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

- **Product identifier**
  - **Trade name:** dimethyl sulfoxide

- **Article number:** 0447
- **CAS Number:** 67-68-5
- **EC number:** 200-664-3

- **Application of the substance / the preparation**
  Chemical for research, development, manufacturing and analysis

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**
    - **Biosolve B.V.**
      Leenderweg 78, 5555 CE Valkenswaard, the Netherlands.
      Tel: +31-(0)40-2071300
      Fax: +31-(0)40-2048537
      Email: info@biosolve-chemicals.com

  - **Biosolve Chimie**
    20 Rue Roger Husson, 57260 Dieuze, France
    info@biosolvechimie.com

  - **Bio-Lab Ltd.**
    POB 34038, Jerusalem 91340, Israel
    Tel: 972 -2- 584 1111
    Fax: +972 -2- 584 1110
    Email: info@biolab-chemicals.com

- **Information department:** Product safety department
- **Emergency telephone number:** During normal opening times: +972 2 584 1111

2 Composition/information on ingredients

- **Chemical characterization:** Substances
  - **CAS No. Description**
    67-68-5 dimethyl sulfoxide
  - **Identification number(s)**
    - **EC number:** 200-664-3

3 Hazards identification

- **Classification of the substance or mixture**
  - GHS07

  H319  Causes serious eye irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
  - **Irritant**
    Irritating to eyes and skin.
  - **Information concerning particular hazards for human and environment:** Not applicable.

(Contd. on page 2)
Trade name: dimethyl sulfoxide

- 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:
  
  Irritant

- Risk phrases:
  Irritating to eyes and skin.
- Safety phrases:
  In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Classification system:
- NFPA ratings (scale 0 - 4)
  - Health = 1
  - Fire = 1
  - Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  - Health = 1
  - Fire = 1
  - Reactivity = 0

4 First aid measures
- 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: If symptoms persist consult doctor.

5 Firefighting measures
- Suitable extinguishing agents:
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture: No further relevant information available.
- Protective equipment: No special measures required.

6 Accidental release measures
- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions:
  Dilute with plenty of water.
  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).
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
7 Handling and storage

- **Precautions for safe handling**: Avoid breathing vapor. Avoid contact with skin and eyes. Avoid ingestion and inhalation.
- **Information about protection against explosions and fires**: No special measures required.
- **Storage**:
  - **Requirements to be met by storerooms and receptacles**: No special requirements.
  - **Information about storage in one common storage facility**: Not required.
  - **Further information about storage conditions**: Keep receptacle tightly sealed.
- **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.
- **Components with limit values that require monitoring at the workplace**:

<table>
<thead>
<tr>
<th>67-68-5 dimethyl sulfoxide</th>
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<tbody>
<tr>
<td>WEEL 250 ppm</td>
</tr>
</tbody>
</table>

- **Additional information**: The lists that were valid during the creation were used as basis.
- **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.
    - Avoid contact with the eyes and skin.
  - **Breathing equipment**: Not required.
  - **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><strong>General Information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance:</strong></td>
</tr>
<tr>
<td><strong>Form:</strong></td>
</tr>
<tr>
<td><strong>Color:</strong></td>
</tr>
<tr>
<td><strong>Odor:</strong></td>
</tr>
<tr>
<td><strong>Odour threshold:</strong></td>
</tr>
<tr>
<td><strong>pH-value:</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Change in condition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Melting point/Melting range:</strong></td>
</tr>
<tr>
<td><strong>Boiling point/Boiling range:</strong></td>
</tr>
</tbody>
</table>

| **Flash point:** | 95°C (203 °F) |
| **Flammability (solid, gaseous):** | Not applicable. |
| **Ignition temperature:** | 270°C (518 °F) |
| **Decomposition temperature:** | Not determined. |
| **Auto igniting:** | Not determined. |
| **Danger of explosion:** | Product does not present an explosion hazard. |

<table>
<thead>
<tr>
<th><strong>Explosion limits:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lower:</strong></td>
</tr>
<tr>
<td><strong>Upper:</strong></td>
</tr>
</tbody>
</table>

| **Vapor pressure at 20°C (68 °F):** | 2.5 hPa (2 mm Hg) |

| **Density at 20°C (68 °F):** | 1.1 g/cm³ (9.18 lbs/gal) |
| **Relative density** | Not determined. |
| **Vapour density** | Not determined. |
| **Evaporation rate** | Not determined. |

<table>
<thead>
<tr>
<th><strong>Solubility in / Miscibility with</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water:</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th><strong>Viscosity:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dynamic at 25°C (77 °F):</strong></td>
</tr>
<tr>
<td><strong>Kinematic:</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No further relevant information available.</strong></td>
</tr>
</tbody>
</table>

### 10 Stability and reactivity

<table>
<thead>
<tr>
<th><strong>Thermal decomposition / conditions to be avoided:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No decomposition if used according to specifications.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>Incompatible materials:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No further relevant information available.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Hazardous decomposition products:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No dangerous decomposition products known.</td>
</tr>
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</table>

### 11 Toxicological information

<table>
<thead>
<tr>
<th><strong>Acute toxicity:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LD/LC50 values that are relevant for classification:</strong></td>
</tr>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Primary irritant effect:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>on the skin:</strong> Iritrant to skin and mucous membranes.</td>
</tr>
<tr>
<td><strong>on the eye:</strong> Irritating effect.</td>
</tr>
</tbody>
</table>
Trade name: dimethyl sulfoxide

Sensitization: No sensitizing effects known.

12 Ecological information

- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Bioaccumulative potential: No further relevant information available.
- Additional ecological information:
  - General notes:
    Water hazard class 1 (Self-assessment): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, ADR, ADN, IMDG, IATA: Void
- UN proper shipping name
  - DOT, ADR, ADN, IMDG, IATA: Void
- Transport hazard class(es)
  - DOT, ADR, ADN, IMDG, IATA: Void
  - Class: Void
- Packing group
  - DOT, ADR, IMDG, IATA: Void
- Environmental hazards:
  - Marine pollutant: No
- Special precautions for user
  - Not applicable.
- Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
  - Not applicable.
- UN "Model Regulation": Not applicable.

15 Regulatory information

- Sara
  - Section 355 (extremely hazardous substances): Substance is not listed.
  - Section 313 (Specific toxic chemical listings): Substance is not listed.
- TSCA (Toxic Substances Control Act): Substance is listed.
- Proposition 65
  - Chemicals known to cause cancer: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for females: Substance is not listed.
Trade name: dimethyl sulfoxide

- 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) Substance is not listed.
  - IARC (International Agency for Research on Cancer) Substance is not listed.
  - NTP (National Toxicology Program) Substance is not listed.
  - TLV (Threshold Limit Value established by ACGIH) Substance is not listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
  - OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.

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

- Hazard symbols:
  - Irritant

- Risk phrases:
  - Irritating to eyes and skin.

- Safety phrases:
  - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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: Product safety department
- Contact: Product safety department

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)
- RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organization
- 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)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent