1 Identification

- **Product identifier**
- **Trade name**: FORMVAR SOLUTION 0.5%
- **Article number**: 15820, 15820-25
- **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: sgkcck@aol.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. 1B  H350  May cause 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).

(Contd. on page 2)
Trade name: FORMVAR SOLUTION 0.5%

· 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.
May cause cancer.
May cause respiratory irritation.

· Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves / eye protection / face protection.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Specific treatment (see on this label).
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Rinse mouth.
In case of fire: Use for extinction: CO2, powder or water spray.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
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
Trade name: FORMVAR SOLUTION 0.5%

HMIS-ratings (scale 0 - 4)

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FIRE</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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

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.

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.

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.
Trade name: FORMVAR SOLUTION 0.5%

- 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.
  - 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:

    | Component  | Long-term value  | Ceiling limit value |
    |------------|------------------|---------------------|
    | 107-06-2 ETHYLENE DICHLORIDE | 50 ppm | 100; 200* ppm |
    | PEL | 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 |
    | 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**

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>· Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>· General Information</td>
</tr>
<tr>
<td>· Appearance:</td>
</tr>
<tr>
<td>Form: Liquid</td>
</tr>
<tr>
<td>Color: According to product specification</td>
</tr>
<tr>
<td>Odor: Ether-like</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
<tr>
<td>· pH-value: Not determined.</td>
</tr>
<tr>
<td>· Change in condition</td>
</tr>
<tr>
<td>Melting point/Melting range: -35.5 °C (-32 °F)</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 84 °C (183 °F)</td>
</tr>
<tr>
<td>· Flash point: 13 °C (55 °F)</td>
</tr>
<tr>
<td>· Flammability (solid, gaseous): Not flammable.</td>
</tr>
<tr>
<td>· Ignition temperature: 440 °C (824 °F)</td>
</tr>
</tbody>
</table>
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
    
    | Route | LD50  |
    |-------|-------|
    | Oral  | 670 mg/kg (rat) |
    | Dermal| 2800 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)
    107-06-2 ETHYLENE DICHLORIDE 2B
  - NTP (National Toxicology Program)
    107-06-2 ETHYLENE DICHLORIDE R
  - OSHA-Ca (Occupational Safety Health Administration)
    Substance is not listed.

## 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.

## 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.

## Transport information

- UN-Number
  - DOT, ADR, IMDG, IATA: UN1184
- UN proper shipping name
  - DOT: Ethylene dichloride
  - ADR: 1184 Ethylene dichloride
  - IMDG, IATA: ETHYLENE DICHLORIDE
- **Transport hazard class(es)**
  - **DOT**
    - Class 3 Flammable liquids
    - Label 3 + 6.1
  - **ADR**
    - Class 3 Flammable liquids
    - Label 3+6.1
  - **IMDG, IATA**
    - Class 3 Flammable liquids
    - Label 3 + 6.1

- **Packing group**
  - DOT, ADR, IMDG, IATA II

- **Environmental hazards:**
  - Marine pollutant: No

- **Special precautions for user**
  - Warning: Flammable liquids
  - Danger code (Kemler): 336
  - EMS Number: F-E,S-D
  - Segregation groups Liquid halogenated hydrocarbons

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

- **Transport/Additional information:**
  - **DOT**
    - Quantity limitations On passenger aircraft/rail: 1 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
Trade name: FORMVAR SOLUTION 0.5%

- Excepted quantities (EQ) Code: E2
  Maximum net quantity per inner packaging: 30 ml
  Maximum net quantity per outer packaging: 500 ml
- UN "Model Regulation": UN1184, 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):
    Substance is not listed.
  - Section 313 (Specific toxic chemical listings):
    107-06-2 ETHYLENE DICHLORIDE
  - TSCA (Toxic Substances Control Act):
    Substance is listed.
  - Proposition 65
    - Chemicals known to cause cancer:
      107-06-2 ETHYLENE DICHLORIDE
    - Chemicals known to cause reproductive toxicity for females:
      Substance is not listed.
    - Chemicals known to cause reproductive toxicity for males:
      Substance is not listed.
    - Chemicals known to cause developmental toxicity:
      Substance is not listed.
- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    107-06-2 ETHYLENE DICHLORIDE
  - TLV (Threshold Limit Value established by ACGIH)
    107-06-2 ETHYLENE DICHLORIDE
  - 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.
Trade name: FORMVAR SOLUTION 0.5%

Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
May cause respiratory irritation.

PRECAUTIONARY STATEMENTS
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves / eye protection / face protection.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Rinse mouth.
In case of fire: Use for extinction: CO2, powder or water spray.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
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 02/05/2016 / -

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
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
Trade name: FORMVAR SOLUTION 0.5%

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
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Lig. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Carc. 1B: Carcinogenicity, Hazard Category 1B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
Safety data sheet
according to 1907/2006/EC, Article 31

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

- Product identifier
- Trade name: FORMVAR SOLUTION 0.5%
- Article number: 15820, 15820-25
- 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: sgkck@aol.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)
  - 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 Hazards identification

- Classification of the substance or mixture
  - Classification according to Directive 67/548/EEC or Directive 1999/45/EC
    - Toxic
      Carc. Cat. 2
      May cause cancer.
    - Harmful
      Harmful if swallowed.
    - Irritant
      Irritating to eyes, respiratory system and skin.
    - Highly flammable

(Contd. on page 2)
Trade name: FORMVAR SOLUTION 0.5%

- Highly flammable.
- **Information concerning particular hazards for human and environment:** Not applicable.

- **Label elements**
- **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

- **Code letter and hazard designation of product:**
  - Carc. Cat. 2
  - Toxic
  - Highly flammable

- **Risk phrases:**
  - May cause cancer.
  - Highly flammable.
  - Also harmful if swallowed.
  - Irritating to eyes, respiratory system and skin.

- **Information concerning particular hazards for human and environment:**
- **Safety phrases:**
  - Avoid exposure - obtain special instructions before use.
  - Keep container in a well-ventilated place.
  - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
  - This material and its container must be disposed of as hazardous waste.

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

### 3 Composition/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

- **SVHC**
  - 107-06-2 ETHYLENE DICHLORIDE

### 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.
40. 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 Firefighting 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.
· 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

· 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/personal protection

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

- Control parameters

<table>
<thead>
<tr>
<th>Ingredients with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>107-06-2 ETHYLENE DICHLORIDE</strong></td>
</tr>
<tr>
<td>NES Long-term value: 40 mg/m³, 10 ppm</td>
</tr>
</tbody>
</table>

- 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.
  - 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
10 Stability and reactivity

- Reactivity
- 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:

<table>
<thead>
<tr>
<th>107-06-2 ETHYLENE DICHLORIDE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
</tr>
</tbody>
</table>

- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
  - Sensitisation: No sensitising effects known.
  - CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
    Carc. Cat. 2

12 Ecological information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- 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
  UN1184

- UN proper shipping name
  - ADG
    1184 ETHYLENE DICHLORIDE
  - IMDG, IATA
    ETHYLENE DICHLORIDE
Trade name: FORMVAR SOLUTION 0.5%

- **Transport hazard class(es)**
  - **ADG**
    - **Class**: 3 Flammable liquids.
    - **Label**: 3+6.1

- **IMDG, IATA**
  - **Class**: 3 Flammable liquids.
  - **Label**: 3 + 6.1

- **Packing group**
  - **ADG, IMDG, IATA**: II

- **Environmental hazards:**
  - **Marine pollutant**: No
  - **Special precautions for user**: Warning: Flammable liquids. 336
  - **EMS Number**: F-E,S-D
  - **Segregation groups**: Liquid halogenated hydrocarbons

- **Transport in bulk according to Annex II of MARPOL73/78 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

---

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Australian Inventory of Chemical Substances**
  - Substance is listed.
Trade name: FORMVAR SOLUTION 0.5%

· Standard for the Uniform Scheduling of Medicines and Poisons

107-06-2 ETHYLENE DICHLORIDE S6

· Labelling according to EU guidelines:
  The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

· Code letter and hazard designation of product:
  Carc. Cat. 2
  Toxic
  Highly flammable

· Risk phrases:
  May cause cancer.
  Highly flammable.
  Also harmful if swallowed.
  Irritating to eyes, respiratory system and skin.

· Safety phrases:
  Avoid exposure - obtain special instructions before use.
  Keep container in a well-ventilated place.
  In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
  This material and its container must be disposed of as hazardous waste.

· 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

· 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.
1 Identification

· Product identifier
  · Trade name: FORMVAR SOLUTION 0.5%
  · Article number: 15820, 15820-25
  · 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: sgkcck@aol.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. 1B H350 May cause 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.

· Classification according to Directive 67/548/EEC or Directive 1999/45/EC

  Toxic
  Carc. Cat. 2
  May cause cancer.

(Contd. on page 2)
Harmful
Harmful if swallowed.

Irritant
Irritating to eyes, respiratory system and skin.

Highly flammable
Highly flammable.

Information concerning particular hazards for human and environment: Not applicable.

Label elements

Labelling according to EU guidelines:
The product has been classified and marked in accordance with directives on hazardous materials.

Code letter and hazard designation of product:

Carc. Cat. 2
Toxic
Highly flammable

Risk phrases:
May cause cancer.
Highly flammable.
Also harmful if swallowed.
Irritating to eyes, respiratory system and skin.

Safety phrases:
Avoid exposure - obtain special instructions before use.
Keep container in a well-ventilated place.
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
This material and its container must be disposed of as hazardous waste.

Hazard description:

WHMIS-symbols:
B2 - Flammable liquid
D1B - Toxic material causing immediate and serious toxic effects
D2A - Very toxic material causing other toxic effects

Classification system:

NFPA ratings (scale 0 - 4)

Health = 3
Fire = 3
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 3
Fire = 3
Reactivity = 0
Trade name: FORMVAR SOLUTION 0.5%

- 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

- SVHC
  - 107-06-2 ETHYLENE DICHLORIDE

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.
  - 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.
- 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

(Contd. on page 4)
7 Handling and storage

- **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:**

<table>
<thead>
<tr>
<th>Component</th>
<th>EL Short-term value</th>
<th>Long-term value</th>
<th>IARC 2B</th>
<th>EV Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 ETHYLENE DICHLORIDE</td>
<td>2 ppm</td>
<td>1 ppm</td>
<td>2B</td>
<td>40 mg/m³, 10 ppm</td>
</tr>
</tbody>
</table>

- **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

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
· Odour 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 %
  - Upper: 16 Vol %
· Vapor pressure at 20 °C:
  - 87 hPa
· Density at 20 °C:
  - 1.25 g/cm³
### 4. Relative density
Not determined.

### 5. Vapour density
Not determined.

### 6. Evaporation rate
Not determined.

### 7. Solubility in / Miscibility with
- Water at 20 °C: 8 g/l
- Partition coefficient (n-octanol/water): Not determined.

### 8. Viscosity:
- Dynamic: Not determined.
- Kinematic: Not determined.
- Organic solvents: 0.0 %
- Other information: No further relevant information available.

### 10. Stability and reactivity
- Reactivity
- 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:
    - Oral LD50: 670 mg/kg (rat)
    - Dermal LD50: 2800 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)
    - 107-06-2 ETHYLENE DICHLORIDE 2B
  - NTP (National Toxicology Program)
    - 107-06-2 ETHYLENE DICHLORIDE R
  - OSHA-Ca (Occupational Safety Health Administration)
    - Substance is not listed.
12 Ecological information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- 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

- UN-Number
- DOT, TDG, IMDG, IATA: UN1184

- UN proper shipping name
  - DOT: Ethylene dichloride
  - TDG: 1184 Ethylene dichloride
  - IMDG, IATA: ETHYLENE DICHLORIDE

- Transport hazard class(es)
  - DOT
    - Class: 3 Flammable liquids
    - Label: 3 + 6.1
  - TDG (Transport dangerous goods):
    - Class: 3 Flammable liquids

(Contd. on page 8)
### 15 Regulatory information

<table>
<thead>
<tr>
<th>Section 355 (extremely hazardous substances):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 313 (Specific toxic chemical listings):</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 ETHYLENE DICHLORIDE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TSCA (Toxic Substances Control Act):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance is listed.</td>
</tr>
</tbody>
</table>
Trade name: FORMVAR SOLUTION 0.5%

- Proposition 65
  - Chemicals known to cause cancer:
    107-06-2 ETHYLENE DICHLORIDE
  - Chemicals known to cause reproductive toxicity for females:
    Substance is not listed.
  - Chemicals known to cause reproductive toxicity for males:
    Substance is not listed.
  - Chemicals known to cause developmental toxicity:
    Substance is not listed.

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    107-06-2 ETHYLENE DICHLORIDE B2
  - TLV (Threshold Limit Value established by ACGIH)
    107-06-2 ETHYLENE DICHLORIDE A4
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    107-06-2 ETHYLENE DICHLORIDE

- Canadian substance listings:
  - Canadian Domestic Substances List (DSL)
    Substance is listed.
  - Canadian Ingredient Disclosure list (limit 0.1%)
    Substance is not listed.
  - Canadian Ingredient Disclosure list (limit 1%)
    Substance is listed.

- Product related hazard informations:
  The product has been classified and marked in accordance with directives on hazardous materials.

- Hazard symbols:
  ![Carc. Cat. 2](Carc. Cat. 2)
  ![Toxic](Toxic)
  ![Highly flammable](Highly flammable)

- Risk phrases:
  May cause cancer.
  Highly flammable.
  Also harmful if swallowed.
  Irritating to eyes, respiratory system and skin.

- Safety phrases:
  Avoid exposure - obtain special instructions before use.
  Keep container in a well-ventilated place.
  In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
  This material and its container must be disposed of as hazardous waste.

- 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.
Trade name: FORMVAR SOLUTION 0.5%

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 06/02/2015 / -

Abbreviations and acronyms:
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
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Carc. 1B: Carcinogenicity, Hazard Category 1B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- **Trade name:** FORMVAR SOLUTION 0.5%
- **Article number:** 15820, 15820-25
- **CAS Number:** 107-06-2
- **EC number:** 203-458-1
- **Index number:** 602-012-00-7

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

No further relevant information available.

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: sgkck@aol.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](image)

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

![GHS08 health hazard](image)

Carc. 1B H350 May cause cancer.

![GHS07](image)

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)
Trade name: FORMVAR SOLUTION 0.5%

- **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/sparks/open flames/hot surfaces. - No smoking.
  - P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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.
  - P321 Specific treatment (see on this label).
  - 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

- **SVHC**
  - 107-06-2 ETHYLENE DICHLORIDE

## 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.
Trade name: FORMVAR SOLUTION 0.5%

- 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.
- 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.
- 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.
Trade name: FORMVAR SOLUTION 0.5%

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>ETHYLENE DICHLORIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL</td>
</tr>
<tr>
<td>Long-term value: 21 mg/m³, 5 ppm</td>
</tr>
<tr>
<td>Carc; Sk</td>
</tr>
</tbody>
</table>

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 breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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

- Flash point: 13 °C

- Flammability (solid, gaseous): Not applicable.

- Ignition temperature: 440 °C

- Decomposition temperature: Not determined.

- Self-igniting: Not determined.

- Danger of explosion: 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/cm³
  - 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: Not determined.
  Kinematic: Not determined.

- Solvent content:
  Organic solvents: 0.0 %
  VOC (EC): 0.00 %

- 9.2 Other information
  No further relevant information available.

SECTION 10: Stability and reactivity

- 10.1 Reactivity
- 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.
Trade name: FORMVAR SOLUTION 0.5%

- **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**:
    - **LD/LC50 values relevant for classification**:
      - **107-06-2 ETHYLENE DICHLORIDE**
        - Oral LD50: 670 mg/kg (rat)
        - Dermal LD50: 2800 mg/kg (rat)
      - **Primary irritant effect**:
        - **on the skin**: Irritant to skin and mucous membranes.
        - **on the eye**: Irritating effect.
        - **Sensitisation**: No sensitising effects known.
  - **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
    - Carc. 1B

**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.
  - **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

<table>
<thead>
<tr>
<th>14.1 UN-Number</th>
<th>UN1184</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td>1184 ETHYLENE DICHLORIDE (ADR), ETHYLENE DICHLORIDE (IMDG, IATA)</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>3 Flammable liquids (ADR), 3 Flammable liquids (IMDG, IATA)</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>II</td>
</tr>
<tr>
<td>14.5 Environmental hazards:</td>
<td>No</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>Warning: Flammable liquids.</td>
</tr>
<tr>
<td>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### Transport/Additional information:

<table>
<thead>
<tr>
<th>ADR</th>
<th>1L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited quantities (LQ)</td>
<td>Code: E2</td>
</tr>
<tr>
<td>Expected quantities (EQ)</td>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging: 500 ml</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG</th>
<th>1L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited quantities (LQ)</td>
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<td></td>
</tr>
</tbody>
</table>
Trade name: FORMVAR SOLUTION 0.5%

- UN "Model Regulation": UN1184, ETHYLENE DICHLOORIDE, 3 (6.1), II

SECTION 15: Regulatory information

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

- 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
  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
  Flam. Liq. 2: Flammable liquids, Hazard Category 2
  Acute Tox. 4: Acute toxicity, Hazard Category 4
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  Carc. 1B: Carcinogenicity, Hazard Category 1B
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
1. 化学品及企业标识

- 产品识别者
  - 化学品中文(英文)名称: FORMVAR SOLUTION 0.5%
  - 商品编号: 15820, 15820-25
  - CAS 编号: 107-06-2
  - 欧盟编号: 203-458-1
  - 欧盟编号: 602-012-00-7
  - 相应纯物质或混合物的相关下位用途及禁止用途: 无相关详细资料。

- 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: sgkcck@aol.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

  - 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

  ![健康危险]
  - 致癌性 第1B类 H350 可致癌

  ![警示]
  - 急性毒性(经口) 第4类 H302 吞咽有害
  - 皮肤腐蚀/刺激 第2类 H315 引起皮肤刺激
  - 严重眼睛损伤/眼睛刺激性 第2A类 H319 引起严重的眼睛刺激

- 标签要素

  - 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。
化学品中文(英文)名称: FORMVAR SOLUTION 0.5%

3 成分/组成信息

- 纯品
- CAS 号 化学名 通用名
  107-06-2 1,2-二氯乙烷
- 鉴别编号：
  - 欧盟编号：203-458-1
  - 欧盟编号：602-012-00-7

4 急救措施

- 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。
- 吸入: 万一病人不清醒时, 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: 马上召唤医生。
- 最重要的急慢性症状及其影响 无相关详细资料。
化学品中文(英文)名称: FORMVAR SOLUTION 0.5%

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。
  - 特别危险性: 无相关详细资料。
  - 特殊灭火方法: 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)。
  - 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。
- 有关个人保护装备的资料请参阅第 8 节。
- 有关弃置的资料请参阅第 13 节。

7 操作处置与储存

- 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: 储存库和容器须要达到的要求，储存于阴凉的位置，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、干燥的位置，免受接触热力和直接受阳光照射。

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。

## 化学品安全技术说明书
### 根据 GB/T 16483-2008, GB/T 17519-2013

#### 化学品中文(英文)名称、化学品俗名或商品名：FORMVAR SOLUTION 0.5%

<table>
<thead>
<tr>
<th>控制变量</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>在工作场需要监控的限值成分</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107-06-2 1,2-二氯乙烷</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OEL (RC) PC-STEEL: 15 mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC-TWA: 7 mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEL (TW) PC-TWA: 40 mg/m³, 10 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**额外的资料：** 制作期间有效的清单将作为基础来使用。

- 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。
  - 眼睛防护：
    - 密封的护目镜
    - 防护眼镜

### 9 理化特性

<table>
<thead>
<tr>
<th>条件的更改</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>熔点：</td>
<td>-35.5 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>沸点/初沸点和沸程：</td>
<td>84 °C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>形状：</td>
<td>液体</td>
<td></td>
<td></td>
</tr>
<tr>
<td>颜色：</td>
<td>根据产品规格</td>
<td></td>
<td></td>
</tr>
<tr>
<td>气味：</td>
<td>类似醚</td>
<td></td>
<td></td>
</tr>
<tr>
<td>嗅觉阈限</td>
<td>未决定</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH值：</td>
<td>未决定</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(在 3 页继续)
化学品中文(英文)名称: FORMVAR SOLUTION 0.5%

- 烟点: 13 °C
- 可燃性 (固体、气体): 不适用的
- 点火温度: 440 °C
- 分解温度: 未决定
- 自燃温度: 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
  - 爆炸极限:
    - 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/cm³
- 相对密度: 未决定
- 蒸气密度: 未决定
- 蒸发速率: 未决定
- 溶解性
  - 水在20°C: 8 g/l
- n-辛醇/水分配系数: 未决定
- 黏性:
  - 动态: 未决定
  - 运动学的: 未决定
  - 有机溶剂: 0.0%
- 其他信息: 无相关详细资料。

### 10 稳定性和反应性

- 反应性
- 稳定性
- 热分解/要避免的情况: 如果遵照规格使用则不会分解
- 有害反应可能性: 未有已知的危险反应
- 应避免的条件: 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: 未知有危险的分解产物

### 11 毒理学信息

- 对毒性学影响的信息
- 急毒性:
  - 与分类相关的LD/LC50值:
    - 107-06-2, 1,2-二氯乙烷
      - 口腔LD50: 670 mg/kg (rat)
      - 皮肤LD50: 2800 mg/kg (rat)
- 主要的刺激性影响:
  - 皮肤: 刺激皮肤和黏膜
  - 在眼睛上面: 刺激的影响
化学品安全技术说明书
根据 GB/T 16483-2008, GB/T 17519-2013

化学品中文(英文)名称: FORMVAR SOLUTION 0.5%

12 生态学信息
- 生态毒性
  - 水生毒性: 无相关详细资料。
  - 持久性和降解性: 无相关详细资料。
  - 潜在的生物累积性: 无相关详细资料。
- 土壤内移动性: 无相关详细资料。
- 额外的生态学资料:
  - 总括注解:
    - 水危害级别 3 (德国规例) (评估): 对水是极其危害的
    - 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: 不适用的
  - vPvB: 不适用的
- 其他副作用: 无相关详细资料。

13 废弃处置
- 废弃处置方法
  - 建议: 不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: 必须根据官方的规章来丢弃。

14 运输信息
- 联合国危险货物编号(UN号)
  - ADR, IMDG, IATA: UN1184
- UN适当装船名
  - ADR, IMDG, IATA: 1184 ETHYLENE DICHLORIDE
- 运输危险等级
  - ADR
    - 级别: 3 可燃液体
## 化学品安全技术说明书

根据 GB/T 16483-2008, GB/T 17519-2013

打印日期 2015.06.02

在 2015.06.02 审核

### 化学品中文(英文)名称, 化学品俗名或商品名：FORMVAR SOLUTION 0.5%

### 标签 
3+6.1

- **IMDG, IATA**

  ![label](image)

  - Class: 3 可燃液体
  - Label: 3 + 6.1

### 包装组别
ADR, IMDG, IATA: II

### 危害环境

- **海运污染物质**: 不是

### 用户特别预防措施

- **警告**: 警告: 可燃液体
- **危险编码**: 336
- **EMS 号码**: F-E,S-D
- **Segregation groups**: Liquid halogenated hydrocarbons

### MARPOL73/78(针对船舶引起的海洋污染预防协议)

附件书2及根据IBC Code(国际装船货物编码)的大量运送不适用的

### 运输/额外的资料

- **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

- **UN "标准规定"**: UN1184, ETHYLENE DICHLORIDE, 3 (6.1), II

### 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**
- **新化学物质环境管理办法**

### 中国现有化学物质名录

有列出物质:

### GHS标签元素 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。

- **危险象形图表**

  ![icons](image)

- **名称** 危险

  (在 8 页继续)
# FORMVAR SOLUTION 0.5%

## Labels, Names, and Other Information

### Labels on the Substance

**Hazard Word:**
- Highly flammable liquid and vapour
- Inhale harmful
- Skin contact may be harmful
- May cause skin irritation
- May cause severe eye irritation
- Carcinogenic

### Precautions

- Keep away from heat, flames, and hot surfaces. - Do not smoke.

### Response to Accidents

- If skin or hair comes into contact: Remove all contaminated clothing immediately. Wash skin with water.
- If in the eyes: Wash eyes with running water for several minutes. If wearing contact lenses and easily removable, remove contact lenses before washing.

### Storage

- Must be locked.

### Disposal

- Follow local/region/country/international regulations for handling contents.

### Use Limitations

- Employees must not come into contact with this hazardous material. In certain situations, authorities may make exceptions.

### Chemical Substance Safety Evaluation

- Not evaluated.

### Other Information

- This information is based on our current knowledge. However, this does not constitute a guarantee of any specific product characteristics and does not establish a legal relationship.

### Abbreviations

- 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
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- Flammable liquids: Hazard Category 2
- Acute toxicity (diazomethane): Hazard Category 4
- Acute toxicity (skin irritation): Hazard Category 5
- Skin corrosion/irritation: Hazard Category 2
- Serious eye damage/eye irritation: Hazard Category 2A
- Carcinogenicity: Hazard Category 1B
**RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming**

- **1.1 Productidentificatie**
  - **Handelsnaam:** FORMVAR SOLUTION 0.5%
  - **Artikelnummer:** 15820, 15820-25
  - **CAS-nummer:** 107-06-2
  - **EC-nummer:** 203-458-1
  - **Catalogusnummer:** 602-012-00-7

- **1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik**
  - Geen verdere relevante informatie verkrijgbaar.

- **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: sgkcc@ao.com
    www.emsdiasum.com

  - **Inlichtingengevende sector:** Product safety department

- **1.4 Telefoonnummer voor noodgevallen:**
  - ChemTrec 1-800-424-9300 Contract CCN7661
  - 1-703-527-3887

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**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)
Handelsnaam: FORMVAR SOLUTION 0.5%

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 geëtiketted volgens de CLP-verordening.
- Gevaarpictogrammen

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.
  H335 Kan irritatie van de luchtwegen veroorzaken.
- Voorzorgsmaatregelen
  P210 Verwijderd houden van warmte/vonken/open vuur/hete oppervlakken. - Niet roken.
  P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.
  P321 Specifieke behandeling vereist (zie op dit etiket).
  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

SVHC
107-06-2 1,2-dichloorethaan

(Vervolg op blz. 3)
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:
  Onmiddelijk 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 brandweerlieden
- Speciale beschermende kleding:
  Geen bijzondere maatregelen nodig.

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

6.1 Persoonlijke voorzorgsmaatregelen, beschermd e uitrusting en noodprocedures
  Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.

6.2 Milieuvor zorgsmaatregelen:
  Niet in de riolerings/oppervlaktewater/het grondwater laten terechtkomen.

6.3 Insluitting s- en reinigingsmethoden en -materiaal:
  Met vloei stofbindend 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.
  Aërosolvorming vermijden.

7.2 Informatie m.b.t. brand- en ontplof fingsgevaar:
  Onstekingsbronnen op afstand houden - niet roken.
  Beschermen tegen hitte.
  Maatregelen treffen tegen ontlading van statische elektriciteit.
Handelsnaam: FORMVAR SOLUTION 0.5%

(Vervolg van blz. 3)

40.0

- Ademhalingstoestellen gereedhouden.

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

- Opslag:
  - En opzichte van opslagruimte en tanks: Op een koele plaats bewaren.
  - Informatie m.b.t. gezamenlijke opslag: Niet noodzakelijk.

7.3 Specifiek eindgebruik

Geen verdere relevante informatie verkrijgbaar.

(Vervolg op blz. 5)

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 werkrui mte 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 ademhalingsstoestel 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 chemicaliën mengsel 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.

- Doorstoringstijd van het handschoenmateriaal
  - De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.
### RUBRIEK 9: Fysische en chemische eigenschappen

- **9.1 Informatie over fysische en chemische basiseigenschappen**
- **Algemene gegevens**
  - **Voorkomen:**
    - **Vorm:** Vloeistof
    - **Kleur:** Volgens de productbeschrijving
    - **Reuk:** Etherachtig
    - **Geurdrempelwaarde:** Niet bepaald.
  - **pH-waarde:** Niet bepaald.
- **Toestandsverandering**
  - **Smeltpunt/smeltbereik:** -35,5 °C
  - **Kookpunt/kookpuntbereik:** 84 °C
- **Vlampunt:** 13 °C
- **Ontvlambaarheid (vast, gasvormig):** Niet bruikbaar.
- **Ontstekingstemperatuur:** 440 °C
- **Ontbindingstemperatuur:** Niet bepaald.
- **Zelfonsteking:** Niet bepaald.
- **Ontploffingsgevaar:** 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/cm³
- **Relatieve dichtheid:** Niet bepaald.
- **Dampdichtheid:** Niet bepaald.
- **Verdampingssnelheid:** Niet bepaald.
- **Oplosbaarheid in/mengbaarheid met Water bij 20 °C:** 8 g/l
- **Verdelingscoëfficiënt (n-octanol/water):** Niet bepaald.
- **Viscositeit**
  - **Dynamisch:** Niet bepaald.
  - **Kinematisch:** Niet bepaald.
- **Oplosmiddelgehalte:**
  - **Organisch oplosmiddel:** 0,0 %
  - **VOC (EG):** 0,00 %
Handelsnaam: FORMVAR SOLUTION 0.5%

- 9.2 Overige informatie

Geen verdere relevante informatie verkrijgbaar.

**RUBRIEK 10: Stabiliteit en reactiviteit**

- 10.1 Reactiviteit
- 10.2 Chemische stabiliteit
- 10.3 Mogelijke gevaarlijke reacties
- 10.4 Te vermijden omstandigheden
- 10.5 Chemisch op elkaar inwerkende materialen
- 10.6 Gevaarlijke ontledingsproducten

**RUBRIEK 11: Toxicologische informatie**

- 11.1 Informatie over toxicologische effecten
- Acute toxiciteit:
- Indelingsrelevantie LD/LC50-waarden:

<table>
<thead>
<tr>
<th>107-06-2 1,2-dichloorethaan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oraal LD50 670 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermaal LD50 2800 mg/kg (rat)</td>
</tr>
</tbody>
</table>

- Primaire aandoening:
- op de huid: Prikkelend, prikkelende de huid en de slijmvliezen.
- aan het oog: Prikkeling
- Overgevoeligheid: Geen effect van overgevoeligheid bekend.
- CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)
  Carc. 1B

**RUBRIEK 12: Ecologische informatie**

- 12.1 Toxiciteit
- Aquatische toxiciteit: Geen verdere relevante informatie verkrijgbaar.
- 12.2 Persistentie en afbreekbaarheid
- 12.3 Bioaccumulatie
- 12.4 Mobiliteit in de bodem
- Verdere ecologische informatie:
  - Algemene informatie:
    Waterbezwaarlijkheid (NL) 3: Kan kanker veroorzaken.
    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

(Vervolg op blz. 7)
RUBRIEK 13: Instructies voor verwijdering

- 13.1 Afvalverwerkingsmethoden
  - Aanbeveling: Mag niet samengeschroxen 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 Transportgevaarklasse(n)
  - ADR
    - klasse: 3 Brandbare vloeistoffen
    - Etiket: 3+6.1
  - IMDG, IATA
    - Class: 3 Brandbare vloeistoffen
    - Label: 3 + 6.1

- 14.4 Verpakkingsgroep:
  - ADR, IMDG, IATA: II

- 14.5 Milieugevaar:
  - Marine pollutant: Neen

- 14.6 Bijzondere voorzorgen voor de gebruiker
  - Waarschuwing: Brandbare vloeistoffen
  - Kemler-getal: 336
  - EMS-nummer: F-E,S-D
  - Segregation groups: Liquid halogenated hydrocarbons

- 14.7 Vervoer in bulk overeenkomstig bijlage II bij MARPOL 73/78 en de IBC-code
  - Waarschuwing: Brandbare vloeistoffen
  - Grootste netto hoeveelheid per binnenverpakking: 30 ml
  - Grootste netto hoeveelheid per buitenverpakking: 500 ml
### Handelsnaam: FORMVAR SOLUTION 0.5%

<table>
<thead>
<tr>
<th>Vervoerscategorie</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunnelbeperkingscode</td>
<td>D/E</td>
</tr>
<tr>
<td>IMDG</td>
<td></td>
</tr>
<tr>
<td>Limited quantities (LQ)</td>
<td>1L</td>
</tr>
<tr>
<td>Excepted quantities (EQ)</td>
<td>Code: E2</td>
</tr>
<tr>
<td>Maximum net quantity per inner packaging:</td>
<td>30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging:</td>
<td>500 ml</td>
</tr>
<tr>
<td>VN &quot;Model Regulation&quot;:</td>
<td>UN1184, ETHYLEENDICHLORIDE, 3 (6.1), II</td>
</tr>
</tbody>
</table>

### RUBRIEK 15: Regelgeving

#### 15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

<table>
<thead>
<tr>
<th>SZW-lijst van kankerverwekkende stoffen</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 1,2-dichloorethaan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SZW-lijst van mutagene stoffen</th>
</tr>
</thead>
<tbody>
<tr>
<td>De stof is niet aanwezig.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid</th>
</tr>
</thead>
<tbody>
<tr>
<td>De stof is niet aanwezig.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>De stof is niet aanwezig.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>De stof is niet aanwezig.</td>
</tr>
</tbody>
</table>

#### 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) 3: Saneringsinspanning A

#### Zeer zorgwekkende stoffen (SVHC) volgens REACH, artikel 57

| 107-06-2 1,2-dichloorethaan |

### RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van producteigenschappen 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
- 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
<table>
<thead>
<tr>
<th>Handelsnaam: FORMVAR SOLUTION 0.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2: Flammable liquids, Hazard Category 2</td>
</tr>
<tr>
<td>Acute Tox. 4: Acute toxicity, Hazard Category 4</td>
</tr>
<tr>
<td>Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2</td>
</tr>
<tr>
<td>Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2</td>
</tr>
<tr>
<td>Carc. 1B: Carcinogenicity, Hazard Category 1B</td>
</tr>
<tr>
<td>STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3</td>
</tr>
</tbody>
</table>
KOHTA 1: Aineen tai seoksen ja yhtiön tai yrityksen tunnistetiedot

· 1.1 Tuotetunniste
   · Kauppanimike: FORMVAR SOLUTION 0.5%
   · Artikkelinumero: 15820, 15820-25
   · CAS-numero: 107-06-2
   · EY-numero: 203-458-1
   · Indeksinumero: 602-012-00-7
   · 1.2 Aineen tai seoksen merkitykselliset tunnistetut käytöt ja käytöt, joita ei suositella
      Merkittäviä lisätietoja ei ole saatavilla.
   · Aineen / valmisteen käyttö Laboratoriokemikaalit
   · 1.3 Käyttöturvallisuustiedoteen toimittajan tiedot
      · Valmistaja/toimittaja:
        Electron Microscopy Sciences
        1560 Industry Road
        USA-Hatfield, PA 19440
        Tel: 215-412-8400  Fax: 215-412-8450
        email: sgkcck@aol.com
        www.emsdiasum.com
      · Tietoja antaa: Product safety department
      · 1.4 Hätäpuhelinnumero:
        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 nieltyä.
   Skin Irrit. 2  H315  Ärsyttää ihoa.
   Eye Irrit. 2  H319  Ärsyttyä voimakkaasti silmää.
   STOT SE 3  H335  Saattaa aiheuttaa hengitysteiden ärsytystä.

· 2.2 Merkinnät
Kauppanimike: FORMVAR SOLUTION 0.5%

- Varoitusmerkit

- Huomiosana Vaara

- Vaaran määrävät komponentit etiketeissä:
  1,2-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/kipinöiltä/avotulelta/kuumilta pinnoilta. - Tupakointi kielletty.
  P321 Erityishoitoa tarvitaan (katso paikallisen merkinnönä).
  P405 Varastoi lukitussa tilassa.
  P501 Säilytä säiliöt(1) noudattaen paikallisia/alueellisia/kansallisia/kansainvälistä 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 1,2-Etyleenidikloridi
  - Tunnistusnumero(t)
    - EY-numero: 203-458-1
    - Indeksinumero: 602-012-00-7

KOHTA 4: Ensiaputoimenpiteet

- 4.1 Ensiaputoimenpiteiden kuvaus
  -yleisohjeet:
    Myrkyysoireet voivat ilmamaan vasta useiden tuntien kuluttua. Tästä syystä henkilöt on pidettävä lääkärin tarkastelun alaisena ainakin 48 tuntia onnettomuuden jälkeen.
  - Hengityttävä: Täytoton pidettävä ja kuljetettava kyljellään.
  - Ihokosketuksessa: Pesäävät heti vedellä ja saippualla ja huuhdotettava hyvin.

(jatkuu sivulla 3)
Käyttöturvallisuustiedote
1907/2006/EY, 31 artikla mukainen

Painatuspäivämäärä 02.06.2015
Tarkistus: 02.06.2015

Kauppanimike: FORMVAR SOLUTION 0.5%

- Aineen päästää silmiin:
  Silmiä huuhdotaan luomet auki juoksevan veden alla useita minuutteja. Oireiden kestäessä käännytään lääkärin puoleen.
- Nieltä: Saatettava lääkärin hoitoon.

4.2 Tärkeimmät oireet ja vaikutukset, sekä välittömät että viivästyneet

Merkittäviä lisätietoja ei ole saatavilla.

4.3 Mahdollisesti tarvittavaa välittömää lääketieteellistä apua ja erityishoidoa 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
  - Erikoisen suojavarustus: Erikoistoimenpiteitä ei tarvita.

KOHTA 6: Toimenpiteet onnettomuuspäästöissä

- 6.1 Varotoimenpiteet, henkilönsuojaimet ja menettely hätätilanteessa
  - Käytettävä suojavarustusta. Suojautumattomat henkilöt pidettävä loitolla.

- 6.2 Ympäristön kohdistuvat vaaro
  - Estettävä pääsy viemäreihin/pintavesiin/pohjaveteen.

- 6.3 Suojarakenteita ja puhdistusta koskevat menettelyt ja -välineet:
  - Imettävä nestettä sitovalla aineella (hiekka, piima, hapon sidosaine, yleisidosaine, sahajauho).
  - Huolehdittava riittävästä tuuletuksesta.

- 6.4 Viittaukset muihin kohtiin
  - Turvallista käsittelyä koskevia ohjeita kappaleessa 7.
  - Henkilökohtaista suojavarustusta koskevia ohjeita kappaleessa 8.

KOHTA 7: Käsittely ja varastointi

- 7.1 Turvallisen käsittelyn edellyttämät toimenpiteet
  - Huolehdittava hyvästä tuuletuksesta/imusta työpaikalla. Säiliöt avattava ja käsitteltyä varovasti.

- 7.2 Turvallisen varastoinnin edellyttämät olosuhteet, mukaan luettuna yhteensopimattomuudet
  - Varastointi:
    - Varastotiloille ja säiliöille asetettavat vaatimukset: Säilytetääviä viileässä paikassa.
KOHTA 8: Altistumisen ehkäisemen ja henkilönsuojaimet

- Lisäohjeita teknisten laitteiden varastukseen: Ei muita tietoja, ks. kohta 7.

- Aineosat työpaikkakohdaisen valvottavin raja-arvoine:

<table>
<thead>
<tr>
<th>Aineosan nimi</th>
<th>Lyhytaikaisarvo</th>
<th>Pitkäaikaisarvo</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 1,2-Etenedikloridi</td>
<td>20 mg/m³, 5 ppm</td>
<td>4 mg/m³, 1 ppm</td>
</tr>
</tbody>
</table>

- Lisäohjeet: Tiedot perustuvat valmistushetkellä voimassaoleviin luetteloihin.

- 8.2 Altistumisen ehkäisemen

- Henkilökohtainen suojavarustus:

- Yleiset suoja- ja hygieniaitoimenpiteet:
  -Pidettävä loitolla elintarvikkeista, juomista ja rehuista.
  -Likaantuneet, aineen saastuttamat vaatekappaleet on riisuttava välittömästi.
  -Kädet on pestyä ennen taukoja ja työn päättämistä.
  -Suojavaatetus on säilyttettävä erikseen.
  -Välittävä ihokosketusta ja kosketusta silmiin.

- Hengityssuoja:
  - Lyhytaikaisessa tai vähäisessä altistuksessa hengityssuojasiuodon; intensiivisessä tai pitempiaikaisessa rasituksessa ulkoilmasta riippumaton hengityssuojain.

- Käsisuoja:

Suojakäsineet

Käsinemateriaalin tulee olla tuotetta/ainetta/valmistetta kestävää ja läpäsemättömiä. Puuttuvien testien vuoksi suosittua soveltuvaan suojakäsinemateriaalia tuotteelle/ valmidelle/ kemikaalisekoitteelle ei voida antaa. Suojakäsinemateriaalin valinnassa on otettava huomioon läpäysyajat, läpäisevyysperinteen ja kuluminen.

Käsinemateriaali

Soveltevan käsinemateriaalin valikoima ei riipu yksinomaan materiaalista vaan myös muista laatuominaisuuksista ja vaihtelee eri valmistajilla.

Käsinemateriaalin läpäisyys

Tarkka läpäisyyskaavio on selvitettävä suojakäsinemateriaalin valmistajalta ja sitä on noudatettava.

Siilmaa

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
  Sulamispiste/sulamisalue: -35,5 °C
  Kiehumispiste/kiehumisalue: 84 °C
- Leimahduspiste: 13 °C
- Syttyvyys (kiinteä, kaasumainen): Ei voida käyttää.
- Syttymislämpötila: 440 °C
- Hajaantumislämpötila: Ei määrätty.
- Itsesytyvyys: Ei määrätty.
- Räjähdyshyöty: Tuote ei ole räjähdyshyötyllinen, kuitenkin räjähdyshyötyillisten höyry-/ilmaseosten muodostuminen mahdollista.
- Räjähdyysrajoit
  Alenpä: 6,2 Vol %
  Ylenpä: 16 Vol %
- Höyrypaine 20 °C lämpötilassa: 87 hPa
- Tiheys 20 °C lämpötilassa: 1,25 g/cm³
- Suhteellinen tiheys: Ei määrätty.
- Höyryn tiheys: Ei määrätty.
- Höyrystymiinopeus: Ei määrätty.
- Liukenevuus/sekootuvuus
  veteen 20 °C lämpötilassa: 8 g/l
- Jakaantumiskerroin (-oktanoli/vesi): Ei määrätty.
- Viskositeetti:
  Dynaaminen: Ei määrätty.
  Kinemaattinen: Ei määrätty.
- Liuoteaineepitoisuus:
  Orgaaniset liuoteaineet: 0,0 %
  VOC (EY) 0,00 %
- 9.2 Muut tiedot
  Merkittäviä lisätietoja ei ole saatavilla.

KOHTA 10: Stabiilisuus ja reaktiivisuus

- 10.1 Reaktiivisuus
- 10.2 Kemiallinen stabiilisuus
- Terminen hajoavaus / vällettävät olosuhteet: Ei hajaantumista määräyystunnusväliä väliöissä käytössä.
- 10.3 Vaarallisten reaktioiden mahdollisuus Ei tiedossa vaarallisia reaktioita.
KOHTA 11: Myrkyllisyyteen liittyvät tiedot

11.1 Tiedot myrkyllisistä vaikutuksista
- Akuutti myrkyllisyys:
  - Luokittelurelevantti LD/LC50-arvot:
    - 107-06-2 1,2-Etyleenidikloridi
      - Oraali LD50 670 mg/kg (rat)
      - Dermaali LD50 2800 mg/kg (rat)

11.2 Ensisijainen ärsyttävä vaikutus:
- iholta: Ärsyttävä vaikutus ihoon ja limakalvoihin.
- silmiltä: Ärsyttävä vaikutus.
- Herkistumisesta: Tiedossa ei ole stabiloivaa vaikutusta.
- CMR-vaikutukset eli syöpää aiheuttavat, perimää vaurioittavat ja lisääntymiselle vaaralliset vaikutukset
  - Carc. 1B

KOHTA 12: Tiedot vaarallisuudesta ympäristölle

12.1 Myrkyllisyys
- Vesimyrkyllisyys: Merkittäviä lisättietoja ei ole saatavilla.
- Pysyvyys ja hajoavuus: Merkittäviä lisättietoja ei ole saatavilla.
- Biokertyvyys: Merkittäviä lisättietoja ei ole saatavilla.
- Liikkuvuus maaperässä: Merkittäviä lisättietoja ei ole saatavilla.

Ekologisia lisättietoja:
- Yleishohjeita:
  - Vesistövaarallisuusluokka 3 (listaluokitus): voimakasta vesistöä vaarantava
  - Estetään pääsy pohjaveen, vesistöihin, viemäristöön; myöskin pieninä määринä. 
  - Juomavesi vaaraantuu jo pieninten määrien päästessä maaperään.
- PBT- ja vPvB-arvioinnin tulokset
  - PBT: Ei voida käyttää.
  - vPvB: Ei voida käyttää.

12.5 Muut haitalliset vaikutukset Merkittäviä lisättietoja 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: Hävitettävän virallisten määräysten mukaisesti.

KOHTA 14: Kuljetustiedot

14.1 UN-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, IATA**
  - Class: 3 Palavat nesteet
  - Label: 3 + 6.1

### 14.4 Pakkausryhmä
- ADR, IMDG, IATA: II

### 14.5 Ympäristövaarat:
- Marine pollutant: Ei

### 14.6 Erityiset varotoimet käyttäjälle
- Kemler-luku: 336
- EMS-numero: F-E,S-D
- Segregation groups: Liquid halogenated hydrocarbons

### 14.7 Kuljetus irtolastina Marpol 73/78-sopimuksen II liitteen ja IBC-säännöstön mukaisesti

<table>
<thead>
<tr>
<th>Kuljetuslisätietoja:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADR</strong></td>
</tr>
<tr>
<td>Rajoitettut määrät (LQ): 1L</td>
</tr>
<tr>
<td>Poikkeusmäärät (EQ): Koodi: E2</td>
</tr>
<tr>
<td>Enimmäisnettomäärä sisäpakkausta kohti: 30 ml</td>
</tr>
<tr>
<td>Enimmäisnettomäärä ulkopakkausta kohti: 500 ml</td>
</tr>
<tr>
<td><strong>IMDG</strong></td>
</tr>
<tr>
<td>Limited quantities (LQ): 1L</td>
</tr>
<tr>
<td>Excepted quantities (EQ): Code: E2</td>
</tr>
<tr>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
<tr>
<td><strong>UN &quot;Model Regulation&quot;:</strong></td>
</tr>
<tr>
<td>UN1184, ETYLEENIDIKLORIDI, 3 (6.1), II</td>
</tr>
</tbody>
</table>
KOHTA 15: Lainsäädäntöä koskevat tiedot

- 15.1 Nimenomaisesti ainetta tai seosta koskevat turvallisuus-, terveys- ja ympäristö säädökset tai -lainsäädäntö

- Kansalliset määräykset:

- Työskenteleyä rajoittavat huomautukset:
  Työntekijöitä ei saa altistaa tälle vaaralliseen aineelle. Virastot voivat erikoistapauksessa antaa poikkeuslavan.

- Muut määräykset, rajoitukset ja kiellot

- Erityistä huoltoa aiheuttavat aineet (SVHC) mukainen REACH, 57 artiklan

  107-06-2 1,2-Etyleenidikloridi

- 15.2 Kemikaaliturvallisuusarviointi: Kemikaaliturvallisuusarviointia ei ole tehty.

KOHTA 16: Muut tiedot

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

- Lyhenteet ja lyhytnimet:
  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
  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
  Flam. Liq. 2: Flammable liquids, Hazard Category 2
  Acute Tox. 4: Acute toxicity, Hazard Category 4
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  Carc. 1B: Carcinogenicity, Hazard Category 1B
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
Fiche de données de sécurité
selon 1907/2006/CE, Article 31

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

· 1.1 Identificateur de produit
  · Nom du produit: FORMVAR SOLUTION 0.5%
  · Code du produit: 15820, 15820-25
  · No CAS:
    107-06-2
  · Numéro CE:
    203-458-1
  · Numéro index:
    602-012-00-7

· 1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées
  Pas d'autres informations importantes disponibles.

· 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: sgkcck@aol.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

SECTION 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.


Nom du produit: FORMVAR SOLUTION 0.5%

- 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 étincelles/des flammes nues/des surfaces chaudes. - Ne pas fumer.
  P303+P361+P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): enlever immédiatement les vêtements contaminés. Rincer la peau à l'eau/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.
  P321 Traitement spécifique (voir sur cette étiquette).
  P405 Garder sous clef.
  P501 Éliminer le contenu/récipient conformément à la réglementation locale/régionale/nationale/internationale.

- 2.3 Autres dangers

- Résultats des évaluations PBT et vPvB
  - PBT: Non applicable.
  - vPvB: Non applicable.

SECTION 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

- SVHC

  107-06-2 1,2-dichloroéthane

SECTION 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.
Nom du produit: FORMVAR SOLUTION 0.5%

- 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.

SECTION 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.
- 5.2 Dangers particuliers résultant de la substance ou du mélange
  Pas d'autres informations importantes disponibles.

SECTION 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. Éloigner 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).
  Evacuer 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 sections
  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.

SECTION 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.
- 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.
Nom du produit: FORMVAR SOLUTION 0.5%

- 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.

SECTION 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

<table>
<thead>
<tr>
<th>Composants présentant des valeurs-seuil à surveiller par poste de travail:</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 1,2-dichloroéthane</td>
</tr>
<tr>
<td>CIB</td>
</tr>
</tbody>
</table>

- 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.
    Éviter 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.
Nom du produit: FORMVAR SOLUTION 0.5%

- Protection des yeux:

Lunettes de protection hermétiques

### SECTION 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: -35,5 °C
  - Point d'ébullition: 84 °C
- **Point d'éclair**
  - 13 °C
- **Inflammabilité (solide, gazeux):** Non applicable.
- **Température d'inflammation:** 440 °C
- **Température de décomposition:** Non déterminé.
- **Auto-inflammation:** Non déterminé.
- **Danger d'explosion:** 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.
- **Vitesse 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: Non déterminé.
  - Cinématique: Non déterminé.

- **Teneur en solvants:**
  - Solvants organiques: 0,0 %
  - VOC (CE): 0,00 %
Nom du produit: FORMVAR SOLUTION 0.5%

SECTION 10: Stabilité et réactivité

- 10.1 Réactivité
- 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.

SECTION 11: Informations toxicologiques

- 11.1 Informations sur les effets toxicologiques
- Toxicité aiguë:

<table>
<thead>
<tr>
<th>Valeurs LD/LC50 déterminantes pour la classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 1,2-dichloroéthane</td>
</tr>
<tr>
<td>Oral  LD50  670 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermique LD50  2800 mg/kg (rat)</td>
</tr>
</tbody>
</table>
- Effet primaire d’irritation:
  - de la peau: Irrite la peau et les muqueuses.
  - des yeux: Effet d'irritation.
- Sensibilisation: Aucun effet de sensibilisation connu.
- Effets CMR (cancérogène, mutagène et toxique pour la reproduction)
  Carc. 1B

SECTION 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.
- 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.

SECTION 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.
Nom du produit: FORMVAR SOLUTION 0.5%

- Emballages non nettoyés:
- Recommandation: Evacuation conformément aux prescriptions légales.

SECTION 14: Informations relatives au transport

- **14.1 No ONU**
  - ADR, IMDG, IATA UN1184

- **14.2 Nom d'expédition des Nations unies**
  - ADR
  - IMDG, IATA
  - 1184 DICHLORURE D'ÉTHYLÈNE
  - ETHYLENE DICHLORIDE

- **14.3 Classe(s) de danger pour le transport**
  - ADR
  - Classe: 3 Liquides inflammables.
  - Étiquette: 3+6.1

- **IMDG, IATA**
  - Class: 3 Liquides inflammables.
  - Label: 3 + 6.1

- **14.4 Groupe d'emballage**
  - ADR, IMDG, IATA II

- **14.5 Dangers pour l'environnement:**
  - Marine Pollutant: Non

- **14.6 Précautions particulières à prendre par l'utilisateur**
  - Attention: Liquides inflammables.
  - Indice Kemler: 336
  - No EMS: F-E,S-D
  - Segregation groups: Liquid halogenated hydrocarbons

- **14.7 Transport en vrac conformément à l'annexe II de la convention Marpol 73/78 et au recueil IBC**
  - Non applicable.

- **Indications complémentaires de transport:**
  - **ADR**
    - Quantités limitées (LQ): 1L, Code: E2
    - Quantités exceptionnelles (EQ): Quantité maximale nette par emballage intérieur: 30 ml
      Quantité maximale nette par emballage extérieur: 500 ml
  - Catégorie de transport: 2
  - Code de restriction en tunnels: D/E
Nom du produit: FORMVAR SOLUTION 0.5%

· 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

· "Règlement type" de l'ONU: UN1184, DICHLORURE D’ÉTHYLÈNE, 3 (6.1), II

SECTION 15: Informations réglementaires

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

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

SECTION 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
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
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
Carc. 1B: Carcinogenicity, Hazard Category 1B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
ABSCHNITT 1: Bezeichnung des Stoffs bzw. des Gemischs und des Unternehmens

- 1.1 Produktidentifikator
- **Handelsname:** FORMVAR SOLUTION 0.5%
- **Artikelnummer:** 15820, 15820-25
- **CAS-Nummer:** 107-06-2
- **EG-Nummer:** 203-458-1
- **Indexnummer:** 602-012-00-7

- 1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird
  Keine weiteren relevanten Informationen verfügbar.

- 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: sgkcck@aol.com
    www.emsdiasum.com
  
  Science Services GmbH
  Unterhachinger Str. 75
  81737 München Germany
  Tel: +49(0)89 1893 668-0
  safety@scienceservices.de

  24h Giftnotruf Munchen: +49 (0)89 19240
  Toxikologische Abteilung der II. Medizinischen Klinik
  rechts der Isar, Munchen. - www.toxinfo.org

  - **Auskunftgebender Bereich:** Product safety department
  - **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**

  - ![](flamme.png) GHS02 Flamme
  
  Flam. Liq. 2 H225 Flüssigkeit und Dampf leicht entzündbar.

  - ![](gesundheitsgefahr.png) GHS08 Gesundheitsgefahr

  Carc. 1B H350 Kann Krebs erzeugen.
Handelsname: FORMVAR SOLUTION 0.5%

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
P321 Besondere Behandlung (siehe auf diesem Kennzeichnungsetikett).
P405 Unter Verschluss aufbewahren.

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

(Fortsetzung auf Seite 3)
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


- 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:


6.4 Verweis auf andere Abschnitte

Handelsname: FORMVAR SOLUTION 0.5%

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.

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: Entfällt.
· Zusätzliche Hinweise: Als Grundlage dienten 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 Arbeitende 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.
· 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.

(Fortsetzung auf Seite 5)
Handelsname: FORMVAR SOLUTION 0.5%

- Handschuhamaterial
  Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich.
- Durchdringungszeit des Handschuhamaterials
  Die genaue Durchbruchzeit ist beim Schutzhandschuhersteller 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/Schmelzbereich: -35,5 °C
  Siedepunkt/Siedebereich: 84 °C
- Flammpunkt: 13 °C
- Entzündlichkeit (fest, gasförmig): Nicht anwendbar.
- Zündtemperatur: 440 °C
- Zersetzungstemperatur: Nicht bestimmt.
- Selbstentzündlichkeit: Nicht bestimmt.
- Explosionsgefahr: Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.

- Explosionsgrenzen:
  Untere: 6,2 Vol %
  Obere: 16 Vol %
- Dampfdruck bei 20 °C: 87 hPa
- Dichte bei 20 °C: 1,25 g/cm³
- 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: Nicht bestimmt.
Handelsname: FORMVAR SOLUTION 0.5%

### ABSCHNITT 10: Stabilität und Reaktivität

- **10.1 Reaktivität**
- **10.2 Chemische Stabilität**
- **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**
    - **Einstufungsrelevante LD/LC50-Werte**:
      - 107-06-2 1,2-Dichlorethan
        - Oral LD50 670 mg/kg (rat)
        - Dermal LD50 2800 mg/kg (rat)
    - **Primäre Reizwirkung**:
      - an der Haut: Reizt die Haut und die Schleimhäute.
      - am Auge: Reizwirkung.
    - **Sensibilisierung** Keine sensibilisierende Wirkung bekannt.
    - **CMR-Wirkungen (krebserzeugende, erbgutverändernde und fortpflanzungsgefährdende Wirkung)** Carc. 1B

### 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 Bioakkumulationspotential** 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.
Handelsname: FORMVAR SOLUTION 0.5%

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

IMDG, IATA

- Class 3 Entzündbare flüssige Stoffe
- Label 3 + 6.1

14.4 Verpackungsgruppe
ADR, IMDG, IATA II

14.5 Umweltgefahren:
Marine pollutant: Nein

14.6 Besondere Vorsichtsmaßnahmen für den Verwender
Kemler-Zahl: 336
EMS-Nummer: F-E,S-D
Segregation groups Liquid halogenated hydrocarbons

14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens 73/78 und gemäß IBC-Code
Nicht anwendbar.
ABSCHNITT 15: Rechtsvorschriften

15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch

Nationale Vorschriften:

Hinweise zur Beschäftigungsbeschränkung:
Arbeitnehmer dürfen diesem Gefahrstoff nicht ausgesetzt sein. Im Einzelfall kann die Behörde Ausnahmen zulassen.

Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV): Leichtentzündlich

Technische Anleitung Luft:

<table>
<thead>
<tr>
<th>Klasse</th>
<th>Anteil in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>99,5</td>
</tr>
</tbody>
</table>

Wassergefährdungsklasse: WGK 3 (Listeneinstufung): stark wassergefährdend.

Sonstige Vorschriften, Beschränkungen und Verbotsverordnungen

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 Akronymen:
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
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
**Handelsname: FORMVAR SOLUTION 0.5%**

LD50: Lethal dose, 50 percent  
Flam. Liq. 2: Flammable liquids, Hazard Category 2  
Acute Tox. 4: Acute toxicity, Hazard Category 4  
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2  
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2  
Carc. 1B: Carcinogenicity, Hazard Category 1B  
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
### SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

- **1.1 Identificatore del prodotto**
  - Denominazione commerciale: FORMVAR SOLUTION 0.5%
  - Articolo numero: 15820, 15820-25
  - Numero CAS: 107-06-2
  - Numeri CE: 203-458-1
  - Numero indice: 602-012-00-7

- **1.2 Usi pertinenti identificati della sostanza o 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: sgkcck@aol.com
    - www.emsdiasum.com
  - Società 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.
    - Skin Irrit. 2 H315 Provoca irritazione cutanea.
    - Eye Irrit. 2 H319 Provoca grave irritazione oculare.

(continua a pagina 2)
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/scintille/fiamme libere/superfici riscaldate. - Non fumare.
  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/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.
  P321 Trattamento specifico (vedere su questa etichetta).
  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

· Numero/i di identificazione

· Numeri CE: 203-458-1

· Numero indice: 602-012-00-7

· SVHC

107-06-2 1,2-dicloroetano
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 della 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 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 un 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.

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.

(continua a pagina 4)
Denominazione commerciale: FORMVAR SOLUTION 0.5%

(SEgue da pagina 3)

7.2 Condizioni per l'immagazzinamento 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:**
    - Conservare in luogo fresco e asciutto in fusti ben chiusi.
    - Proteggere dal calore e dai raggi diretti del sole.

7.3 Uso finali specifici

Non sono disponibili altre informazioni.

SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **Ultrteriori 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:**

<table>
<thead>
<tr>
<th>Compilazione</th>
<th>TWA Valore a lungo termine:</th>
<th>107-06-2 1,2-dicloroetano</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4</td>
<td>40,5 mg/m³, 10 ppm</td>
<td></td>
</tr>
</tbody>
</table>

- **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:**

<table>
<thead>
<tr>
<th>Guanti protettivi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/la sostanza/la formulazione.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.</td>
</tr>
<tr>
<td><strong>Materiale dei guanti</strong></td>
</tr>
<tr>
<td>La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro.</td>
</tr>
<tr>
<td><strong>Tempo di permeazione del materiale dei guanti</strong></td>
</tr>
<tr>
<td>Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.</td>
</tr>
</tbody>
</table>

(continua a pagina 5)
### SEZIONE 9: Proprietà fisiche e chimiche

- **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**
  - **Indicazioni generali**
  - **Aspetto:** Forma: Liquido, Colore: In conformità con la denominazione del prodotto
  - **Odore:** Simile all’etere
  - **Soglia olfattiva:** Non definito.
  - **Valori di pH:** Non definito.

- **Cambiamento di stato**
  - Temperatura di fusione/ambito di fusione: -35,5 °C
  - Temperatura di ebollizione/ambito di ebollizione: 84 °C

- **Punto di infiammabilità:** 13 °C

- **Infiammabilità (solido, gassoso):** Non applicabile.

- **Temperatura di accensione:** 440 °C

- **Temperatura di decomposizione:** Non definito.

- **Autoaccensione:** Non definito.

- **Pericolo di esplosione:** 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 del vapore:** Non definito.
  - **Velocità di evaporazione:** Non definito.

- **Solubilità in/Miscibilità con acqua a 20 °C:** 8 g/l

- **Coefficiente di distribuzione (n-Octanol/acqua):** Non definito.

- **Viscosità:**
  - Dinamica: Non definito.
  - Cinematica: Non definito.

- **Tenore del solvente:**
  - Solventi organici: 0,0 %
  - VOC (CE): 0,00 %
SEZIONE 10: Stabilità e reattività

- 10.1 Reattività
- 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:
- Valori LD/LC50 rilevanti per la classificazione:
  107-06-2 1,2-dicloroetano
  Orale LD50 670 mg/kg (rat)
  Cutaneo LD50 2800 mg/kg (rat)
- Irritabilità primaria:
  - sulla pelle: Irrita la pelle e le mucose.
  - sugli occhi: Irritante.
- Sensibilizzazione: Non si conoscono effetti sensibilizzanti.
- Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)
  Carc. 1B

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.
- 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.
SEZIONE 14: Informazioni sul trasporto

- 14.1 Numero ONU
  - ADR, IMDG, IATA UN1184

- 14.2 Nome di spedizione dell’ONU
  - ADR 1184 DICLORURO DI ETILENE
  - IMDG, IATA ETHYLENE DICHLORIDE

- 14.3 Classi di pericolo connesso al trasporto
  - ADR
    - Classe 3 Liquidi infiammabili
    - Etichetta 3 + 6.1
  - IMDG, IATA
    - Class 3 Liquidi infiammabili
    - Label 3 + 6.1

- 14.4 Gruppo di imballaggio
  - ADR, IMDG, IATA II

- 14.5 Pericoli per l'ambiente:
  - Marine pollutant: No

- 14.6 Precauzioni speciali per gli utilizzatori
  - Numero Kemler: 336
  - Numero EMS: F-E,S-D
  - Segregation groups Liquid halogenated hydrocarbons

- 14.7 Trasporto di rinfuse secondo l'allegato II di MARPOL 73/78 ed il codice IBC
  - Trasporto/ulteriori indicazioni: 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

(Segue da pagina 6)
Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 02.06.2015
Revisione: 02.06.2015

Denominazione commerciale: FORMVAR SOLUTION 0.5%

(Segue da pagina 7)

**SEZIONE 15: Informazioni sulla regolamentazione**

- **15.1 Norme e legislazione su salute, sicurezza e ambiente specifiche per la sostanza o la miscela**
- **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
- **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
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - Flam. Liq. 2: Flammable liquids, Hazard Category 2
  - Acute Tox. 4: Acute toxicity, Hazard Category 4
  - Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  - Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  - Carc. 1B: Carcinogenicity, Hazard Category 1B
  - STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
## 1 화학제품과 회사에 관한 정보

- **제품 식별자**
  - 제품명: FORMVAR SOLUTION 0.5%
  - 상품번호: 15820, 15820-25
  - CAS-번호: 107-06-2
  - EC 의번호: 203-458-1
  - 색인 번호: 602-012-00-7

- **해당 순물질이나 혼합물과 관련 하위용도 및 사용금지용도 추가적인 정보가 존재하지 않습니다.**
- **제품의 전고 용도와 사용성의 제한:** 실험 실험 실험

- **안전데이터표(Safety Data Sheet) 내 공급업체 관련 상세 정보**
  - 제조자/수입자/유통업자 정보:
    - Electron Microscopy Sciences
    - 1560 Industry Road
    - USA-Hatfield, PA 19440
    - Tel: 215-412-8400 Fax: 215-412-8450
    - email: sgkcck@aol.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

- **추가적인 정보 획득 가능:** Product safety department
- **비상연락 전화번호:**
  - ChemTrec 1-800-424-9300 Contract CCN7661
  - 1-703-527-3887

## 2 유해성.위험성

- **순물질 또는 혼합물의 분류**
  - 화염
    - 인화성 액체 구분2 H225 고인화성 액체 및 증기
  - 건강에 위험
    - 발암성 구분1B H350 암을 일으킬 수 있음
  - 급성 독성(경구) 구분4 H302 삽키면 유해함
  - 피부 부식성/자극성 구분2 H315 피부에 자극을 일으킴
  - 심한 눈 손상/자극성 구분2 H319 눈에 심한 자극을 일으킴
  - 표적장기-1회노출 구분3 H335 호흡기계 자극을 일으킬 수 있음

(2쪽에계속)
제품명: FORMVAR SOLUTION 0.5%

<table>
<thead>
<tr>
<th>GHS 라벨 요소</th>
<th>본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS02</td>
<td>GHS07</td>
</tr>
</tbody>
</table>

신호어 위험

상표상에 명확히 위험성이 표시된 성분: ETHYLENE DICHLORIDE

예방조치

열 스파크, 화염, 고열로부터 멀리하시오.
피부 (또는 머리카락)에 묻으면 오염된 의복은 벗거나 제거하시오.
눈에 묻으면 몇 분간 물로 조심해서 씻으시오.
(라벨참조) 처치를 하십시오.

현지/지역/국가/국제 규정에 따라서 내용물/용기 노출

기타 유해성

\[PBT(건류성, 생물농축성, 독성 물질) \& vPvB(고 건류성, 고 생물농축성 물질)\] 평가 결과

\[PBT(건류성, 생물농축성, 독성 물질): \] 해당사항 없음.
\[vPvB(고 건류성, 고 생물농축성 물질): \] 해당사항 없음.

3 구성성분의 명칭 및 함유량

<table>
<thead>
<tr>
<th>화학적 특성: 화학물질</th>
<th>CAS-번호 표시: 107-06-2 ETHYLENE DICHLORIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>식별번호: EC의번호: 203-458-1</td>
<td>색인번호: 602-012-00-7</td>
</tr>
</tbody>
</table>

4 응급조치 요령

응급조치 요령 내용

일반적 정보:
중독 증상은 몇 시간이 지난 뒤에 발생할 수 있다. 따라서 사고가 발생한 후에 적어도 48 시간 동안은 의료진 감시를 받 아야 한다.

흡입했을 때: 환자의 의식을 잃었을 경우에는 안전한 자세에서 환자를 운반한다.

피부에 접촉했을 때: 즉시 물과 비누로 씻어내십시오.

눈에 들어갔을 때: 적시 의사의 도움을 구한다.
제품명: FORMVAR SOLUTION 0.5%

5 폭발,화재시 대처방법

- 소화제
  - 직접한 소화제: 이산 화탄 소, 모레, 석회 가루를 사용하고, 물을 사용하지 않는다.
  - 부직접한 소화제: 폼토, 물
  - 본 화학물질이나 외부물질에서 발생하는 특별 유해성 추가적인 정보가 존재하지 않습니다.
  - 소방관에 대한 권고사항
  - 화재 진압 시 작용할 보호구 및 예방조치: 특별한 조치가 필요없음.

6 누출 사고 시 대처방법

- 개인적 예방조치, 보호장비 및 응급처치 절차: 안 전장 비확 용하고, 무방비 의사람은 격리시킨다.
  - 항정 관련 예방조치: 하수도단, 하수선위의물/지하수로도달하지 않게한다.
  - 일체 및 정화 방법과 소재:
    - 액체가 혼합 된 물질(모래, 규조, 안성 결합 물, 일반 결합 물, 톡발)에 흡입되도록 한다.
    - 화학물질의 전달에 따라 오염된 물질을 쓰레기로 처분한다.
    - 중분한 환기가 되도록 한다.
    - 물이 나머지 세척제로 씻어 내지 마십시오.
  - 장갑 선택
    - 안전한니에 대한 정보는 제7장 을 참고하시오.
    - 개인보호장비 니에 대한 정보는 제8장 을 참고하시오.
    - 쓰레기처리에 대한 정보는 제13장 을 참고하시오.

7 취급 및 저장방법

- 안전 취급을 위한 예방조치
  - 작업장에서는 통풍이 잘되고, 실내의 온도가 적합하다.
  - 작업장의 스토르를 개방하거나 취급한다.
  - 연무질이 형성되는 것을 피한다.
  - 화재 및 폭발 사고 예방대책에 관한 정보
    - 발화 요소는 얇은 물로 타연화 한다.
    - 염료로부터 보호한다.
    - 정전기 중전으로부터 보호한다.
  - 호흡보호장비를 항상 비치한다.
  - 혼합위험성 등 안전 저장 조건
    - 보관:
      - 안전한 저장 방법: 차가운 장소에 보관한다.
      - 보관 조건에 관한 추가적인 정보: 필요에 따라 보관]

KR
8 노출방지 및 개인보호구

- 현장시설 디자인에 대한 추가정보: 더 이상 의 자료는 없음. 항목 7 을 참고하시오.
- 통제 변수

<table>
<thead>
<tr>
<th>화학물질의 노출기준, 생물학적 노출기준 등:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>107-06-2 ETHYLENE DICHLORIDE</strong></td>
</tr>
<tr>
<td>TLV (ROK) 장기간의값: 40 mg/m³, 10 ppm</td>
</tr>
<tr>
<td>PEL (USA) 장기간의값: 50 ppm</td>
</tr>
<tr>
<td>최고노출기준: 100; 200* ppm</td>
</tr>
<tr>
<td>*5-min peak in any 3 hrs</td>
</tr>
<tr>
<td>REL (USA) 단기간의값: 8 mg/m³, 2 ppm</td>
</tr>
<tr>
<td>장기간의값: 4 mg/m³, 1 ppm</td>
</tr>
<tr>
<td>See Pocket Guide Apps. A and C</td>
</tr>
<tr>
<td>TLV (USA) 장기간의값: 40 mg/m³, 10 ppm</td>
</tr>
</tbody>
</table>

- 추가 정보: 제조 할당시에 유효한 목록을 기초로 사용했다.

- 노출 통제

- 개인보호구

- 일반적보호조치 및 위생조치:
  식료품, 음료수와 사료로부터 멀리떨어뜨려 놓는다.
  더러워지는 거나 음료수 가 문은 옷은 즉시 탈의한다.
  휴식전이나 작업이 끝날때마다 손을 씻는다.
  방호복은 따로 보관한다.
  눈과 피부와의 접촉은 피한다.

- 호흡기 보호:
  단시간 또는 경미한 오염의 경우에는 호흡기와 기름을 사용한다. 심각한 경우 또는 장 기간 노출시에는 호흡보호 장비를 사용한다.

- 손 보호:

  보호용 장갑

장갑재질은제품/원료/제조품투과시키지않아야하고, 내구성이있어야한다.
테스트를 하지 않았기 때문에 재품/제조/화학 혼합물에 적합한 장갑재질에 대한 추천이 없다.
투과시간, 투과율과 저하를 고려해서 장갑 재료를 선택한다.

- 장갑의재료
  적합한장갑의선정은재질이어야나마바로모티콘크리트이며요하여하이퍼메드로제조업자에따라도다
  르게선정되어야한다.

- 장갑 재료의 투과시간 정확한관통시간은보호장갑재료에의하여인지되고, 준수되어야한다.

- 눈 보호:

  렌즈보호안경
제품명: FORMVAR SOLUTION 0.5%

9 물리화학적 특성

- 기본 물리 및 화학적 특성에 대한 정보
- 일반정보
- 유형
  - 물리적 상태: 액체
  - 색: 제품 표시에 따름
- 논체: 에테르종류의
- 후각역치: 알맞지 않다.
- pH: 알맞지 않다.
- 상태변화
  - 녹는점/거는점: -35.5 °C
  - 초기 녹는점과 거는점 범위: 84 °C
- 인화점: 13 °C
- 인화성(고체, 기체): 해당사항 없음.
- 점화온도: 440 °C
- 분해온도: 알맞지 않다.
- 자기점화: 알맞지 않다.
- 특발위험: 이 제품은 폭발위험성이 없지만, 폭발가능성이 있는 증기화합물/공기화합물의 형성가능성이 있다.
- 인화 또는 폭발 범위의 상한/하한
  - 아래로: 6.2 Vol %
  - 위로: 16 Vol %
- 증기압
  - 의경우 20 °C: 87 hPa
- 밀도
  - 의경우 20 °C: 1.25 g/cm³
  - 비중: 알맞지 않다.
  - 증기밀도: 알맞지 않다.
  - 증발 속도: 알맞지 않다.
- 용해도
  - 물의 경우 20 °C: 8 g/l
- n 옥탄올/물 분배계수: 알맞지 않다.
- 점도
  - 역학성: 알맞지 않다.
  - 동점성: 알맞지 않다.
- 용매내용물
  - 유기용매: 0.0 %
  - VOC (EU): 0.00 %
- 기타 정보: 추가적인 정보가 존재하지 않습니다.

10 안전성 및 반응성

- 반응성
- 화학적 안전성
- 화학적 안전성 및 유해 반응의 가능성/피해야 할 조건: 규정에 따라 사용할 경우 해체는 없다.
- 유해반응 가능성이 위험한 반응으로는 알려지지 않았다.
제품명: FORMVAR SOLUTION 0.5%

- 피해가 할 조건 추가적인 정보가 존재하지 않습니다.
- 화합 음적 물질: 추가적인 정보가 존재하지 않습니다.
- 유해한물질: 위험성이 있는분해물들은알려지지 않았다.

11 독성에 관한 정보

- 독성학적 영향에 대한 정보
- 급성 특성:
  - LD/LC50-수치에 따른 분류:
    107-06-2 ETHYLENE DICHLORIDE
    구강의 LD50 670 mg/kg (rat)
    피부의 LD50 2800 mg/kg (rat)

- 일차적 자극 효과:
  - 피부 부식성 또는 자극성: 피부와점막을 자극한다.
  - 심한 눈 손상 또는 자극성: 자극
    - 갑각화: 민감한 영향이 없는 것으로 알려져 있다.
  - 다음 종류의 잠재적인 효과에 대한 정보
    - CMR-효과 (암 유발, 돌연변이성 그리고 생식 독성)

12 환경에 미치는 영향

- 독성
  - 수생특성: 추가적인 정보가 존재하지 않습니다.
  - 지속성 및 분해성 추가적인 정보가 존재하지 않습니다.
  - 생물농축 잠재성 추가적인 정보가 존재하지 않습니다.
  - 토양 내 이동성 추가적인 정보가 존재하지 않습니다.
  - 추가적인 생태학 정보:
    - 일반 특성:
      - 수질오염등급 3 (목록분류): 심하게수질오염이된
      - 지하수나, 하천으로는하수도망에도달하지않게한다. 역시그수의양이라도안된다.
      - 지하수로아주미세한양이유입되었을경우엔미심수오염상태이다
    - PBT(기생, 생물농축성, 독성 물질) 및 vPvB(고 전류성, 고 생물농축성 물질) 평가 결과
      - PBT(전류성, 생물농축성, 독성 물질): 해당사항 없음.
      - vPvB(고 전류성, 고 생물농축성 물질): 해당사항 없음.
    - 기타 부작용 추가적인 정보가 존재하지 않습니다.

13 폐기시 주의사항

- 폐기물 처리 방법
  - 권고: 생활쓰레기와 함께처리되어서는안된다. 하수도망으로유입되어서는안된다.

  - 비위생적 포장:
    - 권고: 당국의의지에일관적쓰레기처리.
제품명: FORMVAR SOLUTION 0.5%

14 운송에 필요한 정보

- 유엔 번호
  - ADR, IMDG, IATA: UN1184
- UN 정해 선적명
  - ADR: 1184 ETHYLENE DICHLORIDE
- IMDG, IATA: ETHYLENE DICHLORIDE

- 교통 위험 클래스
  - ADR
  - 등급: 3 발화성용액
  - 위험물 라벨: 3+6.1

- IMDG, IATA
  - Class: 3 발화성용액
  - Label: 3 + 6.1

- 용기등급
  - ADR, IMDG, IATA: II

- 환경적 유해물질
  - 해양오염물질: 아니오

- 이용자 특별 예방조치
  - 위험 코드: 336
  - EMS-번호: F-E,S-D
  - Segregation groups: Liquid halogenated hydrocarbons

- MARPOL 73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(bulk) 운송
  - 해당사항 없음.

- 운송/추가 정보
  - ADR
    - 최소 수량 (LQ): 1L
    - 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

(8쪽부터 계속)
제품명: FORMVAR SOLUTION 0.5%

15 법적 규제현황

· 협약

한국기본협약

107-06-2 ETHYLENE DICHLORIDE KE-10121

· GHS 라벨 요소

GHS02, GHS07, GHS08

· 표지어

· 위험 문구

고인화성 액체 및 증기

눈에 심한 자극을 일으킴

암을 일으킬 수 있음

호흡기계 자극을 일으킬 수 있음

주의 문구

열, 스파크, 화염, 고열로부터 멀리하시오 – 금연

피부(또는 머리카락)에 묻으면, 오염된 모든 의복은 벗으러 개최하시오. 피부를 물로 씻으시오/사워하시오.

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

(라벨 착착) 처치를 하십시오.

잠금장치가 있는 저장장소에 저장하시오.


c. 안전

· 국내규정:

사용자들의 대한 정보:

노동자들은 이러한위원물질을 내버리지말아야한다. 개별적인경우에관한보증은예외를허가할수있다.

화학물질 안전성 평가: 화학물질 안전성 평가가 수행되지 않음

16 그 외의 참고사항

이보고는우리지식에대한오늘의상태에대하여평가하고있다. 하지만이보고서는생산특성에관한보증은

기술하지 않았으며계약적인법률관계에기반을두고있지 않다

최초 작성일자: 2015.06.02

개정 횟수 및 최종 개정일자: 1 / 2015.06.02

약어와 문단자어:

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
제품명: FORMVAR SOLUTION 0.5%

<table>
<thead>
<tr>
<th>CAS: Chemical Abstracts Service (division of the American Chemical Society)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC: Volatile Organic Compounds (USA, EU)</td>
</tr>
<tr>
<td>LC50: Lethal concentration, 50 percent</td>
</tr>
<tr>
<td>LD50: Lethal dose, 50 percent</td>
</tr>
<tr>
<td>인화성 액체 구분2: Flammable liquids, Hazard Category 2</td>
</tr>
<tr>
<td>급성 독성(경구): 구분4: Acute toxicity, Hazard Category 4</td>
</tr>
<tr>
<td>피부 부식성/자극성 구분2: Skin corrosion/irritation, Hazard Category 2</td>
</tr>
<tr>
<td>심한 눈 손상/자극성 구분2: Serious eye damage/eye irritation, Hazard Category 2</td>
</tr>
<tr>
<td>발암성 구분1B: Carcinogenicity, Hazard Category 1B</td>
</tr>
<tr>
<td>표적장기-1회노출 구분3: Specific target organ toxicity - Single exposure, Hazard Category 3</td>
</tr>
</tbody>
</table>
**SECÇÃO 1: Identificação da substância/mistura e da sociedade/empresa**

- **1.1 Identificador do produto**
  - **Nome comercial:** FORMVAR SOLUTION 0.5%
  - **Código do produto:** 15820, 15820-25
  - **Nº CAS:** 107-06-2
  - **Número CE:** 203-458-1
  - **Número de índice:** 602-012-00-7

- **1.2 Utilizações identificadas relevantes da substância ou mistura e utilizações desaconselhadas**
  - **Utilização da substância / da preparação:** Químicos de laboratório

- **1.3 Identificação do fornecedor da ficha de dados de segurança**
  - **Fabricante/fornecedor:** Electron Microscopy Sciences
  - **Endereço:** 1560 Industry Road
  - **Tel:** 215-412-8400  **Fax:** 215-412-8450
  - **E-mail:** sgkck@aol.com
  - **Website:** www.emsdiasum.com

- **1.4 Número de telefone de emergência:**
  - **ChemTrec 1-800-424-9300 Contract CCN7661**
  - **1-703-527-3887**

**SECÇÃO 2: Identificação dos perigos**

- **2.1 Classificação da substância ou mistura**
  - **Classificação em conformidade com o Regulamento (CE) n.º 1272/2008**

  - **GHS02 chama**
    - Flam. Liq. 2 **H225** Líquido e vapor facilmente inflamáveis.

  - **GHS08 perigo para a saúde**
    - Carc. 1B **H350** Pode provocar cancro.

  - **GHS07**
    - Acute Tox. 4 **H302** Nocivo por ingestão.
    - Skin Irrit. 2 **H315** Provoca irritação cutânea.
    - Eye Irrit. 2 **H319** Provoca irritação ocular grave.
    - STOT SE 3 **H335** Pode provocar irritação das vias respiratórias.

- **2.2 Elementos do rótulo**
  - **Rotulagem em conformidade com o Regulamento (CE) n.º 1272/2008**
    - A substância classificou-se e está etiquetado em conformidade com o regulamento CLP.

(continuação na página 2)
Nome comercial: FORMVAR SOLUTION 0.5%

- **Pictogramas de perigo**

  - GHS02
  - GHS07
  - GHS08

- **Palavra-sinal** Perigo

- **Componentes determinantes para os perigos constantes do rótulo:**
  1,2-dicloroetano

- **Frases de perigo**
  - H225: Líquido e vapor facilmente inflamáveis.
  - H302: Nocivo por ingestão.
  - H315: Provoca irritação cutânea.
  - H319: Provoca irritação ocular grave.
  - H350: Pode provocar cancro.
  - H335: Pode provocar irritação das vias respiratórias.

- **Frases de prudência**
  - P210: Manter afastado do calor/faísca/chama aberta/superfícies quentes. - Não fumar.
  - P321: Tratamento específico (ver no presente rótulo).
  - P405: Armazenar em local fechado à chave.
  - P501: Eliminar o conteúdo/recipiente de acordo com a legislação local/regional/nacional/internacional.

- **2.3 Outros perigos**

- **Resultados da avaliação PBT e mPmB**
  - **PBT:** Não aplicável.
  - **mPmB:** Não aplicável.

**SEÇÃO 3: Composição/informação sobre os componentes**

- **3.1 Caracterização química: Substâncias**
  - **Designação CAS nº**
    - 107-06-2 1,2-dicloroetano
  - **Número(s) de identificação**
    - **Número CE:** 203-458-1
    - **Número de índice:** 602-012-00-7
  - **SVHC**
    - 107-06-2 1,2-dicloroetano

**SEÇÃO 4: Primeiros socorros**

- **4.1 Descrição das medidas de primeiros socorros**
  - **Indicações gerais:**
    Os sintomas de envenenamento podem surgir apenas após várias horas, por isso é necessária vigilância médica pelo menos 48 horas após o acidente.
Nome comercial: FORMVAR SOLUTION 0.5%

- **Em caso de inalação:**
  Se a vítima estiver inconsciente, posicioná-la e transportá-la com estabilidade, deitada lateralmente.
- **Em caso de contacto com a pele:** Lavar imediatamente com água e sabão e enxaguar abundantemente.
- **Em caso de contacto com os olhos:**
  Enxaguar os olhos durante alguns minutos sob água corrente, mantendo as pálpebras abertas. Em caso de persistência dos sintomas, consultar o médico.
- **Em caso de ingestão:** Consultar imediatamente o médico.

4.2 **Sintomas e efeitos mais importantes, tanto agudos como retardados**
Não existe mais nenhuma informação relevante disponível.

4.3 **Indicações sobre cuidados médicos urgentes e tratamentos especiais necessários**
Não existe mais nenhuma informação relevante disponível.

**SECÇÃO 5: Medidas de combate a incêndios**

- **5.1 Meios de extinção**
  Meios adequados de extinção: CO2, areia, pó extintor. Não usar água.
- **5.2 Perigos especiais decorrentes da substância ou mistura**
  Não existe mais nenhuma informação relevante disponível.
- **5.3 Recomendações para o pessoal de combate a incêndios**
  Equipamento especial de protecção: Não são necessárias medidas especiais.

**SECÇÃO 6: Medidas a tomar em caso de fugas acidentais**

- **6.1 Precauções individuais, equipamento de protecção e procedimentos de emergência**
  Usar equipamento de protecção. Manter as pessoas desprotegidas afastadas.
- **6.2 Precauções ao nível ambiental**
  Evitar que penetre canalização / águas superficiais / águas subterrâneas.
- **6.3 Métodos e materiais de confinamento e limpeza:**
- **6.4 Remissão para outras secções**
  Para informações sobre uma manipulação segura, ver o capítulo 7.
  Para informações referentes ao equipamento de protecção individual, ver o capítulo 8.
  Para informações referentes à eliminação residual, ver o capítulo 13.

**SECÇÃO 7: Manuseamento e armazenagem**

- **7.1 Precauções para um manuseamento seguro**
  Assegurar uma boa ventilação / exaustão no local de trabalho. Abrir e manusear o recipiente com cuidado. Evitar a formação de aerossóis.
- **Precauções para prevenir incêndios e explosões:**
- **7.2 Condições de armazenagem segura, incluindo eventuais incompatibilidades**
  Armazenagem:
  - **Requisitos para espaços ou contentores para armazenagem:** Armazenar num local fresco.
Nome comercial: FORMVAR SOLUTION 0.5%

- Avisos para armazenagem conjunta: Não necessário.
- Outros avisos sobre as condições de armazenagem:
  Manter o recipiente hermeticamente fechado.
  Armazenar em recipientes bem fechados, em local fresco e seco.
  Proteger do calor e da radiação directa do sol.
- 7.3 Utilizações finais específicas Não existe mais nenhuma informação relevante disponível.

SEÇÃO 8: Controlo da exposição/protecção individual

- Indicações adicionais para concepção de instalações técnicas: Não existem outras informações, ver ponto 7.
- 8.1 Parâmetros de controlo
  
<table>
<thead>
<tr>
<th>Componentes cujo valor do limite de exposição no local de trabalho deve ser monitorizado:</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-06-2 1,2-dicloroetano</td>
</tr>
<tr>
<td>VLE Valor para exposição longa: 10 ppm</td>
</tr>
<tr>
<td>A4: Lesão hepática; náuseas</td>
</tr>
</tbody>
</table>

- Indicações adicionais: Foram utilizadas como base as listas válidas à data da elaboração.

- 8.2 Controlo da exposição
  - Equipamento de protecção individual:
  - Medidas gerais de protecção e higiene:
    Manter afastado de alimentos, bebidas e forragens.
    Despir imediatamente a roupa contaminada e embebeda.
    Lavar as mãos antes das pausas e no fim do trabalho.
    Guardar o vestuário de protecção separadamente.
    Evitar o contacto com os olhos e com a pele.
  - Protecção respiratória:
    Utilizar uma máscara respiratória se a exposição for reduzida ou durante um curto espaço de tempo; se esta for mais prolongada ou mais intensa, utilizar uma máscara respiratória independente do ar ambiente.
  - Protecção das mãos:

    Luvas de protecção

    O material das luvas tem de ser impermeável e resistente ao produto / à substância / preparação.
    Uma vez que não foram realizados testes nesta área, não podemos recomendar um determinado tipo de material para as luvas que seja adequado para o produto / a preparação / a mistura de químicos.
    Escolher o material das luvas tendo em consideração a durabilidade, a permeabilidade e a degradação.
  - Material das luvas
    A escolha das luvas mais adequadas não depende apenas do material, mas também de outras características qualitativas e varia de fabricante para fabricante.
  - Tempo de penetração no material das luvas
    Deve informar-se sobre a validade exacta das suas luvas junto do fabricante e respeitá-la.
  - Protecção dos olhos:

    Óculos de protecção totalmente fechados

( continuação na página 5 )
### SEÇÃO 9: Propriedades físicas e químicas

#### 9.1 Informações sobre propriedades físicas e químicas de base

- **Informações gerais**
  - **Aspecto:** Líquido
  - **Forma:** Conforme a designação do produto
  - **Cor:** Conforme a designação do produto
  - **Odor:** tipo éter
  - **Limiar olfativo:** Não classificado.

- **valor pH:** Não classificado.

- **Mudança do estado:**
  - **Ponto / intervalo de fusão:** -35,5 °C
  - **Ponto / intervalo de ebulição:** 84 °C

- **Ponto de inflamação:** 13 °C
- **Inflamabilidade (sólido, gás):** Não aplicável.
- **Temperatura de ignição:** 440 °C
- **Temperatura de decomposição:** Não classificado.
- **Auto-inflamabilidade:** Não classificado.

- **Perigos de explosão:** O produto não é explosivo. Contudo, é possível a formação de misturas explosivas ar/vapor.

- **Limites de explosão:**
  - **Inferior:** 6,2 Vol %
  - **Superior:** 16 Vol %

- **Pressão de vapor em 20 °C:** 87 hPa

- **Densidade em 20 °C:** 1,25 g/cm³
- **Densidade relativa:** Não classificado.
- **Densidade de vapor:** Não classificado.
- **Velocidade de evaporação:** Não classificado.

- **Solubilidade em / miscibilidade com água em 20 °C:** 8 g/l

- **Coeficiente de distribuição (n-octanol/água):** Não classificado.

- **Viscosidade:**
  - Dinâmico: Não classificado.
  - Cinemático: Não classificado.

- **Percentagem de solvente:**
  - Solventes orgânicos: 0,0 %
  - VOC (UE): 0,00 %

#### 9.2 Outras informações

Não existe mais nenhuma informação relevante disponível.

### SEÇÃO 10: Estabilidade e reactividade

#### 10.1 Reactividade

#### 10.2 Estabilidade química

- **Decomposição térmica / condições a evitar:** Não existe decomposição se usado de acordo com as especificações.

- **10.3 Possibilidade de reacções perigosas**

  Não se conhecem reacções perigosas.
Ficha de dados de segurança
Em conformidade com 1907/2006/CE, Artigo 31.º

Nome comercial: FORMVAR SOLUTION 0.5%

10.4 Condições a evitar
Não existe mais nenhuma informação relevante disponível.

10.5 Materiais incompatíveis
Não existe mais nenhuma informação relevante disponível.

10.6 Produtos de decomposição perigosos
Não se conhecem produtos de decomposição perigosos.

SECÇÃO 11: Informação toxicológica

11.1 Informações sobre os efeitos toxicológicos

Toxicidade aguda:

- Valores LD/LC50 relevantes para a classificação:

<table>
<thead>
<tr>
<th>107-06-2 1,2-dicloroetano</th>
</tr>
</thead>
<tbody>
<tr>
<td>por via oral LD50 670 mg/kg (rat)</td>
</tr>
<tr>
<td>por via dérmica LD50 2800 mg/kg (rat)</td>
</tr>
</tbody>
</table>

- Efeito de irritabilidade primário:
  - sobre a pele: Irritante para a pele e as mucosas.
  - sobre os olhos: Efeito irritante.
  - sensibilização: Não são conhecidos efeitos sensibilizantes.

- Efeitos CMR (carcinogenicidade, mutagenicidade e efeitos tóxicos na reprodução)
Carc. 1B

SECÇÃO 12: Informação ecológica

12.1 Toxicidade
Não existe mais nenhuma informação relevante disponível.

12.2 Persistência e degradabilidade
Não existe mais nenhuma informação relevante disponível.

12.3 Potencial de bioacumulação
Não existe mais nenhuma informação relevante disponível.

12.4 Mobilidade no solo
Não existe mais nenhuma informação relevante disponível.

- Outras indicações ecológicas:
  - Indicações gerais:
    Classe de perigo para a água 3 (D) (classificação pelas listas): muito perigoso para a água
    Não deixar chegar às águas subterrâneas, aos cursos de água nem à canalização, nem em pequenas quantidades.
    Perigo de poluição da água potável mesmo se forem derramadas quantidades muito pequenas no subsolo.

12.5 Resultados da avaliação PBT e mPmB
- PBT: Não aplicável.
- mPmB: Não aplicável.

12.6 Outros efeitos adversos
Não existe mais nenhuma informação relevante disponível.

SECÇÃO 13: Considerações relativas à eliminação

13.1 Métodos de tratamento de resíduos
- Recomendação: Não se pode eliminar juntamente com o lixo doméstico. Não permita que chegue à canalização.

- Embalagens contaminadas:
  - Recomendação: Eliminação residual conforme o regulamento dos serviços públicos.

SECÇÃO 14: Informações relativas ao transporte

- 14.1 N° UN
  UN1184

(continuação na página 7)
<table>
<thead>
<tr>
<th><strong>Nome comercial:</strong> FORMVAR SOLUTION 0.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>14.2 Designação oficial de transporte da ONU</strong></td>
</tr>
<tr>
<td>- <strong>ADR</strong></td>
</tr>
<tr>
<td>- <strong>IMDG, IATA</strong></td>
</tr>
<tr>
<td><strong>14.3 Classes de perigo para efeitos de transporte</strong></td>
</tr>
<tr>
<td>- <strong>ADR</strong></td>
</tr>
<tr>
<td>- <strong>Classe</strong></td>
</tr>
<tr>
<td>- <strong>Rótulo</strong></td>
</tr>
<tr>
<td>- <strong>IMDG, IATA</strong></td>
</tr>
<tr>
<td>- <strong>Class</strong></td>
</tr>
<tr>
<td>- <strong>Label</strong></td>
</tr>
<tr>
<td><strong>14.4 Tipo de embalagem</strong></td>
</tr>
<tr>
<td>- <strong>ADR, IMDG, IATA</strong></td>
</tr>
<tr>
<td><strong>14.5 Perigos para o ambiente:</strong></td>
</tr>
<tr>
<td>- <strong>Poluente das águas:</strong></td>
</tr>
<tr>
<td><strong>14.6 Precauções especiais para o utilizador</strong></td>
</tr>
<tr>
<td>- <strong>Nº Kemler:</strong></td>
</tr>
<tr>
<td>- <strong>Nº EMS:</strong></td>
</tr>
<tr>
<td>- <strong>Segregation groups</strong></td>
</tr>
<tr>
<td><strong>14.7 Transporte a granel em conformidade com o anexo II da Convenção Marpol 73/78 e o Código IBC</strong></td>
</tr>
<tr>
<td>- <strong>Não aplicável.</strong></td>
</tr>
<tr>
<td><strong>Transporte/outras informações:</strong></td>
</tr>
<tr>
<td>- <strong>ADR</strong></td>
</tr>
<tr>
<td>- <strong>Quantidades Limitadas (LQ)</strong></td>
</tr>
<tr>
<td>- <strong>Quantidades exceptuadas (EQ)</strong></td>
</tr>
<tr>
<td>- Código: E2</td>
</tr>
<tr>
<td>- Quantidade líquida máxima por embalagem interior: 30 ml</td>
</tr>
<tr>
<td>- Quantidade líquida máxima por embalagem exterior: 500 ml</td>
</tr>
<tr>
<td>- <strong>Categoría de transporte</strong></td>
</tr>
<tr>
<td>- <strong>Código de restrição em túneis</strong></td>
</tr>
<tr>
<td>- <strong>IMDG</strong></td>
</tr>
<tr>
<td>- <strong>Limited quantities (LQ)</strong></td>
</tr>
<tr>
<td>- <strong>Excepted quantities (EQ)</strong></td>
</tr>
<tr>
<td>- Code: E2</td>
</tr>
<tr>
<td>- Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td>- Maximum net quantity per outer packaging: 500 ml</td>
</tr>
<tr>
<td>- <strong>UN &quot;Model Regulation&quot;:</strong></td>
</tr>
<tr>
<td>- UN1184, DICLORETO DE ETILENO, 3 (6.1), II</td>
</tr>
</tbody>
</table>

(continuação da página 6)
Ficha de dados de segurança
Em conformidade com 1907/2006/CE, Artigo 31.º

Nome comercial: FORMVAR SOLUTION 0.5%

(continuação da página 7)

SECÇÃO 15: Informação sobre regulamentação

15.1 Regulamentação/legislação específica para a substância ou mistura em matéria de saúde, segurança e ambiente

Disposições nacionais:

Avisos para limitação da exposição no local de trabalho:
Os trabalhadores não devem ser expostos a substâncias perigosas. Em casos isolados os serviços públicos podem permitir exceções.

Outros regulamentos, restrições e decretos que proíbem

Substâncias que suscitam elevada preocupação (SVHC) em conformidade com REACH, artigo 57

107-06-2 1,2-dicloroetano

15.2 Avaliação da segurança química: Não foi realizada nenhuma Avaliação de Segurança Química.

SECÇÃO 16: Outras informações

As informações fornecidas baseiam-se no estado actual dos nossos conhecimentos, embora não representem uma garantia das propriedades do produto e não fundamentam uma relação contratual.

Abreviaturas e 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
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
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
Carc. 1B: Carcinogenicity, Hazard Category 1B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
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 0.5%
- **Número del artículo:** 15820, 15820-25
- **Número CAS:** 107-06-2
- **Número CE:** 203-458-1
- **Número de clasificación:** 602-012-00-7

1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados

No existen más datos relevantes disponibles.

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: sgkccc@aol.com
  www.emsdiasum.com

- **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 )
Ficha de datos de seguridad
según 1907/2006/CE, Artículo 31

Nombre comercial: FORMVAR SOLUTION 0.5%

( se continua en página 1 )

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

- 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.
  H335 Puede irritar las vías respiratorias.
  H350 Puede provocar cáncer.
  H335 Puede irritar las vías respiratorias.

- Consejos de prudencia
  P210 Mantener alejado de fuentes de calor, chispas, llama abierta o superficies calientes. - No fumar.
  P303+P361+P353 EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitar inmediatamente las prendas contaminadas. Aclararse la piel con agua o ducharse.
  P305+P351+P338 EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.
  P321 Se necesita un tratamiento específico (ver en esta etiqueta).
  P405 Guardar bajo llave.
  P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.

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

( se continua en página 3 )
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.
  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/m³, 5 ppm
      r, véase Apartado 8

- **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 / substancia / preparado.
  Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de substancias 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.
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: Etéreo
· Umbral olfativo: No determinado.
· valor pH: No determinado.
· Cambio de estado
  Punto de fusión /campo de fusión: -35,5 °C
  Punto de ebullición /campo de ebullición: 84 °C
· Punto de inflamación: 13 °C
· Inflamabilidad (sólido, gaseiforme): No aplicable.
· Temperatura de ignición: 440 °C
· Temperatura de descomposición: No determinado.
· Autoinflamabilidad: No determinado.
· Peligro de explosión: 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
· Densidad de vapor
· Velocidad de evaporación
· Solubilidad en / miscibilidad con agua a 20 °C: 8 g/l
· Coeficiente de reparto (n-octanol/agua): No determinado.
· Viscosidad:
  Dinámica: No determinado.
  Cinemática: No determinado.
Nombre comercial: FORMVAR SOLUTION 0.5%

· Concentración del disolvente:
  - Disolventes orgánicos: 0,0 %
  - VOC (CE): 0,00 %

· 9.2 Información adicional: No existen más datos relevantes disponibles.

SECCIÓN 10: Estabilidad y reactividad

· 10.1 Reactividad
· 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:
  - Valores LD/LC50 (dosis letal /dosis letal = 50%) relevantes para la clasificación:

<table>
<thead>
<tr>
<th>107-06-2 1,2-dicloroetano</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dermal</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

· Efecto estimulante primario:
  - en la piel: Irrita la piel y las mucosas.
  - en el ojo: Produce irritaciones.
· Sensibilización: No se conoce ningún efecto sensibilizante.
· Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción) Carc. 1B

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.
· 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.
**Nombre comercial:** FORMVAR SOLUTION 0.5%

- **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 UN**
  - 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, IATA**
    - Class: 3 Líquidos inflamables
    - Label: 3 + 6.1

- **14.4 Grupo de embalaje**
  - ADR, IMDG, IATA: II

- **14.5 Peligros para el medio ambiente:**
  - **Contaminante marino:** No

- **14.6 Precauciones particulares para los usuarios**
  - Atención: Líquidos inflamables
    - Número Kemler: 336
    - Número EMS: F-E,S-D
    - Segregation groups: Liquid halogenated hydrocarbons

- **14.7 Transporte a granel con arreglo al anexo II del Convenio Marpol 73/78 y del Código IBC**
  - No aplicable.
Nombre comercial: FORMVAR SOLUTION 0.5%

· Transporte/datos adicionales:
  · ADR
  · Cantidades limitadas (LQ) 1L
     Código: E2
  · Cantidades exceptuadas (EQ) 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
     Code: E2
  · Excepted quantities (EQ) Maximum net quantity per inner packaging: 30 ml
     Maximum net quantity per outer packaging: 500 ml

· "Reglamentación Modelo" de la UNECE: UN1184, 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
· 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

· 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 contratual.

· 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
  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
  Flam. Liq. 2: Flammable liquids, Hazard Category 2
  Acute Tox. 4: Acute toxicity, Hazard Category 4
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  Carc. 1B: Carcinogenicity, Hazard Category 1B
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
แผ่นข้อมูลความปลอดภัย
ตาม 1907/2006/EC, มาตรา 31

วันพิมพ์ 2015.06.02
การปรับปรุงใหม่ : 2015.06.02

1: การระบุสาร/ การทำ/ และของบริษัท/ บริการที่เจ้าก็เครื่อง

1.1 สัญลักษณ์ของผลิตภัณฑ์

แปลกทางการข้า FORMVAR SOLUTION 0.5%

เลขที่รายชื่อ 15820, 15820-25

เลขที่ CAS: 107-06-2

จำนวน EC: 203-458-1

เลขที่ EU: 602-012-00-7

1.2 สารหรือสารผสมที่เกี่ยวข้องที่ระบุไว้ในนี้หรือไม่ควรใช้สารหรือสารผสมที่เกี่ยวข้องนอกเหนือจากนี้

การประกอบใช้สาร/ การทำ ไม่มีกิจจัยทางทดลอง

1.3 รายละเอียดของผู้จัดหาข้อมูลความปลอดภัย

ผู้ผลิต/ ผู้จัดหา
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400  Fax: 215-412-8450
email: sgkcck@aol.com
www.emsdiasum.com

ข้อมูลรายละเอียดเพิ่มเติมได้จาก Product safety department

1.4 หมายเลขโทรศัพท์ฉุกเฉิน:
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2: การระบุสิ่งที่เป็นอันตราย

2.1 การจำแนกประเภทของสารหรือสารผสม

การจำแนกประเภทตามข้อบังคับ (อีซี) เลขที่ 1272/2008

ประเภท

Flam. Liq. 2 H225 ของเหลวและไอที่ไวไฟสูง

สิ่งอันตรายต่อสุขภาพ

Carc. 1B H350 อาจเป็นเหตุให้เกิดมะเร็ง

Acute Tox. 4 H302 เป็นอันตรายหากกลืนเข้าไป

Skin Irrit. 2 H315 เป็นสาเหตุให้เกิดการระคายเคืองต่อผิวหนัง

Eye Irrit. 2 H319 เป็นสาเหตุให้เกิดการระคายเคืองต่อตามร่างกายที่ตา

STOT SE 3 H335 อาจเป็นสาเหตุให้เกิดการระคายเคืองต่อระบบหายใจ

2.2 องค์ประกอบของฉลาก

ฉลากตามระเบียบ (EC) เลขที่ 1272/2008 สารได้รับการจัดประเภทและติดฉลากตามข้อบังคับของ CLP

(ต่อในหน้า 2)
FORMVAR SOLUTION 0.5%

- ภาพสัญลักษณ์สิ่งที่เป็นอันตราย

GHS02  GHS07  GHS08

- สัญญาณคำเตือน

- 1907/2006/EC, มาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรามาตรام
ชื่อทางการค้า FORMVAR SOLUTION 0.5%
 FORMVAR SOLUTION 0.5%  

8: การควบคุมการทำงานในลักษณะเปิด / การป้องกันภัยสำหรับบุคคล

- ข้อมูลข้อพิเศษเกี่ยวกับการอธิบายส่วนที่มีความสำคัญทางเทคนิค ไม่มีข้อมูลเฉพาะหน้าจากหน้าต่อไปนี้

8.1 การควบคุมตัวแปร

ส่วนผสมพร้อมค่าขอบเขตที่ต้องเห็นได้ในสถานที่ปฏิบัติงาน

<table>
<thead>
<tr>
<th>107-06-2 ETHYLENE DICHLORIDE</th>
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<tbody>
<tr>
<td>PEL (USA)</td>
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<td>REL (USA)</td>
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<tr>
<td>See Pocket Guide Apps. A and C</td>
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<tr>
<td>TLV (USA)</td>
</tr>
</tbody>
</table>

- ข้อมูลรายละเอียดเสริม รายละเอียดย่อของข้อมูลที่จัดทำโดยอาศัยการใช้งานเป็นหลัก

8.2 การควบคุมการสัมผัส

- อุปกรณ์ป้องกันภัยส่วนบุคคล
- มาตรการการปลอดภัยสำหรับบุคคลที่อาจมีผลต่อ
  - เก็บไม่ให้สัมผัสถึงสิ่งของที่เป็นอานิจหรืออันตรายและอาจติดตัว
  - หลีกเลี่ยงการสัมผัสไม่ได้ถูกต้อง
  - ให้ถอดเสื้อผ้าที่เปื้อนและเจือปนออกทันที
  - เลือกชุดป้องกันที่สอดคล้องกับสถานที่ทำ
- การป้องกันมือ
  - ถุงมือป้องกัน
  - เลือกวัสดุสำหรับถุงมือโดยพิจารณาจากเวลาที่ใช้ในการทำงานและการลุกของผลิตภัณฑ์
- การป้องกันตา
  - แว่นตาที่ขอบปิดสนิท
แผ่นข้อมูลความปลอดภัย
ตาม 1907/2006/EC, มาตรา 31

ชื่อทางการค้า FORMVAR SOLUTION 0.5%

9: คุณสมบัติทางกายภาพและเคมี

- 9.1 ข้อมูลคุณสมบัติทางกายภาพและเคมี
- ข้อมูลรายละเอียดเกี่ยวกับ:
  - สี:
    - รูปสัณฐาน:
      - ของเหลว:
        - สี:
          - ตามรายละเอียดของผลิตภัณฑ์
  - กลิ่น:
    - คล้ายอีเทอร์
  - เปรียบเทียบ:
    - ไม่ได้กำหนดไว้
  - ค่า pH:
    - ไม่ได้กำหนดไว้.
  - การเปลี่ยนสภาวะ:
    - จุดหลอมเหลว/ขอบเขตการหลอมละลาย:
      - -35.5 °C
    - จุดเดือด/ขอบเขตการเดือด:
      - 84 °C
  - จุดวาบไฟ:
    - 13 °C
  - อุณหภูมิสลายตัว:
    - ไม่ได้กำหนดไว้.
  - อุณหภูมิจุดระเบิด:
    - 440 °C
  - อุณหภูมิจุดระเบิด:
    - ไม่ได้กำหนดไว้.
  - ความสามารถติดไฟ:
    - ไม่สามารถใช้ได้.
  - อันตรายจากการระเบิด:
    - ผลิตภัณฑ์ไม่ได้เป็นสารระเบิดอย่างไรก็ตามอาจเป็นไปได้ที่การผสมของอากาศ/ไอจะทำให้เกิดการระเบิด
  - ขอบเขตการระเบิด:
    - ขั้นต่ำ:
      - 6.2 Vol %
    - ขั้นสูง:
      - 16 Vol %
  - ความดันไอที่ 20 °C:
    - 87 hPa
  - ความดันไอที่ 20 °C:
    - 1.25 g/cm³
  - ความหนืด:
    - ไม่ได้กำหนดไว้.
  - ปริมาณส่วนประกอบตัวทำละลาย:
    - ตัวทำละลายอินทรีย์:
      - 0.0 %
    - VOC (EC):
      - 0.00 %

10: ความเสถียรและความสามารถในการทำปฏิกริยา

- 10.1 ปฏิกิริยาตอบสนอง:
- 10.2 เสถียรภาพทางเคมี:
- ปฏิกิริยาตอบสนอง:
- เสถียรภาพทางเคมี:
- การสลายตัวควบคุม:
  - ไม่มีการสลายตัวลำัยข้ามรายละเอียดที่ระบุไว้

(ต่อหน้า 4)
แผ่นข้อมูลความปลอดภัย ตาม 1907/2006/EC, มาตรา 31

ชื่อทางการค้า FORMVAR SOLUTION 0.5%

- 10.3. ความเป็นไปได้ของภัยจากเกิดปฏิกิริยาอันตราย ไม่มีปฏิกิริยาที่เป็นอันตรายที่รู้จัก
- 10.4. ความเป็นไปได้ของการเสียหาย ไม่มีข้อมูลที่เกี่ยวกับการเสียหายจากนี้
- 10.5. วิธีการที่เข้ากันไม่ได้: ไม่มีข้อมูลที่เกี่ยวกับข้อบังคับความปลอดภัยจากนี้
- 10.6. ข้อมูลจากการสลายตัวของผลิตภัณฑ์: ไม่มีสารจากผลิตภัณฑ์ที่เป็นอันตรายที่รู้จัก

11: ข้อมูลภายใต้เชื้อเพาะพันธุ์

11.1. ข้อมูลเกี่ยวกับผลกระทบทางพิษวิทยา
- ความเป็นพิษอย่างสาหัส: ไม่มีปฏิกิริยาที่เป็นอันตรายที่รู้จัก

- การจัดแบ่งตามค่า LD/LC50
107-06-2 ETHYLENE DICHLORIDE
| ทางปาก | LD50 | 670 mg/kg (rat) |
| ทางผิวหนัง | LD50 | 2800 mg/kg (rat) |

- อาการระคายเคืองเบื้องต้น
  - บนผิวหนัง: ทำให้ระคายเคืองต่อผิวหนังและเยื่อบุผิวในช่องจมูกและปากที่สร้างน้ำเมือกหล่อลื่น
  - ที่ดวงตา: ทำให้ระคายเคือง
  - ทำให้แพ้: ไม่มีรายงานเรื่องการแพ้

- ผลกระทบ CMR (การทำให้เกิดมะเร็งการผ่าเหล่าและพิษต่อการสืบพันธุ์)
  - Carc. 1B

12: ข้อมูลภายใต้เชื้อเพาะพันธุ์

12.1. ความเป็นพิษ
- ความเป็นพิษที่เกี่ยวกับน้ำ:
  - ไม่มีข้อมูลที่เกี่ยวกับน้ำ

- การคงอยู่และการย่อยสลาย:
  - ไม่มีข้อมูลที่เกี่ยวกับน้ำ

- ผลข้างเคียงอื่นๆ:
  - ไม่มีข้อมูลที่เกี่ยวกับน้ำ

12.2. ความเป็นพิษที่เกี่ยวกับน้ำ:
- PBT: ไม่สามารถใช้ได้
- vPvB: ไม่สามารถใช้ได้
- vPvB: ไม่สามารถใช้ได้

12.3. การสะสมทางชีวภาพที่อาจเกิดขึ้น:
- ไม่มีข้อมูลที่เกี่ยวกับน้ำ

12.4. การเปลี่ยนแปลงในดิน:
- ไม่มีข้อมูลที่เกี่ยวกับน้ำ

12.5. ผลของ PBT และการประเมิน vPvB:
- PBT: ไม่สามารถใช้ได้
- vPvB: ไม่สามารถใช้ได้

12.6. ผลกระทบต่อสัตว์:
- ไม่มีข้อมูลที่เกี่ยวกับน้ำ

13: การพิจารณาการกำจัด

13.1. วิธีการกำจัดของเสีย:
- ดำเนินการที่ไม่ต้องไปพร้อมกับร่างกายจากผู้ผลิตนำผู้ผลิตไปผลิตภัณฑ์ที่สามารถนำเสียได้

- คำแนะนำ:
  - ต้องไม่ทิ้งไปพร้อมกับร่างกายจากผู้ผลิตนำผู้ผลิตไปผลิตภัณฑ์ที่สามารถนำเสียได้

- คำแนะนำ:
  - คำแนะนำ: การกำจัดจะต้องทำตามกฎหมายที่เป็นทางการ
<table>
<thead>
<tr>
<th>14: ข้อมูลรายละเอียดในการขนส่ง</th>
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</thead>
<tbody>
<tr>
<td><strong>14.1 เลขที่ UN</strong></td>
</tr>
<tr>
<td>ADR, IMDG, IATA</td>
</tr>
<tr>
<td>UN1184</td>
</tr>
<tr>
<td><strong>14.2 ชื่อการจัดส่งสำหรับเครื่องหมายสีของ UN</strong></td>
</tr>
<tr>
<td>ADR</td>
</tr>
<tr>
<td>IMDG, IATA</td>
</tr>
<tr>
<td>1184 ETHYLENE DICHLORIDE</td>
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<tr>
<td>ETHYLENE DICHLORIDE</td>
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<td><strong>14.3 ชั้นเรียนอันตรายจากการขนส่ง</strong></td>
</tr>
<tr>
<td>ADR</td>
</tr>
<tr>
<td>ประเภท</td>
</tr>
<tr>
<td>Class: 3</td>
</tr>
<tr>
<td>Label: 3 + 6.1</td>
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<tr>
<td>IMDG, IATA</td>
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<tr>
<td>ประเภท</td>
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<tr>
<td>Segregation groups: Liquid halogenated hydrocarbons</td>
</tr>
<tr>
<td><strong>14.4 กลุ่มของสารเคมีที่มีอันตราย</strong></td>
</tr>
<tr>
<td>ADR, IMDG, IATA</td>
</tr>
<tr>
<td>Segregation groups: Liquid halogenated hydrocarbons</td>
</tr>
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<td><strong>14.5 ชั้นที่เป็นอันตรายของสารเคมีที่มีอันตราย</strong></td>
</tr>
<tr>
<td>ADR, IMDG, IATA</td>
</tr>
<tr>
<td>Class: II</td>
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<td><strong>14.6 การขนส่งสินค้าที่มีสารเคมีที่มีอันตราย</strong></td>
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<tr>
<td>Code: F-E,S-D</td>
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<tr>
<td>EMS</td>
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<tr>
<td>Segregation group: Liquid halogenated hydrocarbons</td>
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<tr>
<td><strong>14.7 การขนส่งสินค้าที่มีสารเคมีที่มีอันตราย</strong></td>
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<td>MARPOL73/78</td>
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<td>IBC</td>
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<td>Limited quantities (LQ): 1L</td>
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<tr>
<td>Excepted quantities (EQ): Code: E2</td>
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<tr>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
<tr>
<td><strong>การขนส่ง/ข้อมูลรายละเอียดเสริม</strong></td>
</tr>
<tr>
<td>ADR</td>
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<tr>
<td>Limited quantities (LQ): 1L</td>
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<td>Maximum net quantity per inner packaging: 30 ml</td>
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</table>
แผ่นข้อมูลความปลอดภัย
ตาม 1907/2006/EC, มาตรา 31

ชื่อทางการค้า FORMVAR SOLUTION 0.5%

(ต่อหน้า 7)

“ฉนวนปลอดภัย” ของ UN
UN1184, ETHYLENE DICHLORIDE, 3 (6.1), II

15: ข้อมูลรายละเอียดของกฎระเบียบ

15.1 ความปลอดภัย, สุขภาพและระบอบกฎหมายสิ่งแวดล้อมโดยเฉพาะของสารหรือสารผสม

กฎหมายของประเทศ

ข้อมูลรายละเอียดเกี่ยวกับขอบเขตการใช้งาน
ไม่อนุญาตให้คนงานเข้าไปสัมผัสกับวัตถุอันตรายข้อยกเว้นอาจทำได้เมื่อได้รับอนุญาตจาก
ผู้มีอำนาจในบางกรณี

15.2 การประเมินความปลอดภัยของสารเคมี: ไม่ได้ดำเนินการตามการประเมินความปลอดภัยของสารเคมี

16: ข้อมูลรายละเอียดอื่นๆ

ข้อมูลรายละเอียดนี้ใช้ความรู้ปัจจุบันของเราเป็นหลักอย่างไรก็ตามข้อมูลนี้ไม่ใช้ในการ
รับประกันจากสถาบันต่อคุณสมบัติเฉพาะของผลิตภัณฑ์และไม่สามารถยืนยันการบังคับใช้ตามกฎหมาย
บางที่เกี่ยวพันกับสัญญา

คำย่อและชื่อย่อที่ผสมขึ้น
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
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
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
Carc. 1B: Carcinogenicity, Hazard Category 1B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

การปรับปรุงใหม่: 2015.06.02
วันพิมพ์: 2015.06.02