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

1.1 Product identifier

Trade name:
Dimethyl Sulfoxide (DMSO)

Enviro S, dimethyl sulfoxide, methyl sulfoxide, sulfinylbix[methane]

CAS Number:
67-68-5

EC number:
200-664-3

Registration number:
01-2119431362-50-0001

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

Application of the substance / the preparation: Solvents

Uses advised against: No further relevant information available.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
Gaylord Chemical Company, L.L.C.
1880 Fairlawn Rd
Tuscaloosa, AL 35401
United States
Tel: +1 (205) 561-5045
Email: ehs@gaylordchem.com

1.4 Emergency telephone number:

EMERGENCY HEALTH, SAFETY & ENVIRONMENTAL INFORMATION CALL:
Gaylord Chemical Company, LLC
Tel: +1 (985) 649-5464 (8:00 am - 5:00 pm CST)
+1 (205) 342-0650 (Nights and Weekends)

EMERGENCY TRANSPORTATION INFORMATION, CALL:
CHEMTREC
DOMESTIC NORTH AMERICA: (800) 424-9300
INTERNATIONAL: +1 (703) 741-5500

OTHER INFORMATION, CALL:
Gaylord Chemical Company, LLC
Tel: +1 (985) 649-5464

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
The substance is not classified, according to the CLP regulation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: No
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: Dimethyl Sulfoxide (DMSO)

· vPvB: No

SECTION 3: Composition/information on ingredients

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

SECTION 4: First aid measures

· 4.1 Description of first aid measures
  · General information:
    No special measures required.
    If symptoms persist consult doctor.
  · After inhalation: Supply fresh air.
  · After skin contact: Generally the product does not irritate the skin.
  · After eye contact:
    Rinse opened eye for several minutes under running water.
    Remove contact lenses, if present and easy to do. Continue rinsing.
  · After swallowing:
    Rinse mouth.
    Do NOT induce vomiting.

· 4.2 Most important symptoms and effects, both acute and delayed
  · Coughing
  · Gastric or intestinal disorders

· 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant treatment information available.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media
  · Suitable extinguishing agents:
    CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
    Use fire extinguishing methods suitable to surrounding conditions.
  · For safety reasons unsuitable extinguishing agents: Water with full jet

· 5.2 Special hazards arising from the substance or mixture
  · Formation of toxic gases is possible during heating or in case of fire.
  · In case of fire, the following can be released:
    Carbon monoxide
    Carbon dioxide
    Sulphur oxides (SOx)

· 5.3 Advice for firefighters
  · Protective equipment: Wear self-contained respirator protective device.
  · Additional information
    Cool endangered receptacles with water spray.
    Collect contaminated fire fighting water separately. It must not enter the sewage system.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures
  · Ensure adequate ventilation.
  · Keep away from ignition sources.
  · Wear protective clothing.
6.2 Environmental precautions:
Dilute with plenty of water.
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 of the material collected according to regulations.

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.

Information about fire and explosion protection:
Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Storage:
Requirements to be met by storerooms and receptacles: Store only in the original receptacle.
Information about storage in one common storage facility:
Do not store together with oxidising and acidic materials.

Further information about storage conditions:
Store in cool, dry conditions in well sealed receptacles.
Store receptacle in a well ventilated area.

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:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

<table>
<thead>
<tr>
<th>DNELs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>DNEL(long/systemic) 60 mg/kg bw/day (Consumer)</td>
</tr>
<tr>
<td>Dermal</td>
<td>DNEL(long/systemic) 100 mg/kg bw/day (Consumer)</td>
</tr>
<tr>
<td></td>
<td>200 mg/kg bw/day (Workers (Industrial/Professional))</td>
</tr>
<tr>
<td></td>
<td>47 mg/m3 (Consumer)</td>
</tr>
<tr>
<td></td>
<td>265 mg/m3 (Workers (Industrial/Professional))</td>
</tr>
<tr>
<td></td>
<td>120 mg/m3 (Consumer)</td>
</tr>
<tr>
<td></td>
<td>484 mg/m3 (Workers (Industrial/Professional))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PNECs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC(aqua)</td>
<td>17 mg/L (freshwater)</td>
</tr>
<tr>
<td></td>
<td>1.7 mg/L (marine water)</td>
</tr>
<tr>
<td>PNEC(STP)</td>
<td>11 mg/L (sewage treatment plant)</td>
</tr>
<tr>
<td>PNEC(sediment)</td>
<td>13.4 mg/kg sedi. dw (freshwater)</td>
</tr>
<tr>
<td>PNEC(soil)</td>
<td>3.02 mg/kg soil dw (soil)</td>
</tr>
<tr>
<td>PNEC(oral)</td>
<td>700 mg/kg food (food)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Individual protection measures, such as personal protective equipment
General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Do not eat, drink, smoke or sniff while working.
The usual precautionary measures are to be adhered to when handling chemicals.

· **Respiratory protection:**
  Not necessary if room is well-ventilated.
  Use suitable respiratory protective device when high concentrations are present.
  Only during spraying without adequate removal by suction.

· **Hand protection**
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  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.
  Butyl rubber, BR
  Nitrile rubber, NBR
  Recommended thickness of the material: ≥ 0.75 mm

· **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/face protection**
  Tightly sealed goggles

· **Body protection:** Protective work clothing

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**SECTION 9: Physical and chemical properties**

· **9.1 Information on basic physical and chemical properties**
  · **General Information**
    · Physical state: Fluid
    · Form: Fluid
    · Colour: Colourless
    · Clear
  · Odour:
    Odourless
  · Odour threshold: Not determined.
  · Melting point/freezing point: 18.5 °C
  · Boiling point or initial boiling point and boiling range: 189 °C
  · Flammability: Not applicable.
  · Lower and upper explosion limit
    · Lower: 2.6 Vol %
    · Upper: 28.5 Vol %
  · Flash point: 87 °C (ASTM D93)
  · Ignition temperature: 300 - 302 °C
  · Decomposition temperature: 190 °C
  · pH: Not determined.
  · Viscosity:
    · Kinematic viscosity: Not determined.
    · Dynamic at 20 °C: 2.14 mPas
  · Solubility
    · water at 25 °C: 1000 g/L (calc.)
  · Partition coefficient n-octanol/water (log value): -1.35 logPow (20 °C, pH 7)
  · Vapour pressure at 20 °C: 0.56 hPa (EU Method A.4)
  · Density and/or relative density
    · Density at 20 °C: 1.1 g/cm³ (EU Method A.3)
    · Relative density: Not determined.
 SECTION 10: Stability and reactivity

10.1 Reactivity  No further relevant information available.
10.2 Chemical stability  No decomposition if used and stored according to specifications.
10.3 Thermal decomposition / conditions to be avoided:  No decomposition if used according to specifications. To avoid thermal decomposition do not overheat.
10.4 Possibility of hazardous reactions  No dangerous reactions known.
10.5 Incompatible materials:
   - Strong oxidizing agents
   - Perchlorates
10.6 Hazardous decomposition products: No dangerous decomposition products known.

 SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
   - Acute toxicity  Based on available data, the classification criteria are not met.
   - LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>28300 mg/kg (Rat) (OECD Guideline 401)</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>40000 mg/kg (Rat)</td>
</tr>
<tr>
<td>Inhalative LC0</td>
<td>&gt; 5.33 mg/L (Rat) (OECD Guideline 403, inhalation:vapour)</td>
</tr>
</tbody>
</table>

   - Skin corrosion/irritation  Based on available data, the classification criteria are not met.
   - Serious eye damage/irritation  Based on available data, the classification criteria are not met.
   - Respiratory or skin sensitisation  Based on available data, the classification criteria are not met.
   - Germ cell mutagenicity  Based on available data, the classification criteria are not met.
   - Carcinogenicity  Based on available data, the classification criteria are not met.
   - Reproductive toxicity  Based on available data, the classification criteria are not met.
   - STOT-single exposure  Based on available data, the classification criteria are not met.
   - STOT-repeated exposure  Based on available data, the classification criteria are not met.
   - Aspiration hazard  Based on available data, the classification criteria are not met.
   - Additional toxicological information:
     - CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)  Ames and/or Micronucleus Test: negative

11.2 Information on other hazards
   - Endocrine disrupting properties  Substance is not listed.

 SECTION 12: Ecological information

12.1 Toxicity
   - Aquatic toxicity:
     | Test          | Value                        |
     |---------------|------------------------------|
     | LC50 (96h)    | > 25000 mg/L (Fish) (OECD Guideline 203, Danio rerio) |
     | nominal       |                             |
     | EC50 (48h)    | 246000 mg/L (Daphnia) (OECD Guideline 202, Daphnia magna) |

(Contd. on page 6)
SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
  - **Recommendation:** Must be specially treated adhering to official regulations.

- **Uncleaned packaging**
  - **Recommendation:** Disposal must be made according to official regulations.
  - **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- **14.1 UN number or ID number**
  - **ADR/RID/ADN, IMDG, IATA:** Void

- **14.2 UN proper shipping name**
  - **ADR/RID/ADN, IMDG, IATA:** Void

- **14.3 Transport hazard class(es)**
  - **ADR/RID/ADN, IMDG, IATA:** Void

- **14.4 Packing group**
  - **ADR/RID/ADN, IMDG, IATA:** Void

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

- **14.6 Special precautions for user**
  - **ADR/RID/ADN, IMDG, IATA:** Not applicable.

- **14.7 Maritime transport in bulk according to IMO instruments**
  - **Transport/Additional information:** Not applicable.
  - **UN "Model Regulation":** Void

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Directive 2012/18/EU**
  - **Named dangerous substances - ANNEX I**
    - **Substance is not listed.**
Trade name: Dimethyl Sulfoxide (DMSO)

- DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II
  Substance is not listed.
- REGULATION (EU) 2019/1148
  - Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))
    Substance is not listed.
  - Annex II - REPORTABLE EXPLOSIVES PRECURSORS Substance is not listed.
- Regulation (EC) No 273/2004 on drug precursors Substance is not listed.
- Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors
  Substance is not listed.
- Chemical Inventories:
  - Australia - AICS
  - Canada - DSL
  - EU - EINECS
  - China - IECSC
  - Japan - ENCS
  - New Zealand - NZIoC
  - Korea - ECL
  - USA - TSCA
  - Philippines - PICCS

- 15.2 Chemical safety assessment: A Chemical Safety Assessment has 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.

- Department issuing SDS:
  Chemservice GmbH
  Herrnsheimer Hauptstrasse 1b
  D-67550 Worms
  Tel.: +49 (0)6241-95480-0
  Fax: +49 (0)6241-95480-25
  Email: sds@chemservice-group.com
- Date of previous version: 09.02.2022
- Version number of previous version: 6.01

- Abbreviations and acronyms:
  - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  - ICAO: International Civil Aviation Organisation
  - REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
  - MARPOL: (from Marine Pollutant) International Convention for the Prevention of Marine Pollution from Ships
  - IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
  - UN: United Nations (also UNO: United Nations Organization)
  - NOEC: No Observed Effect Concentration
  - OECD: Organisation for Economic Co-operation and Development
  - ASTM: American Society for Testing and Materials
  - WAF: Water Accommodated Fraction
  - ADR: Accord relatif au transport international 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)
  - DNEL: Derived No-Effect Level (REACH)
  - PNEC: Predicted No-Effect Concentration (REACH)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent

(Contd. on page 8)
Trade name: Dimethyl Sulfoxide (DMSO)

PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

* Data compared to the previous version altered.