fortsatt på side 6)

NO

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- **9.2 Andre opplysninger** Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 10: Stabilitet og reaktivitet

- **10.1 Reaktivitet** Ikke noe mer relevant informasjon tilgjengelig.
- **10.2 Kjemisk stabilitet**
- **Termisk spaltning / vilkår som må unngås:** Ingen spaltning ved formålsriktig bruk.
- **10.3 Risiko for farlige reaksjoner** Det kjennes ingen farlige reaksjoner.
- **10.4 Forhold som skal unngås** Ikke noe mer relevant informasjon tilgjengelig.
- **10.5 Uforenlige materialer** Ikke noe mer relevant informasjon tilgjengelig.
- **10.6 Farlige nedbrytingsprodukter** Ingen farlige spaltningsprodukter kjente.

Avsnitt 11: Toksikologiske opplysninger

- **11.1 Opplysninger om toksikologiske virkninger**
- **Akutt giftighet**
Farlig ved svelging.

- **Klassifiseringsrelevante LD/LC50-verdier:**

107-06-2 1,2-dikloretan

Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2.800 mg/kg (rat)

- **Primær irritasjonsvirkning:**
- **Hudetsing/hudirritasjon**
Irriterer huden.
- **Alvorlig øyeskade/øyeirritasjon**
Gir alvorlig øyeirritasjon.
- **Sensibilisering ved innånding eller hudkontakt** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Informasjon om følgende grupper med potensielle virkninger:**
- **CMR-virkninger (kreftfremkallende virkninger, arvestoffskadelige og reproduksjonsskadelige virkninger)**
- **Arvestoffskadelig virkning på kjønnseller** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Kreftfremkallende egenskap**
Kan forårsake kreft.
- **Reproduksjonstoksisitet** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **STOT – enkelteksponering**
Kan forårsake irritasjon av luftveiene.
- **STOT – gjentatt eksponering** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.
- **Aspirasjonsfare** Basert på tilgjengelige data, klassifiseringskriteriene ikke oppfylt.

Avsnitt 12: Økologiske opplysninger

- **12.1 Giftighet**
- **Akvatisk toksisitet:** Ikke noe mer relevant informasjon tilgjengelig.
- **12.2 Persistens og nedbrytbarhet** Ikke noe mer relevant informasjon tilgjengelig.
- **12.3 Bioakkumuleringssevne** Ikke noe mer relevant informasjon tilgjengelig.
- **12.4 Mobilitet i jord** Ikke noe mer relevant informasjon tilgjengelig.
- **Ytterligere økologiske opplysninger:**
- **Generelle opplysninger:**
Vannfareklasse 3 (D) (listeklassifisering): meget farlig for vann
Ikke la stoffet komme ned i grunnvannet, i vassdrag eller i kloakker, heller ikke i små mengder.

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- Fare for drikkevann allerede ved utstrømning av meget små mengder i marken.
- 12.5 Resultater av PBT- og vPvB-vurdering**
- PBT:** Ikke brukbar.
- vPvB:** Ikke brukbar.
- 12.6 Andre skadevirkninger** Ikke noe mer relevant informasjon tilgjengelig.

Avsnitt 13: Sluttbehandling

- 13.1 Avfallsbehandlingsmetoder**
- Anbefaling:** Må ikke bortskaffes sammen med husholdningsavfall. Må ikke komme ned i kloakk.
- Ikke rengjort emballasje:**
- Anbefaling:** Deponering i henhold til myndighetenes forskrifter.

Avsnitt 14: Transportopplysninger

- 14.1 FN-nummer**
- ADR, IMDG, IATA**

UN1184

- 14.2 FN-forsendelsesnavn**
- ADR**
- IMDG, IATA**

1184 ETYLENDIKLORID
ETHYLENE DICHLORIDE

- 14.3 Transportfareklasse(r)**

- ADR**



- klasse** 3 Brannfarlige væsker
- Fareseddel** 3+6.1

- IMDG**



- Class** 3 Brannfarlige væsker
- Label** 3/6.1

- IATA**



- Class** 3 Brannfarlige væsker
- Label** 3 (6.1)

- 14.4 Emballasjegruppe**
- ADR, IMDG, IATA**

II

- 14.5 Miljøfarer**

Ikke brukbar.

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· 14.6 Særlige forsiktighetsregler ved bruk	Advarsel: Brannfarlige væsker
· Farenummer (Kemler-tall):	336
· EMS-nummer:	3-03
· Segregation groups	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.

· 14.7 Bulktransport i henhold til vedlegg II til MARPOL 73/78 og IBC-regelverket	Ikke brukbar.
--	---------------

· **Transport/ytterligere informasjoner:**

· ADR	
· Begrenset mengde (LQ)	1L
· Unntatte mengder (EQ)	Kode: E2 Maksimal nettovekt per inneremballasje: 30 ml Maksimal nettovekt per ytteremballasje: 500 ml
· Transportkategori	2
· Tunnel restriksjonskode	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":	UN 1184 ETYLENDIKLORID, 3 (6.1), II
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Avsnitt 15: Opplysninger om regelverk

- **15.1 Særlige bestemmelser / særskilt lovgivning om sikkerhet, helse og miljø for stoffet eller stoffblandingen**
- **Direktiv 2012/18/EU**
- **Spesifiserte farlige stoffer - VEDLEGG I** Inneholder ikke stoffet.
- **Seveso kategori P5c**
- **Mengdegrense (i tonn) for anvendelsen av krav til virksomheter på lavere nivå** 5.000 t
- **Mengdegrense (i tonn) for anvendelsen av krav til virksomheter på høyere nivå** 50.000 t

· **LISTE OVER STOFFER UNDERLAGT GODKJENNING (VEDLEGG XIV)**

Sunset date: 2017-11-22

· **Forordning (EF) nr. 1907/2006 VEDLEGG XVII** Begrensninger: 3, 28· **Forordning (EF) nr. 649/2012**

Annex I Part 1

Annex I Part 3

· **Direktiv 2011/65/EF om begrensning av bruken av visse farlige stoffer i elektrisk og elektronisk utstyr - Vedlegg II**

ingen av innholdsstoffene er listet opp

· **Nasjonale forskrifter:**· **Informasjoner om arbeidsinnskrenkning:**

Arbeidstagere må ikke utsettes for dette farlige stoffet. I enkelte tilfeller kan myndighetene tillate unntak.

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· **Andre forskrifter, restriksjoner og forbudsforordninger**

· **Stoffer som gir stor grunn til bekymring iflg. REACH, artikkel 57**

107-06-2	1,2-dikloretan
63450-15-7	POLYVINYL FORMAL

· **15.2 Vurdering av kjemikaliesikkerhet** En kjemisk sikkerhetsvurdering er ikke utført.

Avsnitt 16: Andre opplysninger

Opplysningene er basert på vårt kjennskap i dag. De utgjør dog ingen forsikring om produktegenskaper og er ikke grunnlag for noe kontraktmessig rettsforhold.

· **Forkortelser og akronymer:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Brannfarlige væsker – Kategori 2

Acute Tox. 4: Akutt giftighet – Kategori 4

Skin Irrit. 2: Hudetsing/hudirritasjon – Kategori 2

Eye Irrit. 2: Alvorlig øyeskade/øyeirritasjon – Kategori 2

Carc. 1B: Kreftframkallende egenskaper – Kategori 1B

STOT SE 3: Giftvirkning på bestemte organer (enkelteksponering) – Kategori 3

Ficha de datos de seguridad

según 1907/2006/CE, Artículo 31

fecha de impresión 08.09.2021

Revisión: 08.09.2021

SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

- **1.1 Identificador del producto**
- **Nombre comercial:** FORMVAR SOLUTION 1.00%
- **Número del artículo:** 15830, 15830-25-SP, 15830-25
- **Número CAS:**
107-06-2
- **Número CE:**
203-458-1
- **Número de clasificación:**
602-012-00-7
- **UFI:** YV91-30A0-U004-QJ03
- **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**
No existen más datos relevantes disponibles.
- **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio
- **1.3 Datos del proveedor de la ficha de datos de seguridad**
- **Fabricante/distribuidor:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Aname**
C/ Perez Galdos no. 2
28693 Quijorna
Madrid, Spain
Tel: +34.91.816.89.50
Fax: +34.91.816.85.94
email: ventas@aname.es
- **Área de información:** Product safety department
- **1.4 Teléfono de emergencia:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECCIÓN 2: Identificación de los peligros

- **2.1 Clasificación de la sustancia o de la mezcla**
- **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**



GHS02 llama

Flam. Liq. 2 H225 Líquido y vapores muy inflamables.



GHS08 peligro para la salud

Carc. 1B H350 Puede provocar cáncer.



GHS07

Acute Tox. 4 H302 Nocivo en caso de ingestión.

(se continua en página 2)

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Skin Irrit. 2 H315 Provoca irritación cutánea.
 Eye Irrit. 2 H319 Provoca irritación ocular grave.
 STOT SE 3 H335 Puede irritar las vías respiratorias.

· 2.2 Elementos de la etiqueta

· Etiquetado con arreglo al Reglamento (CE) n° 1272/2008

La sustancia se ha clasificado y etiquetado de conformidad con el reglamento CLP.

· Pictogramas de peligro



GHS02 GHS07 GHS08

· Palabra de advertencia Peligro

· Componentes peligrosos a indicar en el etiquetaje:

1,2-dicloroetano

· Indicaciones de peligro

H225 Líquido y vapores muy inflamables.

H302 Nocivo en caso de ingestión.

H315 Provoca irritación cutánea.

H319 Provoca irritación ocular grave.

H350 Puede provocar cáncer.

H335 Puede irritar las vías respiratorias.

· Consejos de prudencia

P210 Mantener alejado del calor, de superficies calientes, de chispas, de llamas abiertas y de cualquier otra fuente de ignición. No fumar.

P241 Utilizar material [eléctrico/ de ventilación/iluminación] antideflagrante.

P303+P361+P353 EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitar inmediatamente toda la ropa contaminada. Enjuagar la piel con agua [o ducharse].

P305+P351+P338 EN CASO DE CONTACTO CON LOS OJOS: Enjuagar con agua cuidadosamente durante varios minutos. Quitar las lentes de contacto cuando estén presentes y pueda hacerse con facilidad. Proseguir con el lavado.

P405 Guardar bajo llave.

P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.

· 2.3 Otros peligros

· Resultados de la valoración PBT y mPmB

· **PBT:** No aplicable.

· **mPmB:** No aplicable.

SECCIÓN 3: Composición/información sobre los componentes

· 3.1 Caracterización química: Sustancias

· Denominación N° CAS

107-06-2 1,2-dicloroetano

· Número(s) de identificación

· Número CE: 203-458-1

· Número de clasificación: 602-012-00-7

· Componentes peligrosos:

63450-15-7	POLYVINYL FORMAL	≤2,5%
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Ficha de datos de seguridad

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(se continua en página 2)

· SVHC	
107-06-2	1,2-dicloroetano
63450-15-7	POLYVINYL FORMAL

SECCIÓN 4: Primeros auxilios

- **4.1 Descripción de los primeros auxilios**
- **Instrucciones generales:**
Los síntomas de intoxicación pueden presentarse después de muchas horas, por lo que se requiere una supervisión médica durante un mínimo de 48 horas después del accidente.
- **En caso de inhalación del producto:**
Las personas desmayadas deben tenderse y transportarse de lado con la suficiente estabilidad.
- **En caso de contacto con la piel:** Lavar inmediatamente con agua y jabón y enjuagar bien.
- **En caso de con los ojos:**
Limpiar los ojos abiertos durante varios minutos con agua corriente. En caso de trastornos persistentes consultar un médico.
- **En caso de ingestión:** Consultar inmediatamente un médico.
- **4.2 Principales síntomas y efectos, agudos y retardados** No existen más datos relevantes disponibles.
- **4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente**
No existen más datos relevantes disponibles.

SECCIÓN 5: Medidas de lucha contra incendios

- **5.1 Medios de extinción**
- **Sustancias extintoras apropiadas:** CO₂, arena, polvo extintor. No utilizar agua.
- **Sustancias extintoras inapropiadas por razones de seguridad:** Agua a pleno chorro
- **5.2 Peligros específicos derivados de la sustancia o la mezcla** No existen más datos relevantes disponibles.
- **5.3 Recomendaciones para el personal de lucha contra incendios**
- **Equipo especial de protección:** No se requieren medidas especiales.

SECCIÓN 6: Medidas en caso de vertido accidental

- **6.1 Precauciones personales, equipo de protección y procedimientos de emergencia**
Llevar puesto equipo de protección. Mantener alejadas las personas sin protección.
- **6.2 Precauciones relativas al medio ambiente:**
Evitar que penetre en la canalización /aguas de superficie /agua subterráneas.
- **6.3 Métodos y material de contención y de limpieza:**
Quitar con material absorbente (arena, kieselgur, aglutinante de ácidos, aglutinante universal, aserrín).
Desechar el material contaminado como vertido según ítem 13.
Asegurar suficiente ventilación.
No enjuagar con agua ni productos de limpieza acuosos.
- **6.4 Referencia a otras secciones**
Ver capítulo 7 para mayor información sobre una manipulación segura.
Ver capítulo 8 para mayor información sobre el equipo personal de protección.
Para mayor información sobre cómo desechar el producto, ver capítulo 13.

SECCIÓN 7: Manipulación y almacenamiento

- **7.1 Precauciones para una manipulación segura**
Asegurar suficiente ventilación /aspiración en el puesto de trabajo.

(se continua en página 4)

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Abrir y manejar el recipiente con cuidado.

Evitar la formación de aerosoles.

· **Prevención de incendios y explosiones:**

Mantener alejadas las fuentes de encendido. No fumar.

Proteger del calor.

Tomar medidas contra las cargas electrostáticas.

Tener preparados los aparatos respiratorios.

· **7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades**

· **Almacenamiento:**

· **Exigencias con respecto al almacén y los recipientes:** Almacenar en un lugar fresco.

· **Normas en caso de un almacenamiento conjunto:** No es necesario.

· **Indicaciones adicionales sobre las condiciones de almacenamiento:**

Mantener el recipiente cerrado herméticamente.

Almacenarlo en envases bien cerrados en un lugar fresco y seco.

Proteger del calor y de la luz directa del sol.

· **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

SECCIÓN 8: Controles de exposición/protección individual

· **Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:**

Sin datos adicionales, ver punto 7.

· **8.1 Parámetros de control**

· **Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:**

107-06-2 1,2-dicloroetano

LEP	Valor de larga duración: 20 mg/m ³ , 5 ppm
	CIB, r

· **Indicaciones adicionales:** Como base se han utilizado las listas vigentes en el momento de la elaboración.

· **8.2 Controles de la exposición**

· **Equipo de protección individual:**

· **Medidas generales de protección e higiene:**

Mantener alejado de alimentos, bebidas y alimentos para animales.

Quitarse de inmediato la ropa ensuciada o impregnada.

Lavarse las manos antes de las pausas y al final del trabajo.

Guardar la ropa protectora por separado.

Evitar el contacto con los ojos y la piel.

· **Protección respiratoria:**

Si la exposición va a ser breve o de poca intensidad, colocarse una máscara respiratoria. Para una exposición más intensa o de mayor duración, usar un aparato de respiración autónomo.

· **Protección de manos:**



Guantes de protección

El material del guante deberá ser impermeable y resistente al producto / sustancia / preparado.

Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de sustancias químicas.

Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.

· **Material de los guantes**

La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro.

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· **Tiempo de penetración del material de los guantes**

El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.

· **Protección de ojos:**



Gafas de protección herméticas

SECCIÓN 9: Propiedades físicas y químicas

· **9.1 Información sobre propiedades físicas y químicas básicas**

· **Datos generales**

· **Aspecto:**

· **Forma:**

Líquido

· **Color:**

Según denominación del producto

· **Olor:**

Etereo

· **Umbral olfativo:**

No determinado.

· **valor pH:**

No determinado.

· **Cambio de estado**

· **Punto de fusión/punto de congelación:**

-35,5 °C

· **Punto inicial de ebullición e intervalo de ebullición:**

84 °C

· **Punto de inflamación:**

13 °C

· **Inflamabilidad (sólido, gas):**

No aplicable.

· **Temperatura de ignición:**

440 °C

· **Temperatura de descomposición:**

No determinado.

· **Temperatura de auto-inflamación:**

No determinado.

· **Propiedades explosivas:**

El producto no es explosivo; sin embargo, pueden formarse mezclas explosivas de vapor / aire.

· **Límites de explosión:**

· **Inferior:**

6,2 Vol %

· **Superior:**

16 Vol %

· **Presión de vapor a 20 °C:**

87 hPa

· **Densidad a 20 °C:**

1,25 g/cm³

· **Densidad relativa**

No determinado.

· **Densidad de vapor**

No determinado.

· **Tasa de evaporación:**

No determinado.

· **Solubilidad en / miscibilidad con**

· **agua a 20 °C:**

8 g/l

· **Coefficiente de reparto: n-octanol/agua:**

No determinado.

· **Viscosidad:**

· **Dinámica a 20 °C:**

0,8 mPas

· **Cinemática:**

No determinado.

(se continua en página 6)

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· Concentración del disolvente:	
· VOC (CE)	0,00 %
· Contenido de cuerpos sólidos:	0,0 %
· 9.2 Otros datos	No existen más datos relevantes disponibles.

SECCIÓN 10: Estabilidad y reactividad

- **10.1 Reactividad** No existen más datos relevantes disponibles.
- **10.2 Estabilidad química**
- **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
- **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.
- **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
- **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
- **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

SECCIÓN 11: Información toxicológica

- **11.1 Información sobre los efectos toxicológicos**
- **Toxicidad aguda**
Nocivo en caso de ingestión.

· **Valores LD/LC50 (dosis letal /dosis letal = 50%) relevantes para la clasificación:**

107-06-2 1,2-dicloroetano

Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2.800 mg/kg (rat)

- **Efecto estimulante primario:**
- **Corrosión o irritación cutáneas**
Provoca irritación cutánea.
- **Lesiones o irritación ocular graves**
Provoca irritación ocular grave.
- **Sensibilización respiratoria o cutánea**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción)**
- **Mutagenicidad en células germinales**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Carcinogenicidad**
Puede provocar cáncer.
- **Toxicidad para la reproducción** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad específica en determinados órganos (STOT) – exposición única**
Puede irritar las vías respiratorias.
- **Toxicidad específica en determinados órganos (STOT) – exposición repetida**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Peligro de aspiración** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

SECCIÓN 12: Información ecológica

- **12.1 Toxicidad**
- **Toxicidad acuática:** No existen más datos relevantes disponibles.
- **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.

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- **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
- **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
- **Indicaciones medioambientales adicionales:**
- **Indicaciones generales:**
Nivel de riesgo para el agua 3 (clasificación de listas): muy peligroso para el agua
No dejar que se infiltre en aguas subterráneas, aguas superficiales o en alcantarillados, ni siquiera en pequeñas cantidades.
Una cantidad ínfima vertida en el subsuelo ya representa un peligro para el agua potable.
- **12.5 Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.
- **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

SECCIÓN 13: Consideraciones relativas a la eliminación

- **13.1 Métodos para el tratamiento de residuos**
- **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.
- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.

SECCIÓN 14: Información relativa al transporte

- | | |
|--|---------------------------|
| · 14.1 Número ONU | |
| · ADR, IMDG, IATA | UN1184 |
| · 14.2 Designación oficial de transporte de las Naciones Unidas | |
| · ADR | 1184 DICLORURO DE ETILENO |
| · IMDG, IATA | ETHYLENE DICHLORIDE |
| · 14.3 Clase(s) de peligro para el transporte | |
| · ADR | |
| | |
| · Clase | 3 Líquidos inflamables |
| · Etiqueta | 3+6.1 |
| · IMDG | |
| | |
| · Class | 3 Líquidos inflamables |
| · Label | 3/6.1 |

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· IATA



· Class 3 Líquidos inflamables
 · Label 3 (6.1)

· 14.4 Grupo de embalaje II
 · ADR, IMDG, IATA

· 14.5 Peligros para el medio ambiente: No aplicable.

· 14.6 Precauciones particulares para los usuarios Atención: Líquidos inflamables
 · Número de identificación de peligro (Número Kemler): 336
 · Número EMS: 3-03
 · Segregation groups Liquid halogenated hydrocarbons
 · Stowage Category B
 · Stowage Code SW2 Clear of living quarters.

· 14.7 Transporte a granel con arreglo al anexo II del Convenio MARPOL y el Código IBC No aplicable.

· Transporte/datos adicionales:

· ADR
 · Cantidades limitadas (LQ) 1L
 · Cantidades exceptuadas (EQ) Código: E2
 Cantidad neta máxima por envase interior: 30 ml
 Cantidad neta máxima por embalaje exterior: 500 ml
 · Categoría de transporte 2
 · Código de restricción del túnel D/E

· IMDG
 · Limited quantities (LQ) 1L
 · Excepted quantities (EQ) Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

· "Reglamentación Modelo" de la UNECE: UN 1184 DICLORURO DE ETILENO, 3 (6.1), II

SECCIÓN 15: Información reglamentaria

· 15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla

- Directiva 2012/18/UE
- Sustancias peligrosas nominadas - ANEXO I No contiene la sustancia.
- Categoría Seveso P5c LÍQUIDOS INFLAMABLES
- Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel inferior 5.000 t
- Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel superior 50.000 t

· LISTA DE SUSTANCIAS SUJETAS A AUTORIZACIÓN (ANEXO XIV)

Sunset date: 2017-11-22

· REGLAMENTO (CE) n° 1907/2006 ANEXO XVII Restricciones: 3, 28

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· **Reglamento (UE) No 649/2012**

Annex I Part 1

Annex I Part 3

· **Directiva 2011/65/UE sobre restricciones a la utilización de determinadas sustancias peligrosas en aparatos eléctricos y electrónicos - Anexo II**

ninguno de los componentes está incluido en una lista

· **Disposiciones nacionales:**· **Indicaciones sobre las limitaciones de trabajo:**

Los empleados no deben exponerse a esta sustancia peligrosa. En casos aislados las autoridades pueden hacer excepciones.

· **Demás disposiciones, limitaciones y decretos prohibitivos**· **Sustancias altamente preocupantes (SVHC) según REACH, artículo 57**

107-06-2 | 1,2-dicloroetano

63450-15-7 | POLYVINYL FORMAL

· **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contractual.

· **Abreviaturas y acrónimos:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Líquidos inflamables – Categoría 2

Acute Tox. 4: Toxicidad aguda - oral – Categoría 4

Skin Irrit. 2: Corrosión o irritación cutáneas – Categoría 2

Eye Irrit. 2: Lesiones oculares graves o irritación ocular – Categoría 2

Carc. 1B: Carcinogenicidad – Categoría 1B

STOT SE 3: Toxicidad específica en determinados órganos (exposición única) – Categoría 3

แผ่นข้อมูลความปลอดภัย

มาตรฐาน GHS

วันที่พิมพ์ 2021.09.08

การปรับปรุงใหม่ : 2021.09.08

1 การปฐษสารเดี่ยวหรือสารผสม และผู้ผลิต

- 1.1 ลักษณะเฉพาะของผลิตภัณฑ์
- ชื่อทางการค้า **FORMVAR SOLUTION 1.00%**
- เลขที่รายชื่อ 15830, 15830-25-SP, 15830-25
- เลขที่ CAS:
107-06-2
- จำนวน EC:
203-458-1
- เลขที่ EU:
602-012-00-7
- 1.2 สารหรือสารผสมที่เกี่ยวข้องที่ระบุให้ใช้และไม่ควรรให้ใช้ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- การประยุกต์ใช้สาร/ การทำ เคมีภัณฑ์ห้องทดลอง
- 1.3 รายละเอียดของผู้จัดหาข้อมูลด้านความปลอดภัย
- ผู้ผลิต/ ผู้จัดหา
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- ข้อมูลรายละเอียดเพิ่มเติมหาได้จาก Product safety department
- 1.4 หมายเลขโทรศัพท์ฉุกเฉิน:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 การปฐษความเป็นอันตราย

- 2.1 การจำแนกประเภทของสารหรือสารผสม
- การแบ่งประเภทตามข้อบังคับข้อที่ 1272/2008



เปลวไฟ

Flam. Liq. 2 H225 ของเหลวและไอที่ไวไฟสูง



สิ่งอันตรายต่อสุขภาพ

Carc. 1B H350 อาจเป็นเหตุให้เกิดมะเร็ง



Acute Tox. 4 H302 เป็นอันตรายหากกลืนเข้าไป

Skin Irrit. 2 H315 เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง

Eye Irrit. 2 H319 เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา

STOT SE 3 H335 อาจเป็นสาเหตุให้เกิดการระคายเคืองต่อระบบหายใจ

- 2.2 องค์ประกอบของฉลาก
- ฉลากตามระเบียบ (EC) เลขที่ 1272/2008 สารได้รับการจัดประเภทและติดฉลากตามข้อบังคับของ CLP

(ต่อที่หน้า 2)

TH

แผ่นข้อมูลความปลอดภัย

มาตรฐาน GHS

วันที่พิมพ์ 2021.09.08

การปรับปรุงใหม่ : 2021.09.08

ชื่อทางการค้า FORMVAR SOLUTION 1.00%

(ต่อหน้า 1)

· ภาพสัญลักษณ์สิ่งที่เป็นอันตราย



GHS02 GHS07 GHS08

· สัญญาณคำ อันตราย

· ส่วนประกอบที่ระบุอันตรายบนฉลาก

เอทิลีนไดคลอไรด์

· ประกาศสิ่งที่เป็นอันตราย

H225 ของเหลวและไอที่ไวไฟสูง

H302 เป็นอันตรายหากกลืนเข้าไป

H315 เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง

H319 เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา

H350 อาจเป็นเหตุให้เกิดมะเร็ง

H335 อาจเป็นสาเหตุให้เกิดการระคายเคืองต่อระบบหายใจ

· ประกาศการป้องกันระดับระงับภัย

P210 เก็บให้ห่างจากความร้อน/ ประกายไฟ/เปลวไฟ/ ผิวที่ร้อน - ห้ามสูบบุหรี่

P241 ใช้อุปกรณ์ไฟฟ้า/ ระบายอากาศ/ไฟฟ้า/ อุปกรณ์เครื่องใช้ชนิดกันระเบิด

P303+P361+P353 หากสัมผัสถูกผิวหนัง (หรือเส้นผม) ถอดเสื้อผ้าที่เปื้อนทั้งหมดทันที ล้างผิวหนังด้วยน้ำ/อาบน้ำ

P305+P351+P338 หากเข้าตา : ชะล้างตาอย่างระมัดระวังเป็นเวลาหลายๆนาทีถอดคอนแทกซ์เลนส์ถ้ายังอยู่ที่เดิมและ
สะกดวักที่จะทำก็ให้ชะล้างต่อไป

P405 เก็บในที่ใส่กุญแจปิด

P501 ทิ้งสิ่งที่ย่อย/ภาชนะที่ย่อยตามกฎหมายของท้องถิ่น/แคว้น/ในประเทศ/ระหว่างประเทศ

· 2.3 อันตรายอื่นๆ

· ผลของ PBT และการประเมิน vPvB

· PBT: ไม่สามารถใช้ได้

· vPvB: ไม่สามารถใช้ได้

3 องค์ประกอบและข้อมูลเกี่ยวกับส่วนผสม

· 3.1 คุณลักษณะทางเคมีรสารสาร

· การระบุเลขที่ CAS

107-06-2 เอทิลีนไดคลอไรด์

· เลขที่ที่ระบุ

· จำนวน EC: 203-458-1

· เลขที่ EU: 602-012-00-7

· ส่วนประกอบที่มีอันตราย

63450-15-7 POLYVINYL FORMAL

≤2.5%

4 มาตรการปฐมพยาบาล

· 4.1 คำอธิบายถึงมาตรการปฐมพยาบาล

· ข้อมูลรายละเอียดทั่วไป

อาการจากพิษอาจเกิดขึ้นหลังจากนั้นหลายชั่วโมงดังนั้นจะต้องเฝ้าติดตามอาการทางการแพทย์อย่างน้อย 48 ชั่วโมงหลังจากอุบัติเหตุ

· หลังจากการสูดหายใจเข้าไป ในกรณีที่คนไข้ไม่รู้สึกตัวให้ขนย้ายคนไข้อย่างมั่นคงในท่าตะแคงด้านข้าง

· หลังจากการสัมผัสถูกผิวหนัง ล้างด้วยน้ำและสบู่แล้วฟอกให้ทั่วทันที

· หลังจากการสัมผัสถูกตา ชะล้างที่เปิดอยู่ใต้น้ำที่กำลังไหลเป็นเวลาหลายนาทีถ้าอาการไม่ดีขึ้นให้ปรึกษาแพทย์

· หลังจากการกลืนเข้าไป: พบแพทย์โดยทันที

(ต่อหน้า 3)

แผนข้อมูลความปลอดภัย

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ชื่อทางการค้า FORMVAR SOLUTION 1.00%

(ต่อหน้า 2)

- 4.2 อาการสำคัญส่วนใหญ่และผลกระทบ ทั้งชนิดเฉียบพลันและค่อยๆ แสดงอาการ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 4.3 ข้อบ่งชี้ของอาการที่ต้องเข้ารับการรักษาจากแพทย์ทันทีและการบำบัดพิเศษที่จำเป็น ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

5 มาตรการผจญเพลิง

- 5.1 สารที่ใช้ดับเพลิง
- สารดับเพลิงที่เหมาะสม คาร์บอนไดออกไซด์ทรายผงดับไฟอย่าใช้น้ำ
- สารดับเพลิงที่ไม่ควรใช้ด้วยเหตุผลด้านความปลอดภัย น้ำฉีดพ่นเป็นสำ
- 5.2 อันตรายเฉพาะอย่างที่เกิดจากสารหรือส่วนผสม ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 5.3 คำแนะนำสำหรับพนักงานดับเพลิง
- อุปกรณ์ป้องกันภัย ไม่ต้องมีมาตรการพิเศษ

6 มาตรการจัดการเมื่อมีการหกรั่วไหลของสาร

- 6.1 การป้องกันส่วนบุคคล อุปกรณ์ป้องกัน และขั้นตอนดำเนินการเมื่อเกิดกรณีฉุกเฉิน
สวมอุปกรณ์ป้องกันภัยกันคนที่ไม่ใช้อุปกรณ์ป้องกันออกไป
- 6.2 การให้ความคุ้มครองสิ่งแวดล้อมล่วงหน้า: อย่าปล่อยให้เข้าไปในท่อน้ำทิ้ง/ น้ำบนดินหรือใต้ดิน
- 6.3 วิธีดำเนินการและวิธีลดสำหรับการบรรจและการทำความสะอาด:
ดูดซับด้วยวัสดุที่สามารถยึดของเหลวไว้ (ทรายไดอะโตไมท์ตัวยึดเกาะกรดตัวยึดทั่วๆ ไปซีลีย)
ทิ้งวัสดุที่ปนเปื้อนเป็นของเสียตามรายการในบัญชี 13
ตรวจให้แน่ใจว่ามีภาวะระบายอากาศที่ดีพอ
อย่าฉีดด้วยน้ำหรือน้ำยาทำความสะอาดที่มีน้ำเป็นส่วนผสม
- 6.4 การอ้างอิงถึงส่วนอื่น
ดูข้อมูลรายละเอียดเรื่องความปลอดภัยในการขนถ่ายจากส่วนที่ 7
ดูข้อมูลรายละเอียดเรื่องอุปกรณ์ป้องกันส่วนบุคคลจากส่วนที่ 8
ดูข้อมูลรายละเอียดเรื่องการจัดจากส่วนที่ 13

7 การขนถ่าย เคลื่อนย้าย ใช้งาน และเก็บรักษา

- 7.1 การป้องกันล่วงหน้าสำหรับการจัดการด้านความปลอดภัย
ทำให้แน่ใจว่าสถานที่ทำงานมีการระบายอากาศ/ ไอเสียที่ดี
เปิดและถือภาชนะรองรับอย่างระมัดระวัง
ป้องกันการเกิดละอองสารฟุ้ง
- ข้อมูลรายละเอียดเกี่ยวกับการป้องกันอัคคีภัยและการระเบิด
ออกห่างจากแหล่งที่ติดไฟอย่าสูบบุหรี่
ป้องกันให้พ้นจากความร้อน
ป้องกันให้พ้นจากประจุไฟฟ้าสถิตย์
เก็บอุปกรณ์ป้องกันสำหรับการช่วยหายใจให้มีพร้อมใช้งาน
- 7.2 เงื่อนไขในการเก็บรักษาอย่างปลอดภัย, รวมถึงสิ่งที่เข้ากันไม่ได้ใดๆ
- การจัดเก็บ
- ข้อกำหนดที่ต้องปฏิบัติตามสำหรับห้องเก็บและภาชนะบรรจุ เก็บในบริเวณที่เย็น
- ข้อมูลรายละเอียดด้านการจัดเก็บในสถานที่จัดเก็บรวม ไม่ได้กำหนด
- ข้อมูลรายละเอียดเพิ่มเติมด้านสภาพการจัดเก็บ
เก็บโดยปิดผนึกอย่างแน่นหนา
เก็บในที่เย็นสภาพแห้งในภาชนะบรรจุที่ปิดผนึกอย่างดี
ป้องกันให้พ้นจากความร้อนและแสงแดดส่อง

(ต่อหน้า 4)

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แผนข้อมูลความปลอดภัย

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(ต่อหน้า 3)

· 7.3 การระบุถึงการสิ้นสุดการใช้ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

8 การควบคุมการสัมผัสและการป้องกันส่วนบุคคล

· ข้อมูลรายละเอียดเสริมสำหรับการออกแบบสิ่งอำนวยความสะดวกทางเทคนิค ไม่มีข้อมูลนอกเหนือจากนี้ดูรายการ 7

8.1 การควบคุมตัวแปร

· ส่วนผสมพร้อมค่าขอบเขตที่ต้องเฝ้าดูในสถานที่ปฏิบัติงาน

107-06-2 เอทิลีนไดคลอไรด์

PEL (US)	ค่าระยะยาว: 50 ppm Ceiling limit value: 100; 200* ppm *5-min peak in any 3 hrs
REL (US)	ค่าระยะสั้น: 8 mg/m ³ , 2 ppm ค่าระยะยาว: 4 mg/m ³ , 1 ppm See Pocket Guide Apps. A and C
TLV (US)	ค่าระยะยาว: 40 mg/m ³ , 10 ppm

· ข้อมูลรายละเอียดเสริม รายการถูกต้องระหว่างที่จัดทำโดยอาศัยการปฏิบัติงานเป็นหลัก

8.2 การควบคุมการสัมผัส

อุปกรณ์ป้องกันภัยส่วนบุคคล

มาตรการการป้องกันและสุขอนามัยทั่วไป

เก็บให้ห่างจากสิ่งของที่เป็นอาหารเครื่องดื่มและอาหารสัตว์

ให้ถอดเสื้อผ้าที่เปื้อนและเจือปนออกทันที

ล้างมือก่อนที่จะหยุดพักและเมื่อสิ้นสุดเวลาทำงาน

เก็บชุดป้องกันแยกต่างหาก

หลีกเลี่ยงการสัมผัสถูกตาและผิวหนัง

การป้องกันการสูดหายใจเข้าไป

ในกรณีที่อยู่เป็นเวลาสั้นหรืออากาศเป็นพิษระดับต่ำใช้หน้ากากกรองเพื่อช่วยหายใจในกรณีที่มีความเข้มข้นสูงหรืออยู่เป็นเวลานานให้ใช้เครื่องป้องกันที่มีอุปกรณ์ช่วยหายใจในตัว

การป้องกันมือ



ถุงมือป้องกัน

วัสดุของถุงมือจะต้องไม่ให้อากาศผ่านเข้าออกและทนทานต่อผลิตภัณฑ์/ สาร/ การผลิต

เนื่องจากขาดการทดสอบจึงไม่มีคำแนะนำสำหรับวัสดุที่ใช้ทำถุงมือสำหรับผลิตภัณฑ์/ การผลิต/ ของผสมเคมี

เลือกวัสดุสำหรับถุงมือโดยพิจารณาจากเวลาที่ใช้ในการซึมผ่านอัตราการแพร่และการเสื่อม

วัสดุที่ใช้ทำถุงมือ

การเลือกใช้ถุงมือที่เหมาะสมไม่เพียงแต่ขึ้นอยู่กับวัสดุแต่ยังขึ้นกับมาตรฐานด้านคุณภาพและข้อแตกต่างระหว่างผู้ผลิตแต่ละแห่ง

เวลาที่ใช้ในการทะลุผ่านวัสดุที่ใช้ทำถุงมือ

ผู้ผลิตถุงมือป้องกันจะต้องทดสอบหาเวลาแน่นอนที่ใช้ในการทะลุผ่านและจะต้องมีการตรวจสอบติดตาม

การป้องกันตา



แว่นตาที่ขอบปิดสนิท

TH

(ต่อหน้า 5)

แผ่นข้อมูลความปลอดภัย

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ชื่อทางการค้า FORMVAR SOLUTION 1.00 %

(ต่อที่หน้า 4)

9 คุณสมบัติทางกายภาพและทางเคมี

<ul style="list-style-type: none"> 9.1 ข้อมูลคุณสมบัติพื้นฐานทางกายภาพและเคมี ข้อมูลรายละเอียดทั่วไป ลักษณะ : รูปสีฐาน สี กลิ่นกลิ่นกลิ่น เกณฑ์กลิ่น : 		<ul style="list-style-type: none"> ของเหลว ตามรายละเอียดของผลิตภัณฑ์ คล้ายอีเทอร์ ไม่ได้กำหนดไว้.
ค่าค่า pH		ไม่ได้กำหนดไว้.
<ul style="list-style-type: none"> การเปลี่ยนสถานะ จุดหลอมเหลว/ ขอบเขตการหลอมละลาย จุดเดือด/ ขอบเขตการเดือด 		<ul style="list-style-type: none"> -35.5 °C 84 °C
<ul style="list-style-type: none"> จุดวาบไฟ 		13 °C
<ul style="list-style-type: none"> ความสามารถติดไฟ (ของแข็งแกส) 		ไม่สามารถใช้ได้
<ul style="list-style-type: none"> อุณหภูมิจุดระเบิด 		440 °C
<ul style="list-style-type: none"> อุณหภูมิสลายตัว 		ไม่ได้กำหนดไว้.
<ul style="list-style-type: none"> การเผาไหม้ด้วยตัวเอง 		ไม่ได้กำหนดไว้.
<ul style="list-style-type: none"> อันตรายจากการระเบิด 		ผลิตภัณฑ์ไม่ได้เป็นสารระเบิดอย่างไรก็ตามอาจเป็นไปได้ที่การผสมของอากาศ/ ไอจะทำให้เกิดการระเบิด
<ul style="list-style-type: none"> ขอบเขตการระเบิด ขั้นต่ำ ขั้นสูง 		<ul style="list-style-type: none"> 6.2 Vol % 16 Vol %
<ul style="list-style-type: none"> ความดันไอ ที่ 20 °C 		87 hPa
<ul style="list-style-type: none"> ความหนาแน่น ที่ 20 °C ความหนาแน่นสัมพัทธ์ ความหนาแน่นของไอ อัตราการระเหย 		<ul style="list-style-type: none"> 1.25 g/cm³ ไม่ได้กำหนดไว้. ไม่ได้กำหนดไว้. ไม่ได้กำหนดไว้.
<ul style="list-style-type: none"> ความสามารถในการละลายใน / ความสามารถผสมเป็นสารละลายเนื้อเดียวทุกส่วนผสมกับน้ำน้ำหนัก 20 °C 		8 g/l
<ul style="list-style-type: none"> สัมประสิทธิ์การแยกตัวอินทรีย์/อินทรีย์กับน้ำ 		ไม่ได้กำหนดไว้.
<ul style="list-style-type: none"> ความหนืด (ไดนามิก) พลศาสตร์ ที่ 20 °C (คิเนมาติก) จลนศาสตร์ 		<ul style="list-style-type: none"> 0.8 mPas ไม่ได้กำหนดไว้.
<ul style="list-style-type: none"> ปริมาณส่วนประกอบตัวทำละลาย VOC (EC) 		<ul style="list-style-type: none"> 0.00 %
<ul style="list-style-type: none"> ส่วนประกอบที่เป็นของแข็ง 9.2 ข้อมูลอื่นๆ 		<ul style="list-style-type: none"> 0.0 % ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

10 ความเสถียรและการเกิดปฏิกิริยา

- 10.1 ปฏิกิริยาที่ตอบสนอง ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.2 เสถียรภาพทางเคมี
- การสลายตัวด้วยความร้อน / เงื่อนไขที่ต้องหลีกเลี่ยง ไม่มีการสลายตัวถ้าใช้ตามรายละเอียดที่ระบุไว้

(ต่อที่หน้า 6)

แผ่นข้อมูลความปลอดภัย

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(ต่อหน้า 5)

- 10.3 ความเป็นไปได้ของการเกิดปฏิกิริยาอันตราย ไม่มีปฏิกิริยาเป็นอันตรายที่รู้จัก
- 10.4 เงื่อนไขเพื่อการหลีกเลี่ยง ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.5 วัสดุที่เข้ากันไม่ได้: ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 10.6 อันตรายจากการสลายตัวของผลิตภัณฑ์: ไม่มีสารจากการสลายตัวที่เป็นอันตรายที่รู้จัก

11 ข้อมูลด้านพิษวิทยา

- 11.1 ข้อมูลเกี่ยวกับผลกระทบทางพิษวิทยา

• **ความเป็นพิษอย่างสาหัส:**
เป็นอันตรายหากกลืนเข้าไป

- การจัดแบ่งตามค่า LD/LC50

107-06-2 เอทิลีนไดคลอไรด์

ทางปาก	LD50	670 mg/kg (rat)
ทางผิวหนัง	LD50	2,800 mg/kg (rat)

- **อาการระคายเคืองเบื้องต้น**
- **บนผิวหนัง**
เป็นสาเหตุให้เกิดการระคายเคืองผิวหนัง
- **ที่ดวงตา**
เป็นสาเหตุให้เกิดการระคายเคืองอย่างร้ายแรงที่ตา
- **การทำให้แพ้**
- **ผลกระทบ CMR (การทำให้เกิดมะเร็งการผ่าเหล่าและพิษต่อการสืบพันธุ์)**
- **การผ่าเหล่าในเซลล์สืบพันธุ์**
- **การกระตุ้นให้เกิดมะเร็ง**
อาจเป็นเหตุให้เกิดมะเร็ง
- **พิษต่อระบบสืบพันธุ์**
- **ความเป็นพิษต่ออวัยวะเป้าหมายเฉพาะ – การสัมผัสในครรภ์**
อาจเป็นสาเหตุให้เกิดการระคายเคืองต่อระบบหายใจ
- **ความเป็นพิษต่ออวัยวะเป้าหมายเฉพาะ – การสัมผัสซ้ำหลาย**
- **อันตรายต่อระบบหายใจ**

12 ข้อมูลด้านนิเวศวิทยา

- 12.1 ความเป็นพิษ
- **ความเป็นพิษที่เกี่ยวกับน้ำ** ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.2 การคงอยู่และการย่อยสลาย ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.3 การสะสมทางชีวภาพที่อาจเกิดขึ้น ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- 12.4 การเปลี่ยนแปลงในดิน ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้
- **ข้อมูลรายละเอียดเสริมเกี่ยวกับนิเวศวิทยา**
- **หมายเหตุทั่วไป**
เป็นอันตรายต่อน้ำชั้น 3 (กฎข้อบังคับของเยอรมัน)(การประเมินค่าตามรายการ):เป็นอันตรายสูงที่สุดกับน้ำ
อย่าปล่อยให้ผลิตภัณฑ์ไปถึงน้ำผิวดินเส้นทางน้ำหรือระบบระบายน้ำเสียแม้ว่าจะเป็นปริมาณเล็กน้อยเท่านั้น
เป็นอันตรายต่อน้ำดื่มแม้จะร่วงลงในพื้นที่เป็นปริมาณที่น้อยมากก็ตาม
- 12.5 ผลของ PBT และการประเมิน vPvB
- **PBT:** ไม่สามารถใช้ได้
- **vPvB:** ไม่สามารถใช้ได้
- 12.6 ผลข้างเคียงอื่นๆ ไม่มีข้อมูลที่เกี่ยวข้องนอกเหนือจากนี้

TH

(ต่อหน้า 7)

แผนข้อมูลความปลอดภัย

มาตรฐาน GHS

วันที่พิมพ์ 2021.09.08

การปรับปรุงใหม่ : 2021.09.08

ชื่อทางการค้า FORMVAR SOLUTION 1.00%

(ต่อหน้า 6)

13 ข้อพิจารณาในการกำจัด

- 13.1 วิธีการกำจัดของเสีย
- คำแนะนำ ต้องไม่ทิ้งไปพร้อมกับขยะจากบ้านเรือนอย่าปล่อยให้ผลิตภัณฑ์เข้าถึงระบบระบายน้ำเสีย
- ภาชนะบรรจุที่ยังไม่ได้ล้างทำความสะอาด
- คำแนะนำ การกำจัดจะต้องทำตามกฎระเบียบที่เป็นทางการ

14 ข้อมูลการขนส่ง

· 14.1 เลขที่ UN · ADR, IMDG, IATA	UN1184
· 14.2 ชื่อการจัดส่งสินค้าที่เหมาะสมของ UN · ADR · IMDG, IATA	1184 ETHYLENE DICHLORIDE ETHYLENE DICHLORIDE
· 14.3 ชั้นเรียนอันตรายจากการขนส่ง · ADR	
· ประเภท · ฉลากสิ่งที่เป็นอันตราย	3 ของเหลวติดไฟได้ 3+6.1
· IMDG	
· Class · Label	3 ของเหลวติดไฟได้ 3/6.1
· IATA	
· Class · Label	3 ของเหลวติดไฟได้ 3 (6.1)
· 14.4 กลุ่มของภาชนะบรรจุ · ADR, IMDG, IATA	II
· 14.5 สิ่งที่เป็นอันตรายต่อสภาพแวดล้อม	ไม่สามารถใช้ได้
· 14.6 การป้องกันพิเศษล่วงหน้าสำหรับผู้ใช้ · รหัสความอันตราย: · หมายเลข EMS · Segregation groups · Stowage Category	คำเตือน !: ของเหลวติดไฟได้ 336 3-03 Liquid halogenated hydrocarbons B

(ต่อหน้า 8)

TH

แผนข้อมูลความปลอดภัย

มาตรฐาน GHS

วันที่พิมพ์ 2021.09.08

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ชื่อทางการค้า FORMVAR SOLUTION 1.00%

(ต่อหน้า 7)

· Stowage Code	SW2 Clear of living quarters.
· 14.7 การขนส่งขนาดใหญ่ตามภาคผนวกของของ MARPOL73/78 และรหัส IBC	ไม่สามารถใช้ได้
· การขนส่ง/ข้อมูลรายละเอียดเสริม	
· ADR	
· ปริมาณที่จำกัด (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· หมวดหมู่การขนส่ง	2
· รหัสควบคุมการผ่านอุโมงค์	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· “กฎระเบียบต้นแหล่งของ UN”	UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

15 ข้อมูลด้านกฎข้อบังคับ

- 15.1 ความปลอดภัย สุขภาพและระเบียบ/กฎหมายสิ่งแวดล้อมโดยเฉพาะของสารหรือสารผสม
- บัญชีรายชื่อวัตถุอันตราย

· กรมวิชาการเกษตร	ชนิดที่ 4
· กรมประมง	ไม่มีส่วนผสมที่อยู่ในรายการ
· กรมปศุสัตว์	ไม่มีส่วนผสมที่อยู่ในรายการ
· อาหารและยา	ชนิดที่ 4
· กรมโรงงานอุตสาหกรรม	ชนิดที่ 3
· กรมธุรกิจพลังงาน	ไม่มีส่วนผสมที่อยู่ในรายการ
· ทำเนียบสารเคมีที่มีอยู่แล้วของประเทศไทย (กรมโรงงานอุตสาหกรรม)	ส่วนผสมทั้งหมดอยู่ในรายการ

- กฎหมายของประเทศ

- ข้อมูลรายละเอียดเกี่ยวกับขอบเขตการใช้งาน

ไม่อนุญาตให้คนงานเข้าไปสัมผัสกับวัตถุอันตรายข้อยกเว้นอาจทำได้เมื่อได้รับอนุญาตจากผู้มีอำนาจในบางกรณี

- 15.2 การประเมินความปลอดภัยของสารเคมี: ไม่ได้ดำเนินการตามการประเมินความปลอดภัยของสารเคมี

TH

(ต่อหน้า 9)

แผ่นข้อมูลความปลอดภัย

มาตรฐาน GHS

วันที่พิมพ์ 2021.09.08

การปรับปรุงใหม่ : 2021.09.08

ชื่อทางการค้า FORMVAR SOLUTION 1.00%

(ต่อหน้า 8)

16 ข้อมูลอื่นๆ

ข้อมูลรายละเอียดนี้ใช้ความรู้ปัจจุบันของเราเป็นหลัก อย่างไรก็ตาม ข้อมูลนี้ไม่ใช่การรับประกันจากสถาบันต่อคุณสมบัติเฉพาะของผลิตภัณฑ์และไม่สามารถยืนยันการบังคับใช้ตามกฎหมายที่เกี่ยวข้องกับสัญญา

คำย่อและชื่อย่อที่พบบ่อย

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 VOC: Volatile Organic Compounds (USA, EU)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Flam. Liq. 2: Flammable liquids – Category 2
 Acute Tox. 4: Acute toxicity – Category 4
 Skin Irrit. 2: Skin corrosion/irritation – Category 2
 Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
 Carc. 1B: Carcinogenicity – Category 1B
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

TH

Phiếu an toàn hóa chất

theo điều Luật hóa chất số: 06/2007/QH12, Điều 29

Ngày in 2021.09.08

Sửa lại: 2021.09.08

Phần 1: Nhận dạng hóa chất và thông tin về nhà cung cấp

- **Phân loại sản phẩm**
- **Tên thương mại** FORMVAR SOLUTION 1.00%
- **Mã giao dịch:** 15830, 15830-25-SP, 15830-25
- **Mã CAS:** 107-06-2
- **Số EC:** 203-458-1
- **Mã hiển thị:** 602-012-00-7
- **Mục đích sử dụng và hạn chế khi sử dụng:** Không có thêm thông tin có liên quan.
- **Hướng dẫn sử dụng** Phòng thí nghiệm hóa chất
- **Thông tin chi tiết của các nhà cung cấp các bảng dữ liệu an toàn**
- **Nhà sản xuất / Nhà phân phối:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com
- **Các thông tin chi tiết có thể tìm thấy ở:** Product safety department
- **Số điện thoại liên hệ trong trường hợp khẩn cấp**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

Phần 2: Nhận dạng đặc tính nguy hiểm của hóa chất

- **Phân loại chất và hỗn hợp**



Ngọn lửa

Chất lỏng dễ cháy - Cấp 2

H225 Hơi và chất lỏng rất dễ cháy



Nguy hại sức khỏe

Tác nhân gây ung thư – Cấp 1B

H350 Có thể gây ung thư.



Độc cấp tính – Miệng – Cấp 4

H302 Có hại nếu nuốt phải

Ăn mòn/kích ứng da – Cấp 2

H315 Gây kích ứng da.

Tổn thương nghiêm trọng/ kích ứng mắt – Cấp 2A

H319 Gây kích ứng mắt nghiêm trọng

Độc tính đến cơ quan cụ thể sau phơi nhiễm đơn – Cấp 3

H335 Có thể gây kích ứng hô hấp

Độc cấp tính – Da – Cấp 5

H313 Có thể có hại khi tiếp xúc với da.

- **Các phần tử nhân hiệu**

- **Các yếu tố trên nhãn GHS** Chất này được xếp loại và ghi nhãn theo quy định của GHS

(Xem tiếp ở trang 2)

Phiếu an toàn hóa chất
theo điều Luật hóa chất số: 06/2007/QH12, Điều 29

Ngày in 2021.09.08

Sửa lại: 2021.09.08

Tên thương mại FORMVAR SOLUTION 1.00%

(Xem tiếp ở trang 1)

· **Các hình biểu thị sự nguy hiểm**



GHS02 GHS07 GHS08

· **Từ cảnh báo** Nguy hiểm

· **Các thành phần nguy hiểm về việc ghi nhãn:**

1,2-Diclo etan

· **Các hướng dẫn về các nguy hiểm**

Hơi và chất lỏng rất dễ cháy

Có hại nếu nuốt phải

Có thể có hại khi tiếp xúc với da.

Gây kích ứng da.

Gây kích ứng mắt nghiêm trọng

Có thể gây ung thư.

Có thể gây kích ứng hô hấp

· **Các hướng dẫn an toàn**

Tránh nhiệt/tia lửa/ngọn lửa/bề mặt nóng – Không hút thuốc.

Sử dụng các thiết bị điện/thông gió/chiếu sáng chống nổ.

Nếu tiếp xúc trên da (hoặc tóc): ngay lập tức cởi bỏ tất cả quần áo nhiễm độc. Rửa bằng nước/ vòi hoa sen

NẾU DÍNH MẮT: Rửa thật cẩn thận với nước trong vài phút. Tháo kính áp tròng nếu có và nếu dễ làm.

Sau đó tiếp tục rửa

Nơi cất giữ được khóa lại

Vứt sản phẩm/vỏ hộp theo quy định của địa phương/khu vực/quốc gia/quốc tế.

· **Các dấu hiệu nguy hiểm khác:**

· **Kết quả của đánh giá PBT và vPvB Results**

· **PBT:** Không được áp dụng· **vPvB:** Không được áp dụng

Phần 3: Thông tin về thành phần các chất

· **Đơn chất**

· **Mô tả mã CAS**

107-06-2 1,2-Diclo etan

· **Mã nhận biết**

· **Số EC:** 203-458-1· **Mã hiển thị :** 602-012-00-7

· **Các chất thành phần nguy hiểm:**

63450-15-7	POLYVINYL FORMAL	≤2.5%
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· **SVHC**

107-06-2	1,2-Diclo etan
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63450-15-7	POLYVINYL FORMAL
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-VN

(Xem tiếp ở trang 3)

Phiếu an toàn hóa chất

theo điều Luật hóa chất số: 06/2007/QH12, Điều 29

Ngày in 2021.09.08

Sửa lại: 2021.09.08

Tên thương mại FORMVAR SOLUTION 1.00%

(Xem tiếp ở trang 2)

Phần 4: Biện pháp sơ cứu về y tế

· Mô tả về các biện pháp sơ cứu

· Hướng dẫn chung:

Triệu chứng nhiễm độc có thể xuất hiện sau một vài giờ, nên những quan sát ý tế cần phải được kéo dài ít nhất 48 giờ sau tai nạn.

· Sau khi hít vào:

Trong trường hợp người bệnh bất tỉnh giữ bệnh nhân ở vị trí nằm nghiêng và chuyển đi.

· Sau khi tiếp xúc với da:

Rửa ngay và thật sạch với nước và xà phòng

· Sau khi tiếp xúc với mắt:

Mở mắt và rửa dưới vòi nước trong vài phút, nếu không thấy đỡ thì phải gọi cho bác sĩ ngay

· Sau khi nuốt phải:

Gọi cho bác sĩ ngay

· Thông tin dành cho bác sĩ:

· Những triệu chứng và tác dụng cấp và chậm quan trọng nhất:

Không có thông tin liên quan nào khác

· Các chỉ dẫn về sự giúp đỡ tức thời của bác sĩ và trợ giúp đặc biệt

Không có thêm thông tin liên quan

Phần 5: Biện pháp xử lý khi có hỏa hoạn

· Các phương tiện chữa cháy

· Các giải pháp chữa cháy thích hợp

Dùng CO2, cát, bột chữa cháy. Không dùng nước

· Các biện pháp chữa cháy không thích hợp vì lý do an toàn:

Tia nước

· Những nguy cơ gây cháy từ các chất hoặc hỗn hợp

Không có thêm thông tin liên quan

· Hướng dẫn trong trường hợp chữa cháy

· Các thiết bị bảo vệ

Không cần đến những biện pháp đặc biệt

Phần 6: Biện pháp phòng ngừa, ứng phó khi có sự cố

· Trang thiết bị bảo hộ và quy trình ứng phó sự cố

Đeo thiết bị bảo vệ. Những ai không có thiết bị bảo vệ không được vào khu vực nguy hiểm

· Các cảnh báo về môi trường

Ngăn không cho tràn vào hệ thống nước thải, nước mặt hay nước ngầm

· Biện pháp, vật liệu vệ sinh sau khi xảy ra sự cố

Có thể ngấm vào vật liệu giữ chất lỏng (cát, diatomite, vữa axit, vữa thường, mùn cưa)

Loại bỏ vật liệu bị ô nhiễm theo quy định về chất thải tại mục 13

Đảm bảo thoáng khí

Không gột bằng nước hay chất tẩy rửa dạng nước

· Liên hệ đến các phần khác

Xem phần 7 để biết thông tin về xử lý an toàn

Xem phần 8 để biết thông tin và thiết bị bảo hộ cá nhân

Xem phần 13 để biết thông tin về xả thải

Phần 7: Yêu cầu về sử dụng, bảo quản

· Xử lý

· Các biện pháp bảo vệ để xử lý an toàn

Đảm bảo nơi làm việc thoáng khí

Mở và vận chuyển các bình chứa cẩn thận

Tránh hình thành aerosol

· Thông tin về các biện pháp chống cháy,

Tránh xa nguồn cháy nổ. Không hút thuốc

(Xem tiếp ở trang 4)

Phiếu an toàn hóa chất

theo điều Luật hóa chất số: 06/2007/QH12, Điều 29

Ngày in 2021.09.08

Sửa lại: 2021.09.08

Tên thương mại FORMVAR SOLUTION 1.00%

(Xem tiếp ở trang 3)

Tránh nhiệt
Tránh tích điện
Luôn có sẵn thiết bị hỗ trợ hô hấp

- **Điều kiện cho việc lưu trữ an toàn, bao gồm cả sự không tương thích**
- **Lưu trữ:**
- **Yêu cầu đối với phòng chứa và dụng cụ chứa** Đặt ở nơi thoáng mát
- **Thông tin về lưu trữ đối với một cơ sở lưu trữ thông thường** Không yêu cầu
- **Thông tin thêm về điều kiện lưu trữ**
- Đậy kín bình chứa
- Để ở nơi thoáng mát và trong điều kiện được dán kín
- Tránh nhiệt và ánh sáng mặt trời trực tiếp
- **Tác dụng của sản phẩm** Không có thêm thông tin liên quan

Phần 8: Kiểm soát phơi nhiễm/yêu cầu về thiết bị bảo vệ cá nhân

- **Thông tin thêm về thiết kế các phương tiện kỹ thuật** Không có thêm dữ liệu; xem mục 7
- **Các thông số kiểm soát**

- **Các thành phần với giá trị giới hạn cần được yêu cầu giám sát tại nơi làm việc**

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PEL (US)	Giới hạn tiếp xúc ca làm việc: 50 ppm Ceiling limit value: 100; 200* ppm *5-min peak in any 3 hrs
REL (US)	Giới hạn tiếp xúc ngắn: 8 mg/m ³ , 2 ppm Giới hạn tiếp xúc ca làm việc: 4 mg/m ³ , 1 ppm See Pocket Guide Apps. A and C
TLV (US)	Giới hạn tiếp xúc ca làm việc: 40 mg/m ³ , 10 ppm
BOELV (EU)	Giới hạn tiếp xúc ca làm việc: 8.2 mg/m ³ , 2 ppm Skin

- **Thông tin bổ sung** Danh sách có hiệu lực trong suốt quá trình thực hiện được sử dụng làm cơ sở
- **Kiểm soát các tình huống nguy hiểm**
- **Các thiết bị an toàn cá nhân**
- **Các biện pháp bảo vệ và vệ sinh tổng thể**
- Tránh xa thực phẩm, đồ uống và đồ ăn cho vật nuôi
- Loại bỏ ngay tập tức tất cả quần áo bị nhiễm bẩn
- Rửa tay trước giờ nghỉ và cuối giờ làm
- Để riêng quần áo bảo hộ
- Tránh tiếp xúc với mắt và da
- **Bảo vệ đường hô hấp:**
- Trong trường hợp tiếp xúc ít hoặc ô nhiễm ở mức độ thấp hãy sử dụng mặt nạ phòng độc. Trong trường hợp tiếp xúc nhiều và trong thời gian lâu thì phải sử dụng bình thở ôxi
- **Bảo vệ tay**



Găng tay bảo hộ

Chất liệu làm găng phải chống thấm đối với sản phẩm/chất/chế phẩm
Do không thấy các cuộc thử nghiệm nên không có khuyến cáo về chất liệu làm găng tay cho sản phẩm/
chế phẩm/hỗn hợp hóa chất
Chọn chất liệu găng theo số lần và thời gian sử dụng

(Xem tiếp ở trang 5)

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(Xem tiếp ở trang 4)

- **Chất liệu của găng tay**
Việc lựa chọn găng tay phù hợp không chỉ phụ thuộc vào chất liệu, mà còn về nhãn hiệu hơn và chất lượng và rất đa dạng về nhà sản xuất
- **Thời gian xâm nhập của găng tay vật liệu**
Việc phá vỡ chính xác qua thời gian đã được phát hiện bởi các nhà sản xuất găng tay bảo vệ và phải được giám sát
- **Bảo vệ mắt Eye**



Kính bảo hộ dán kín

Phần 9: Đặc tính lý, hóa của hóa chất

- Thông tin về tính chất vật lý và hóa học cơ bản
- Thông tin tổng quát
- Diện mạo:
- Hình thức:: Chất lỏng
- Màu sắc: Theo đặc tả của sản phẩm
- Mùi: Giống Éte
- Ngưỡng mùi: Không xác định.
- Độ pH: Không xác định.
- Thay đổi trong điều kiện
- Điểm tan / Phạm vi tan: -35.5 °C
- Điểm sôi / Phạm vi sôi: 84 °C
- Điểm cháy: 13 °C
- Tính dễ cháy (rắn, khí): Không thể áp dụng.
- Nhiệt độ cháy: 440 °C
- Nhiệt độ phân hủy: Không xác định.
- Nhiệt độ tự cháy: Không xác định.
- Nguy hiểm do cháy nổ: Sản phẩm không nổ. Nhưng có khả năng hình thành khí, hỗn hợp hơi gây nổ.
- Giới hạn nổ:
- Dưới: 6.2 Vol %
- Trên: 16 Vol %
- Áp suất hóa hơi tại 20 °C: 87 hPa
- Mật độ tại 20 °C: 1.25 g/cm³
- Mật độ tương đối: Không xác định.
- Mật độ của hơi: Không xác định.
- Tỷ lệ hóa hơi: Không xác định.
- Độ hòa tan trong / Độ hòa trộn với:
- Nước tại 20 °C: 8 g/l
- Sự phân biệt hệ số (n-octanol / nước): Không xác định.

(Xem tiếp ở trang 6)

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<ul style="list-style-type: none"> • Độ nhớt: • Động tại 20 °C • Tính 	<p>0.8 mPas Không xác định.</p>
<ul style="list-style-type: none"> • Thành phần dung môi: • VOC (EC): 	<p>0.00 %</p>
<ul style="list-style-type: none"> • Thành phần chất rắn: • Thông tin khác: 	<p>0.0 % Không có thông tin chi tiết tương ứng</p>

Phần 10: Mức ổn định và phản ứng của hóa chất

- **Khả năng phản ứng** Không có thêm thông tin liên quan
- **Tính ổn định**
- **Phân hủy nhiệt / Điều kiện cần tránh::** Không phân hủy nếu được sử dụng theo tiêu chuẩn.
- **Khả năng phản ứng nguy hiểm:** Chưa có phản ứng nguy hiểm nào được biết tới.
- **Các điều kiện cần tránh:** Không có thêm thông tin liên quan
- **Vật liệu không tương thích** Không có thêm thông tin liên quan.
- **Sản phẩm phân hủy nguy hiểm:** Chưa có sản phẩm phân hủy nào được biết đến.

Phần 11: Thông tin về độc tính

- **Thông tin về các hiệu ứng độc tính:**
- **Ngộ độc cấp tính:**

- **Phân loại liên quan tới giá trị LD/LC50**

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Miệng	LD50	670 mg/kg (rat)
Da	LD50	2,800 mg/kg (rat)

- **Hiệu ứng kích thích sơ cấp:**
- **Trên da** Kích ứng da và lớp màng nhầy niêm mạc.
- **Trên mắt:** Tác dụng kích ứng.
- **Độ nhạy cảm** Không có tác dụng mẫn cảm nào được biết tới.
- **Hiệu ứng CMR (Gây ung thư, gây biến dị, sinh sản độc tính)**
Tác nhân gây ung thư – Cấp 1B

Phần 12: Thông tin về sinh thái

- **Độc tính**
- **Thủy sản độc tính:** Không có thêm thông tin liên quan.
- **Sự kiên trì và khả năng nhạc dần:** Không có thêm thông tin liên quan.
- **Hành vi trong các hệ thống môi trường:**
- **Khả năng tích lũy sinh học** Không có thêm thông tin liên quan.
- **Độ linh động trong đất** Không có thêm thông tin liên quan.
- **Bổ sung thông tin sinh thái:**
- **Ghi chú tổng quát:**
Độc hại cho nước loại 3 (quy định của Đức) (Đánh giá theo danh sách): rất độc hại cho nước.
Không để sản phẩm tiếp xúc với nước ngầm, nguồn nước hoặc hệ thống nước thải, kể cả với số lượng nhỏ.
Độc hại với nước uống kể cả với số lượng cực kỳ nhỏ thấm vào đất. .

(Xem tiếp ở trang 7)

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(Xem tiếp ở trang 6)

- **Kết quả của đánh giá PBT và vPvB**
- **PBT PBT:** Không có khả năng ứng dụng.
- **vPvB vPvB:** Không có khả năng ứng dụng.
- **Các hiệu ứng bất lợi** Không có thêm thông tin liên quan.

Phần 13: Thông tin về thải bỏ

- **Phương pháp xử lý chất thải**
- **Khuyến nghị**
Không được xử lý cùng rác thải sinh hoạt. Không được bỏ sản phẩm vào hệ thống nước thải.
- **Bao bì bán**
- **Khuyến nghị:** Việc xử lý phải thực hiện theo các quy định của chính quyền.

Phần 14: Thông tin khi vận chuyển

- | | |
|--|---|
| <ul style="list-style-type: none"> · Mã LHQ (UN) · ADR, IMDG, IATA | UN1184 |
| <ul style="list-style-type: none"> · Tên vận chuyển theo quy ước của LHQ · ADR · IMDG, IATA | 1184 ETHYLENE DICHLORIDE
ETHYLENE DICHLORIDE |
| <ul style="list-style-type: none"> · vận chuyển các lớp học nguy hiểm · ADR | <div style="display: flex; align-items: center; gap: 10px;">   </div> |
| <ul style="list-style-type: none"> · lớp · nhãn | 3 Các chất lỏng dễ cháy.
3+6.1 |
| <ul style="list-style-type: none"> · IMDG | <div style="display: flex; align-items: center; gap: 10px;">   </div> |
| <ul style="list-style-type: none"> · Class · Label | 3 Các chất lỏng dễ cháy.
3/6.1 |
| <ul style="list-style-type: none"> · IATA | <div style="display: flex; align-items: center; gap: 10px;">   </div> |
| <ul style="list-style-type: none"> · Class · Label | 3 Các chất lỏng dễ cháy.
3 (6.1) |
| <ul style="list-style-type: none"> · Nhóm bao bì · ADR, IMDG, IATA | II |

(Xem tiếp ở trang 8)

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(Xem tiếp ở trang 7)

· Các môi trường nguy hiểm:	Không có khả năng ứng dụng.
· Các biện pháp phòng ngừa đặc biệt cho người sử dụng:	Cảnh báo: Các chất lỏng dễ cháy.
· Mã nguy hiểm:	336
· Mã EMS:	3-03
· Các nhóm phân tách	Liquid halogenated hydrocarbons
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Vận chuyển với số lượng lớn theo Phụ Lục II của MARPOL73/78 và mã IBC	Không có khả năng ứng dụng.
· Vận chuyển/ Thông tin thêm:	
· ADR	
· Số lượng giới hạn (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Danh mục vận chuyển	2
· Mã hạn chế đường hầm	D/E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Mẫu chuẩn của LHQ:	UN 1184 ETHYLENE DICHLORIDE, 3 (6.1), II

Phần 15: Thông tin về pháp luật

· An toàn, sức khỏe và các quy định, pháp luật về môi trường cho các chất và hỗn hợp

· Kho hóa chất và chất hóa học của Philippin

Tất cả các thành phần được liệt kê.

· Lập kế hoạch cho thuốc và chất độc theo mẫu chuẩn

S6

· Danh mục hóa chất sản xuất, kinh doanh có điều kiện trong lĩnh vực công nghiệp - phụ lục I

Không có các thành phần được liệt kê.

· Danh mục hóa chất hạn chế sản xuất, kinh doanh trong lĩnh vực công nghiệp - phụ lục II

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· Danh mục hóa chất nguy hiểm phải xây dựng kế hoạch phòng ngừa, ứng phó sự cố hóa chất - phụ lục IV - Ngưỡng khối lượng hóa chất tồn trữ lớn nhất tại một thời điểm (kg)

Không có các thành phần được liệt kê.

· Danh mục hóa chất phải khai báo - phụ lục V

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· Các yêu tố trên nhãn GHS Chất này được xếp loại và ghi nhãn theo quy định của GHS

(Xem tiếp ở trang 9)

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· **Các hình biểu thị sự nguy hiểm**



GHS02 GHS07 GHS08

· **Từ cảnh báo** Nguy hiểm

· **Các thành phần nguy hiểm về việc ghi nhãn:**

1,2-Diclo etan

· **Các hướng dẫn về các nguy hiểm**

Hơi và chất lỏng rất dễ cháy

Có hại nếu nuốt phải

Có thể có hại khi tiếp xúc với da.

Gây kích ứng da.

Gây kích ứng mắt nghiêm trọng

Có thể gây ung thư.

Có thể gây kích ứng hô hấp

· **Các hướng dẫn an toàn**

Tránh nhiệt/tia lửa/ngọn lửa/bề mặt nóng – Không hút thuốc.

Sử dụng các thiết bị điện/thông gió/chiếu sáng chống nổ.

Nếu tiếp xúc trên da (hoặc tóc): ngay lập tức cởi bỏ tất cả quần áo nhiễm độc. Rửa bằng nước/ vòi hoa sen

NẾU DÍNH MẮT: Rửa thật cẩn thận với nước trong vài phút. Tháo kính áp tròng nếu có và nếu dễ làm.

Sau đó tiếp tục rửa

Nơi cất giữ được khóa lại

Vứt sản phẩm/vỏ hộp theo quy định của địa phương/khu vực/quốc gia/quốc tế.

· **Quy định quốc gia**

· **Thông tin về giới hạn sử dụng**

Các công nhân không được phép tiếp xúc với vật liệu nguy hiểm này. Trong những trường hợp nhất định, các nhà sản xuất có thể đưa ra những ngoại lệ.

· **Đánh giá an toàn hóa chất:** Đánh giá an toàn hóa chất chưa được tiến hành.

Phần 16: Các thông tin cần thiết khác

Thông tin này dựa trên kiến thức hiện nay của chúng tôi. Tuy nhiên, điều này không đảm bảo cho bất cứ tính chất cụ thể nào của sản phẩm và không thiết lập mối quan hệ hợp tác có giá trị pháp lý nào.

· **Ngày tháng biên soạn phiếu:** 2021.09.08

· **Ngày tháng sửa đổi, bổ sung gần nhất:** 2021.09.08

· **Chữ viết tắt hoặc Viết tắt chữ cái đầu:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Chất lỏng dễ cháy - Cấp 2: Flammable liquids – Category 2

Độc cấp tính – Miệng – Cấp 4: Acute toxicity – Category 4

(Xem tiếp ở trang 10)

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Độc cấp tính – Da – Cấp 5: Acute toxicity – Category 5

Ăn mòn/kích ứng da – Cấp 2: Skin corrosion/irritation – Category 2

Tổn thương nghiêm trọng/ kích ứng mắt – Cấp 2A: Serious eye damage/eye irritation – Category 2A

Tác nhân gây ung thư – Cấp 1B: Carcinogenicity – Category 1B

Độc tính đến cơ quan cụ thể sau phơi nhiễm đơn – Cấp 3: Specific target organ toxicity (single exposure) – Category 3

VN