SAFETY DATA SHEET

07415 07416 - Collagenase Type I

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name
Collagenase Type I

Other means of identification

Catalog Number
07415 07416

Document Number
DX21350

Synonyms
Clostridiopeptidase A; Clostridium histolyticum collagenase; Collagenase 1; Collagenase Type I; Collagenase I

Recommended use of the chemical and restrictions on use

Recommended Use
Laboratory reagent

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Details of the supplier of the safety data sheet

Manufacturer/Supplier
STEMCELL Technologies Canada Inc.
Suite 500 - 1618 Station Street
Vancouver, British Columbia V6A 1B6 Canada

Emergency telephone number

Emergency Telephone
1-800-667-0322

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

Hazards not otherwise classified (HNOC)

Not applicable
SAFETY DATA SHEET

07415 07416 - Collagenase Type I

Revision Date 19-Oct-2018
Revision Number 2

Label elements

Danger

Hazard statements
Causes skin irritation
Causes serious eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause respiratory irritation

Appearance Powder

Physical state Solid

Odor No information available

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Use only outdoors or in a well-ventilated area
Wear protective gloves/eye protection/face protection

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
IF ON SKIN: Wash with plenty of water and soap
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
If experiencing respiratory symptoms: Call a POISON CENTER or doctor
IF INHALED: Remove person to fresh air and keep comfortable for breathing

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other Information
Not applicable

Unknown acute toxicity
100 % of the mixture consists of ingredient(s) of unknown toxicity
100 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clostridiopeptidase A; Clostridium histolyticum collagenase; Collagenase 1; Collagenase Type 1; Collagenase I.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collagenase</td>
<td>9001-12-1</td>
<td>100</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

### 4. FIRST AID MEASURES

#### Description of first aid measures

**General advice**
Show this safety data sheet to the doctor in attendance.

**Inhalation**
May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

**Eye contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.

**Skin contact**
May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water for at least 15 minutes.

**Ingestion**
May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

**Self-protection of the first aider**
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information.

**Most important symptoms and effects, both acute and delayed**
SAFETY DATA SHEET

07415 07416 - Collagenase Type I

Revision Date  19-Oct-2018
Revision Number 2

Symptoms
May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/or wheezing. Itching. Rashes. Hives. Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians
May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact.

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

Special protective equipment for fire-fighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information
Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Pick up and transfer to properly labeled containers.

Prevention of secondary hazards
Clean contaminated objects and areas thoroughly observing environmental regulations.
7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse. Avoid breathing vapors or mists.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits
The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Appropriate engineering controls

Engineering controls
Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear safety glasses with side-shields.

Hand protection
Wear suitable gloves. Impervious gloves.

Skin and body protection
Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection
No protective equipment is needed under normal use conditions. If exposure limits are
exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations
Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
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<tr>
<td>Appearance</td>
<td>Powder</td>
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<tr>
<td>Color</td>
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<td></td>
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<tr>
<td>Odor</td>
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</tr>
<tr>
<td>Odor threshold</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
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<td>Melting point / freezing point</td>
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<td>Boiling point / boiling range</td>
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<td>Flash point</td>
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<td>Flammability (solid, gas)</td>
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<td>Flammability Limit in Air</td>
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<tr>
<td>Upper flammability limit:</td>
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<tr>
<td>Lower flammability limit:</td>
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<tr>
<td>Vapor pressure</td>
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<td>Solubility in other solvents</td>
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<tr>
<td>Decomposition temperature</td>
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<td>Kinematic viscosity</td>
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<tr>
<td>Dynamic viscosity</td>
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<tr>
<td>Explosive properties</td>
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<tr>
<td>Oxidizing properties</td>
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</table>

<table>
<thead>
<tr>
<th>Other Information</th>
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<th></th>
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<tbody>
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<td>Softening point</td>
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<td></td>
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<tr>
<td>Molecular formula</td>
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<td></td>
</tr>
<tr>
<td>VOC Content (%)</td>
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<td></td>
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<tr>
<td>Liquid Density</td>
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</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
<td></td>
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</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity  
No information available.

Chemical stability  
Stable under normal conditions.

Possibility of hazardous reactions  
None under normal processing.

Conditions to avoid  
None known based on information supplied.

Incompatible materials  
Strong oxidizing agents.

Hazardous decomposition products  
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation  
Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components). May cause irritation of respiratory tract.

Eye contact  
Specific test data for the substance or mixture is not available. Irritating to eyes. (based on components). Causes serious eye irritation.

Skin contact  
Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Causes skin irritation.

Ingestion  
Specific test data for the substance or mixture is not available. May cause additional affects as listed under “Inhalation”. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms  
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Redness. May cause redness and tearing of the eyes.

Numerical measures of toxicity

Acute toxicity

Unknown acute toxicity  
100 % of the mixture consists of ingredient(s) of unknown toxicity

100 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
SAFETY DATA SHEET

07415 07416 - Collagenase Type I

100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Skin corrosion/irritation Classification based on data available for ingredients. Irritating to skin.
Serious eye damage/eye irritation Classification based on data available for ingredients. Irritating to eyes.
Respiratory or skin sensitization May cause sensitization by inhalation.
Germ cell mutagenicity No information available.
Carcinogenicity No information available.
Reproductive toxicity No information available.
STOT - single exposure May cause respiratory irritation.
STOT - repeated exposure No information available.
Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity The environmental impact of this product has not been fully investigated.
Persistence and degradability No information available.
Bioaccumulation There is no data for this product.
Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging Do not reuse empty containers.
14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT</th>
<th>Not regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDG</td>
<td>Not regulated</td>
</tr>
<tr>
<td>MEX</td>
<td>Not regulated</td>
</tr>
<tr>
<td>ICAO (air)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IATA</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not regulated</td>
</tr>
<tr>
<td>RID</td>
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<tr>
<td>ADR</td>
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<td>ADN</td>
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15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Does not comply</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Does not comply</td>
</tr>
<tr>
<td>PICCS</td>
<td>Does not comply</td>
</tr>
<tr>
<td>AICS</td>
<td>Does not comply</td>
</tr>
</tbody>
</table>

Legend:

- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

US Federal Regulations
SAFETY DATA SHEET

07415 07416 - Collagenase Type I

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

US State Regulations
This product does not contain any substances regulated by state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number
Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Prepared By,
Quality Control. STEMCELL Technologies Canada Inc.

Revision Date
19-Oct-2018

Revision Note
No information available.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

End of Safety Data Sheet