SAFETY DATA SHEET

1. IDENTIFICATION
1.1. Product Name
Stemolecule™ CHIR99021 in Solution

1.2. Catalog Number
04-0004-02

1.3. Uses and restrictions
For research use only. Not for use in diagnostic or therapeutic applications

1.4. Manufacturer/Supplier
Stemgent, Inc.
4 Hartwell Place.
Lexington, MA 02421 USA
(617) 245-0000

1.5. In Case of Emergency
• For medical emergencies, contact your local emergency center.
• For transportation emergencies, contact your local transportation authorities.
• For other non-medical or environmental emergencies please call (617) 245-0030, 8:00 am-4:00 pm EST, Monday – Friday.

2. HAZARDS IDENTIFICATION
2.1. Classification
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
• Acute toxicity, Oral (Category 2), H300
• Skin irritation (Category 2), H315
• Eye irritation (Category 2A), H319
• Specific target organ toxicity – single exposure (Category 3), Respiratory system, H335
• Flammable liquids (Category 4), H227

2.2. Signal Word
Danger

2.3. Symbol

2.4. Hazard Statement(s)
• H227 Combustible liquid
• H300 Fatal if swallowed.
• H315 Causes skin irritation.
• H319 Causes serious eye irritation.
• H335 May cause respiratory irritation.

2.5. Precautionary Statement(s)
• P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
• P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
• P264 Wash skin thoroughly after handling.
• P270 Do not eat, drink, or smoke when using this product.
• P271 Use only outdoors in a well-ventilated area.
• P280 Wear protective gloves/eye protection/face protection.
• P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
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• P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
• P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
• P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
• P312 Call a POISON CENTER or doctor/physician if you feel unwell.
• P321 Specific treatment (see supplemental first aid instructions on this label).
• P330 Rinse mouth.
• P332 + P313 If skin irritation occurs: Get medical advice/attention.
• P337 + P313 If eye irritation persists: Get medical advice/attention.
• P362 Take off contaminated clothing and wash before reuse.
• P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
• P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
• P403 + P235 Store in a well-ventilated place. Keep cool.
• P405 Store locked up.
• P501 Dispose of contents/container to an approved waste disposal plant.

2.6. Hazards not otherwise classified (HNOC) or not covered by GHS

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>3.1. Chemical Name</th>
<th>3.2. Synonyms</th>
<th>3.3. Chemical Formula</th>
<th>3.4. Molecular Weight</th>
<th>3.5. CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stemolecule™ CHIR99021 in Solution</td>
<td></td>
<td>C22H18Cl2N8</td>
<td>465.34 g/mol</td>
<td>252917-06-9</td>
</tr>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>DMSO</td>
<td>C4H8OS</td>
<td>78.13 g/mol</td>
<td>67-68-5</td>
</tr>
</tbody>
</table>

HAZARDOUS COMPONENTS WITHIN MIXTURE

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No./EC-No.</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfoxide</td>
<td>CAS-No: 67-68-5 EC-No: 200-664-3</td>
<td>Flam. Liq. 4; H227</td>
<td>N/A</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

4.1. First Aid Instructions
- **General Advice**
  Move out of exposure area. Consult a physician.
- **Eyes**
  Check for and remove contact lenses immediately and flush thoroughly with water for at least 15 minutes. Call a physician.
- **Skin**
  Immediately flush skin with copious amounts of water. Remove contaminated clothing and shoes and wash before use. Contact a physician.
- **Ingestion**
  If swallowed, wash mouth out with water provided person is conscious. Do not induce vomiting. Loosen tight clothing. Contact a physician.
- **Inhalation**
  If inhaled, remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, call a physician.
- **Puncture Wounds**
  Wash thoroughly with soap and water. Allow wound to bleed freely. Contact a physician.

4.2. Most Important Symptoms/effects, acute and immediate
Described in section 2.

4.3. Indications of immediate medical attention and special treatment needed
No data available.

5. FIRE FIGHTING MEASURES

5.1. Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Specific hazards arising from the chemical
Carbon oxides, sulfur oxides.

5.3. Special protective equipment and precautions for fire-fighters
Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment, and emergency procedures
Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating from explosive concentration. Vapours can accumulate in low areas. Ensure adequate ventilation. Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.2. Environmental Precautions
6.3. Methods and materials for containment and clean up
Remove ignition points. Ventilate area and contain spillage. Soak up with inert absorbent material and dispose of as hazardous waste. In case of mist formation use a respirator or self-contained breathing apparatus (SCBA).

7. HANDLING AND STORAGE
7.1 Precautions for safe handling
- Avoid inhalation, contact with eyes, skin, and clothing.
- Avoid prolonged or repeated exposure.
- Provide appropriate exhaust ventilation at places where dust is formed.
- For other precautions see section 2.5.

7.2 Conditions for safe storage, including any incompatibilities
Store at -20°C protected from light.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters
Dimethyl Sulfoxide, CAS-No. 67-68-5
Dimethyl Sulfoxide Exposure Levels
- TWA: 250ppm – USA. Workplace Environmental Exposure Levels (WEEL)

8.2. Appropriate engineering controls
Safety shower and eye bath. Mechanical exhaust required.

8.3. Protection measures and Personal Protective Equipment
- Respiratory Protection
  Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
  Chemical safety goggles.
- Eye Protection
  Protective gloves and lab coat. Use nitrile rubber gloves with a minimum thickness of 0.2mm.

9. PHYSICAL/CHEMICAL PROPERTIES

9.1. Appearance
Colorless liquid

9.2. Odor
No data available.

9.3. Odor Threshold
No data available.

9.4. pH
No data available.

9.5. Melting point/freezing point
No data available.

9.6. Initial boiling point and boiling range
No data available.

9.7. Flash point
89°C (192°F)

9.8. Evaporation rate
No data available.

9.9. Flammability (solid, gas);
No data available.

9.10. Upper/lower flammability or explosive limits
No data available.
### 9. Safety Data Sheet

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.11. Vapor pressure</td>
<td>No data available.</td>
</tr>
<tr>
<td>9.13. Relative density</td>
<td>No data available.</td>
</tr>
<tr>
<td>9.15. Partition coefficient: n-octanol/water</td>
<td>No data available.</td>
</tr>
<tr>
<td>9.17. Decomposition temperature</td>
<td>No data available.</td>
</tr>
<tr>
<td>9.18. Viscosity</td>
<td>No data available.</td>
</tr>
<tr>
<td>9.20. Oxidizing properties</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

### 10. Stability/Reactivity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1. Reactivity</td>
<td>No data available.</td>
</tr>
<tr>
<td>10.2. Chemical Stability</td>
<td>This product is stable under recommended storage conditions.</td>
</tr>
<tr>
<td>10.3. Possibility of hazardous reactions</td>
<td>No data available.</td>
</tr>
<tr>
<td>10.4. Conditions to Avoid</td>
<td>Prolonged heating above 150°C (302°F) can cause rapid, exothermic decomposition.</td>
</tr>
<tr>
<td>10.5. Incompatible materials</td>
<td>Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents, Strong bases.</td>
</tr>
<tr>
<td>10.6. Hazardous decomposition products</td>
<td>Sulfur dioxide, formaldehyde, methyl mercaptan, dimethyl sulfide, dimethyl disulfide, and bis (methylthio) methane.</td>
</tr>
</tbody>
</table>

### 11. Toxicological Information

11.1. Toxicological effects

- **Acute toxicity**
  - Oral LD-50 (male rat): 14,500 – 28,300 mg/kg
  - Inhalation LD-50 (rat): 4 hrs – 40250 ppm
  - Dermal LD-50 (rat): 40,000 mg/kg
- **Skin irritation (human):** Mild
- **Repeated skin application (human):** Slight irritation
- **Skin sensitization (human):** None by EC protocols
- **Eye irritation (human):** None by EC protocols
- **Respiratory or skin sensitization**
  - No data available.
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- Germ cell mutagenicity
  - Mouse
    - Lymphocyte
    - Cytogenetic analysis
    - Mutation in mammalian somatic cells
    - DNA damage
  - Rat
    - Cytogenetic analysis

- Carcinogenicity
  - Rat – oral – tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and appendages: Other: Tumors.
  - Mouse – oral – tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and Appendages: Other: Tumors.
  - IARC: No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen.
  - ACGIH: No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
  - NTP: No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.
  - OSHA: No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

- Reproductive Toxicity
  - Reproductive toxicity – Rat – intraperitoneal
    - Effects on Fertility: Abortion.
    - Effects on Fertility: Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).
  - Reproductive toxicity – Rat – Subcutaneous
    - Effects on Fertility: Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).
    - Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth)
  - Reproductive – Mouse – Oral
    - Effects on Fertility: Pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea).
    - Effects on Embryo or Fetus: Fetotoxicity (except death, e.g. stunted fetus).
    - Specific developmental abnormalities: Musculoskeletal system.
  - Developmental Toxicity – Mouse – intraperitoneal
    - Effects on Embryo or Fetus: Fetotoxicity (except death, e.g. stunted fetus).
    - Specific developmental abnormalities: Musculoskeletal system.

- Specific target organ toxicity
  - Single exposure
  - Repeated exposure

  No data available.
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• Aspiration hazard
  No data available.

11.2. Symptoms related to the physical, chemical and toxicological characteristics
Effects due to ingestion may include: Nausea, Fatigue, Headache.

11.3. Effects of Short-Term Exposure
No data available.

11.4. Effects of Long-Term Exposure
• Oral study (13 weeks, rat): LOEL = 8800 mg/kg/day (minor target organ effects: liver) (reduced weight gain): NOEL = 1100 mg/kg/day
• Inhalation study (6 weeks, rat): NOEL = 60 ppm

11.5. Numerical measures of toxicity
No data available.

11.6. Other Information
Eyes – Eye disease – Based on Human Evidence

12. ECOLOGICAL INFORMATION
12.1. Toxicity
• LC50 – Pimephales promelas (fathead minnow) – 34,000 mg/l – 96h
• LC50 – Oncorhynchus mykiss (rainbow trout) – 35,000 mg/l – 96h
• EC50 – Daphnia magna (Water flea) – 24,600 mg/l – 48h
• EC50 – Pseudokirchneriella subcapitata (green algae) – 17,000 mg/l – 72h

12.2. Persistence and degradability
Result: 31% - According to the results of tests of biodegradability this product is not readily biodegradable.

12.3. Bioaccumulative potential
No data available.

12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
Not applicable.

12.6. Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS
13.1. Disposal Method
Waste must be disposed of in accordance with federal, state, and local environmental control regulations.

13.2. Personal safety
Refer to section 8.

14. TRANSPORT INFORMATION
This product is considered not hazardous for transport.

15. REGULATORY INFORMATION
U.S. Federal Regulations
• SARA 313 components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels.

• SARA 302 components
Does not contain any components subject to reporting.

• SARA 311/312 Hazards
Acute health hazard, Fire hazard, Chronic health hazard.
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- Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see CFR 61)
- Does not contain any components subject to reporting.

U.S. State Regulations
- California Proposition 65
- Does not contain any components subject to reporting.
- Massachusetts Right To Know Components
- Does not contain any components subject to reporting.
- Pennsylvania Right To Know Components
- Does not contain any components subject to reporting.
- New Jersey Right To Know Components
- Dimethyl Sulfoxide, CAS No. 67-68-5

Japanese Regulations
- Poisonous and Deleterious Substances Control Law
- Deleterious Substance: 6-[[2-[[4-(2,4-dichlorophenyl)-5-(5-methyl-1H-imidazol-2-yl)-2 pyrimidinyl]amino][ethyl]amino]-3-pyridinecarbonitrile
- Not controlled under WHMIS (Canada).

16. OTHER INFORMATION
Notice
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Stemgent, Inc. shall not be held liable for any damage resulting from handling or from contact with the product. See Stemgent, Inc. website for terms and conditions of sale.

Preparation Date: March 11, 2016
Version No.: 1.2
Prepared by: Quality Control

END OF SAFETY DATA SHEET