1. IDENTIFICATION

Product Name
Halt Protease Inhibitor Cocktail

Recommended use of the chemical and restrictions on use
Identified Uses
For Research and Development Use Only

Product Numbers
190222

Company Identification
Covaris, Inc.
14 Gill Street, Unit H
Woburn, MA 01801

Customer Information Number
(781) 932-3959

Emergency Telephone Number
(800) 424-9300 (for emergencies only)
Chemtrec Number
(800) 424-9300

Issue Date
October 31, 2013

Supersedes Date
Safety Data Sheet prepared in accordance with OSHA’s Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification
Serious eye damage/eye irritation - Category 2A
Skin corrosion/irritation - Category 2

Label Elements
Hazard Symbols

Signal Word: Warning

Hazard Statements
Causes serious eye irritation.
Causes skin irritation.

Precautionary Statements
Prevention
Wear eye/face protection.
Wear protective gloves.
Wash hands thoroughly after handling.

Response
If skin irritation occurs, get medical advice/attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
If on skin: wash with plenty of soap and water.
2. HAZARD IDENTIFICATION

Storage
None

Disposal
Dispose of contents/container in accordance with local regulation.

Other Hazards
None

Specific Concentration Limits
The values listed below represent the percentages of ingredients of unknown toxicity.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>0 - 10%</td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>0 - 10%</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>90 - 100%</td>
<td></td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>0 - 10%</td>
<td></td>
</tr>
</tbody>
</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl sulfoxide</td>
<td>67-68-5</td>
<td>80 – 95%</td>
</tr>
<tr>
<td>Benzenesulfonyl fluoride, 4-(2-aminoethyl)-hydrochloride</td>
<td>30287-99-7</td>
<td>1 – 10%</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Description of necessary first-aid measures

Eyes
Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin
Wash affected area with plenty of water. Seek medical attention if symptoms persist.

Ingestion
Do not induce vomiting. Have victim drink 1-3 glasses of water to dilute stomach contents. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing. Obtain medical attention immediately.

Inhalation
Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention if symptoms persist.

Most important symptoms/effects, acute and delayed
Aside from the information found under description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.
4. FIRST- AID MEASURES

Indication of immediate medical attention and special treatment needed
Notes to Physicians
Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable (and unsuitable) Extinguishing Media
Use foam, dry chemical or carbon dioxide. Use water spray for surroundings and containers.

Specific hazards arising from the chemical
None known.

Special Protective Actions for Fire-Fighters
Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing.

Environmental Precautions
Prevent the material from entering drains or watercourses. Notify authorities if spill has entered watercourse or sewer or has contaminated soil or vegetation.

Methods and materials for containment and cleaning up
Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Wear appropriate protective equipment when handling. Do not eat or drink while handling this material. Avoid contact with eyes, skin and clothing.

Conditions for safe storage
Store at 2 - 8°C (35.6 - 46.4°F). Keep container tightly closed when not in use. Storage area should be: cool - dry - well ventilated - out of direct sunlight - away from sources of ignition (heat, sparks, flames, pilot lights) - away from incompatible materials (see Section 10)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Benzenesulfonyl fluoride, 4-(2-aminoethyl)- hydrochloride
None established
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering controls
Use engineering methods to prevent or control exposure. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Individual protection measures
Respiratory Protection
Respiratory protection not normally required.

Skin Protection
Chemical resistant gloves

Eye/Face Protection
Chemical goggles or safety glasses with side shields

Body Protection
Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point (°C/F)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C)</td>
<td>&gt;100°C</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation Rate (BuAc=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Soluble</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>No data available</td>
</tr>
<tr>
<td>VOC (g/l)</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosive limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosive limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No known reactivity.

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.
10. STABILITY AND REACTIVITY

**Conditions to Avoid**
Heat - high temperatures

**Incompatible Materials**
Strong oxidizing agents - acids - bases

**Hazardous Decomposition Products**
Oxides of carbon - nitrogen oxides - sulfur oxides - hydrogen chloride gas - hydrogen fluoride - halogenated compounds

11. TOXICOLOGICAL INFORMATION

**Acute Toxicity**

**Dimethyl Sulfoxide**
Oral LD50 (rat) >5000 mg/kg
Dermal LD50 (rabbit) >5000 mg/kg

**Benzenesulfonyl fluoride, 4-(2-aminothyl)- hydrochloride**
Oral LD50 (mouse) 2834 mg/kg

**Specific Target Organ Toxicity (STOT) – single exposure**

Dimethyl sulfoxide: Available data indicates this component will not cause target organ effects after a single exposure.
Benzenesulfonyl fluoride, 4-(2-aminothyl) - hydrochloride: No data available to this component will cause target organ effects after single exposure.

**Specific Target Organ Toxicity (STOT) – repeat exposure**

Dimethyl sulfoxide: Available data indicates this component will not cause target organ effects after repeated exposure.
Benzenesulfonyl fluoride, 4-(2-aminothyl) - hydrochloride: No data available to indicate this component will cause target organ effects after repeated exposure.

**Serious Eye damage/Irritation**

Dimethyl sulfoxide: Slightly irritating in rabbit studies.
Benzenesulfonyl fluoride, 4-(2-aminothyl) - hydrochloride: Available data indicates that this component causes serious eye damage.

**Skin Corrosion/Irritation**

Dimethyl sulfoxide: Slightly irritating in rabbit studies.
Benzenesulfonyl fluoride, 4-(2-aminothyl) - hydrochloride: Available data indicates that this component causes severe skin burns.

**Respiratory or Skin Sensitization**

Dimethyl sulfoxide: Not sensitizing in guinea pig studies (skin).
Benzenesulfonyl fluoride, 4-(2-aminothyl) - hydrochloride: No data available to indicate this component may cause skin or respiratory sensitization.

**Carcinogenicity**

Dimethyl sulfoxide: Not considered carcinogenic by IARC, NTP or OSHA.
Benzenesulfonyl fluoride, 4-(2-aminothyl) - hydrochloride: No data available to indicate product may present a carcinogenic hazard.
11. TOXICOLOGICAL INFORMATION

Germ Cell Mutagenicity
Dimethyl sulfoxide: Available data indicates this component is not mutagenic.
Benzenesulfonyl fluoride, 4-(2-aminoethyl) - hydrochloride: No data available to indicate this component is mutagenic or genotoxic.

Reproductive Toxicity
Dimethyl sulfoxide: Available data indicates this component will not cause reproductive toxicity or birth defects.
Benzenesulfonyl fluoride, 4-(2-aminoethyl) - hydrochloride: No data available to indicate this component may cause reproductive toxicity or birth defects.

Aspiration Hazard
No data available to indicate product is an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Dimethyl sulfoxide
LC50 (fathead minnow) 34,000 mg/l 96 hr
EC50 (daphnia pulex) 27,500 mg/l 48 hr

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

Contact supplier for transport information.

15. REGULATORY INFORMATION

United States TSCA Inventory
Components of this product have not been verified for the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Canada DSL Inventory
Components of this product have not been verified for inclusion on the Domestic Substance List (DSL).
15. REGULATORY INFORMATION

WHMIS Classification
D2B
This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

SARA Title III Sect. 311/312 Categorization
Immediate (Acute)

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Flammability - 1
NFPA Code for Health - 2
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – None

HMIS Ratings
HMIS Code for Flammability - 1
HMIS Code for Health - 2
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service
ECHA: European Chemicals Agency
IARC: International Agency for Research on Cancer
N/A: Denotes no applicable information found or available
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

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