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

- **Product identifier** Ethylene Dichloride
- **Trade name:** 1,2-dichloroethane
- **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 preparation**
  Used in preparation of specimens for electron microscopy
- **Details of the supplier of the safety data sheet**
  **Manufacturer/Supplier:**
  Agar Scientific a brand of Elektron Technology UK Ltd.
  Unit 7, M11 Business Link
  Parsonage Lane
  STANSTED CM24 8GF
  UNITED KINGDOM
  sales@agarscientific.com

  - **Further information obtainable from:** Sales department
  - **Emergency telephone number:** During normal opening times:: +44 (0) 1279 813 519

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
  
  - **GHS02 flame**
  Flam. Liq. 2  H225 Highly flammable liquid and vapour.
  
  - **GHS08 health hazard**
  Carc. 1B  H350 May cause cancer.
  
  - **GHS07**
  Acute Tox. 4  H302 Harmful if swallowed.
  Skin Irrit. 2  H315 Causes skin irritation.
  Eye Irrit. 2  H319 Causes serious eye irritation.
  STOT SE 3  H335 May cause respiratory irritation.

(Contd. on page 2)
Trade name: 1,2-dichloroethane

- Classification according to Directive 67/548/EEC or Directive 1999/45/EC
  - T; Toxic
  - Carc. Cat. 2
  - R45: May cause cancer.
  - Xn; Harmful
  - R22: Harmful if swallowed.
  - Xi; Irritant
  - R36/37/38: Irritating to eyes, respiratory system and skin.
  - F; Highly flammable
  - R11: Highly flammable.

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

- Label elements
  - Labelling according to Regulation (EC) No 1272/2008
    The substance is classified and labelled according to the CLP regulation.
  - Hazard pictograms
    - GHS02
    - GHS07
    - GHS08

- Signal word Danger

- 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.
  - P241 Use explosion-proof electrical/ventilating/lighting/equipment.
  - 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.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- Other hazards

- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  - 107-06-2 1,2-dichloroethane
Trade name: 1,2-dichloroethane

- Identification number(s)
- EC number: 203-458-1
- Index number: 602-012-00-7
- SVHC
  - 107-06-2 1,2-dichloroethane

4 First aid measures

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

5 Firefighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - 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.
- 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: Open and handle receptacle with care.
  - Information about fire - and explosion protection:
    Keep ignition sources away - Do not smoke.
Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.12.2013
Revision: 17.12.2013

Trade name: 1,2-dichloroethane

(Contd. of page 3)

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.
  - 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
  - Ingredients with limit values that require monitoring at the workplace:
    107-06-2 1,2-dichloroethane
    WEL Long-term value: 21 mg/m³, 5 ppm
    Carc; Sk
  - 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.

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Trade name: 1,2-dichloroethane

- **Eye protection:**
  - Tightly sealed goggles

## 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
<td></td>
</tr>
<tr>
<td>Form: Oily</td>
<td></td>
</tr>
<tr>
<td>Colour: Colourless</td>
<td></td>
</tr>
<tr>
<td>Odour: Like chlorine</td>
<td></td>
</tr>
<tr>
<td>Odour threshold: Not determined.</td>
<td></td>
</tr>
<tr>
<td><strong>pH-value:</strong></td>
<td></td>
</tr>
<tr>
<td>Not determined.</td>
<td></td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range: -35.5 °C</td>
<td></td>
</tr>
<tr>
<td>Boiling point/Boiling range: 84 °C</td>
<td></td>
</tr>
<tr>
<td><strong>Flash point:</strong></td>
<td>13 °C</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous):</strong> Not applicable.</td>
<td></td>
</tr>
<tr>
<td><strong>Ignition temperature:</strong></td>
<td>440 °C</td>
</tr>
<tr>
<td><strong>Decomposition temperature:</strong> Not determined.</td>
<td></td>
</tr>
<tr>
<td><strong>Self-igniting:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Danger of explosion:</strong></td>
<td>Product is not explosive. However, formation of explosive air/vapour mixtures are possible.</td>
</tr>
<tr>
<td><strong>Explosion limits:</strong></td>
<td></td>
</tr>
<tr>
<td>Lower: 6.2 Vol %</td>
<td></td>
</tr>
<tr>
<td>Upper: 16 Vol %</td>
<td></td>
</tr>
<tr>
<td><strong>Vapour pressure at 20 °C:</strong> 87 hPa</td>
<td></td>
</tr>
<tr>
<td><strong>Density at 20 °C:</strong></td>
<td>1.25 g/cm³</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with</strong> water at 20 °C: 8 g/l</td>
<td></td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water):</strong> Not determined.</td>
<td></td>
</tr>
<tr>
<td><strong>Viscosity:</strong></td>
<td></td>
</tr>
<tr>
<td>Dynamic at 20 °C: 0.8 mPas</td>
<td></td>
</tr>
<tr>
<td>Kinematic: Not determined.</td>
<td></td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

(Contd. on page 6)
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:
    | 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.
  - CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
    Carc. 1B

12 Ecological information

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

13 Disposal considerations

- Waste treatment methods
- Recommendation
  Must not be disposed together with household garbage. Do not allow product to reach sewage system.
### 14 Transport information

- **UN-Number**
  - ADR, IMDG, IATA
  - UN1184

- **UN proper shipping name**
  - ADR
  - IMDG, IATA
  - 1184 ETHYLENE DICHLORIDE
  - ETHYLENE DICHLORIDE

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

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

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

- **Environmental hazards:**
  - Marine pollutant:
    - No
    - Yes (PP)

- **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:**
  - **ADR**
    - Limited quantities (LQ)
      - 1L
    - Transport category
      - 2
    - Tunnel restriction code
      - D/E
  - **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
- 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 1,2-dichloroethane
- 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.

- Department issuing MSDS: Sales department
- Contact:
  sales@agarscientific.com
  Telephone: +44 (0) 1279 813 519
- 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
  PP: Severe Marine Pollutant
  GHS: Globally Harmonized 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