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

1.1 Product Identifiers

Product Name: Recombinant Human CCL2/MCP-1 Protein, CF
Catalog Number: 279-MC/CF
Components: Acetonitrile TFA - Liquid
Acetonitrile TFA - Lyophilized

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

Identified Uses: For Research Use Only

1.3 Details of the supplier of the safety data sheet

Company: R&D Systems, Inc. a Bio-Techne Brand
614 McKinley Place NE
Minneapolis, MN 55413, USA
Telephone: 1-800-343-7475
Fax: 1-612-656-4400
Internet: www.rndsystems.com
Email address: info@bio-techne.com

Canada: 21 Canmotor Ave
Toronto, ON M8Z 4E6
Telephone: 1-855-868-8722
Fax: 902-827-6402
Email address: Canada.inquiries@bio-techne.com

United Kingdom: 19 Barton Lane
Abingdon, OX14 3NB
Telephone: 44 (0)1235 529449
Fax: 44 (0)1235 533420
Email address: info.emea@bio-techne.com

China: 1193 Changning Road
Unit 1901, Raffles Changning Office
Shanghai, China
Telephone: 86-400-821-3475
Fax: 76 (021)52371001
Email address: techsupport.cn@bio-techne.com

1.4 Emergency Telephone Number

Emergency Tel: US: 612-379-2956 or 800-343-7475 / Europe: +44(0)1235-529449 / China 86-400-821-3475

2. HAZARDS IDENTIFICATION

See additional safety data sheets.
1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifiers
Product Name: Acetonitrile TFA - Liquid

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified Uses: For Research Use Only

1.3 Details of the supplier of the safety data sheet
Company: R&D Systems, Inc. a Bio-Techne Brand
Telephone: 1-800-343-7475
614 McKinley Place NE
Minneapolis, MN 55413, USA
Internet: www.rndsystems.com
Fax: 1-612-656-4400
Email address: info@bio-techne.com

Canada: 21 Canmotor Ave
Toronto, ON M8Z 4E6
Telephone: 1-855-668-8722
Fax: 902-827-6402
Email address: Canada.inquiries@bio-techne.com

United Kingdom: 19 Barton Lane
Abingdon Science Park
Abingdon, OX14 3NB
Telephone: 44 (0)1235 529449
Fax: 44 (0)1235 533420
Email address: info.emea@bio-techne.com

China: 1193 Changning Road
Unit 1901, Raffles Changning Office
Shanghai, China
Telephone: 86-400-821-3475
Fax: 76 (021)52371001
Email address: techsupport.cn@bio-techne.com

1.4 Emergency Telephone Number
For chemical emergency, spill, leak, fire, exposure, or accident call CHEMTREC day or night:

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Flammable liquids - Category 2
Acute Toxicity, oral - Category 4
Acute Toxicity, dermal - Category 4
Eye Irritation - Category 2A
Acute Toxicity, inhalation - Category 4

2.2 Label Elements
Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP]
Pictogram(s):

Signal Word: Danger

Hazard Statement(s):
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

Precautionary Statement(s):
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/…] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P261 Avoid breathing dust/fumes/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only in well-ventilated areas.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+312 IF SWALLOWED: Call a POISON CENTRE/doctor/… if you feel unwell.
P302+352 IF ON SKIN: Wash with plenty of soap and water.
P303+361+353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call poison center/doctor if you feel unwell.
P313 Specific treatment (see Section 4).
P314 Rinse mouth.
P337+313 If eye irritation persists. Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P370+378 In Case of Fire: Use dry chemical, CO2, or alcohol resistant foam.

2.3 Other Hazards - None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Not applicable.

3.2 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Index No.</th>
<th>Classification</th>
<th>Conc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile Solution</td>
<td>75-05-8</td>
<td>200-835-2</td>
<td></td>
<td>H225 , H302 , H312 , H319 , H332</td>
<td>30 - 40 %</td>
</tr>
<tr>
<td>Trifluoroacetic Acid</td>
<td>76-05-1</td>
<td>200-829-3</td>
<td></td>
<td></td>
<td>= 0.1 %</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td></td>
<td></td>
<td>60 - 70 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

General Advice
Consult a doctor and show this safety data sheet.

If Inhaled
Acetonitrile Solution - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
Trifluoroacetic Acid - Remove to fresh air and monitor breathing. If breathing becomes difficult, give oxygen. If breathing stops, give artificial respiration. Consult a doctor.

In Case of Skin Contact
Acetonitrile Solution - Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Trifluoroacetic Acid - Immediately wash skin with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing and shoes and wash before reuse. Consult a doctor.

In Case of Eye Contact
Acetonitrile Solution - Flush with copious amounts of water for at least 15 minutes. Remove contact lenses if present and easy to do so. If eye irritation persists, consult a doctor.
Trifluoroacetic Acid - Flush with copious amounts of water for at least 15 minutes. Consult a doctor.

If Swallowed
Acetonitrile Solution - Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Trifluoroacetic Acid - Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed
To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

4.3 Indication of immediate medical attention and special treatment needed
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media
Acetonitrile Solution - Dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
Trifluoroacetic Acid - Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Page 3 of 11
Acetonitrile Solution - Emits toxic fumes under fire conditions. Carbon oxides.
Trifluoroacetic Acid - In combustion, may emit toxic fumes.

5.3 Precautions for fire-fighters
Acetonitrile Solution - Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Trifluoroacetic Acid - Wear suitable protective clothing to prevent contact with skin and eyes and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures
Acetonitrile Solution - Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate all personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Trifluoroacetic Acid - Do not take action without suitable protective clothing - see section 8 of SDS. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapors, mist, dust or gas.

6.2 Environmental precautions
Acetonitrile Solution - Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Trifluoroacetic Acid - Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Acetonitrile Solution - Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.
Trifluoroacetic Acid - Cover spillage with suitable absorbent material. Hold all material for appropriate disposal as described under section 13 of SDS.

6.4 Reference to other sections
For required PPE see section 8. For disposal see section 13.

7. HANDLING AND STORAGE
7.1 Precautions for safe handling
Acetonitrile Solution - Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Trifluoroacetic Acid - Avoid inhalation, contact with eyes, skin and clothing. Avoid the formation of dust and aerosols. Use in a well-ventilated area. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage, including any incompatibilities
Acetonitrile Solution - Store in cool, well-ventilated area. Keep cool. Keep container tightly sealed until ready to use.
Trifluoroacetic Acid - Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use.

7.3 Specific end uses
Not applicable.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1 Control parameters
Components with workplace control parameters
Acetonitrile Solution - STEL: 102 mg/m³ 15 minutes. TWA: 68 mg/m³ 8 hours.
Trifluoroacetic Acid - Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate Engineering Controls
Use in a fume hood where applicable. Ensure all engineering measures described under section 7 of SDS are in place. Ensure laboratory is equipped with a safety shower and eye wash station.

Personal Protective Equipment
Eye / Face Protection
Use appropriate safety glasses.

Skin Protection
Use appropriate chemical resistant gloves (minimum requirement use standard BS EN 374:2003). Gloves should be inspected before use. Wash and dry hands thoroughly after handling.

Body Protection
Wear appropriate protective clothing.

Respiratory Protection
If risk assessment indicates necessary, use a suitable respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Acetonitrile Solution</th>
<th>Trifluoroacetic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless liquid</td>
<td>No data available.</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available.</td>
<td>No data available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available.</td>
<td>No data available.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available.</td>
<td>No data available.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available.</td>
<td>No data available.</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No data available.</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

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pH 2.0 ± 0.3
Melting / Freezing Point No data available.
Boiling Point / Range No data available.
Flash Point No data available.
Evaporation Rate No data available.
Flammability (Solid, Gas) No data available.
Upper / Lower Flammability or Explosive Limits No data available.
Solubility(ies) Soluble
Partition Coefficient No data available.
Autoignition Temperature No data available.
Decomposition Temperature No data available.
Viscosity No data available.
Explosive Properties No data available.
Oxidizing Properties No data available.

9.2 Other safety information
No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity
Stable under recommended transport or storage conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4 Conditions to avoid
Acetonitrile Solution - Avoid all sources of ignition (heat, spark, flame and direct sunlight.)
Trifluoroacetic Acid - Heat, moisture.

10.5 Incompatible materials
Acetonitrile Solution - Strong acids/alkalis, strong oxidizing/reducing agents. May attack plastics, rubbers and coatings.
Trifluoroacetic Acid - Strong acids/alkalis, strong oxidising/reducing agents.

10.6 Hazardous decomposition products
Acetonitrile Solution - In combustion may emit toxic fumes such as hydrogen cyanide (hydrocyanide acid), carbon dioxide, carbon monoxide or oxides of nitrogen.
Trifluoroacetic Acid - Strong acids/alkalis, strong oxidising/reducing agents.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity
Acetonitrile Solution - LD50 rat oral - Dose: 2460 mg/kg; Dermal: LD50 rabbit - Dose: >2000 mg/kg. Inhalation: LD50 rat - Dose: 12.68 mg/L with 8 hours of exposure
Trifluoroacetic Acid - Classified based on available data

Skin Corrosion / Irritation
Acetonitrile Solution - Mild irritant rabbit
Trifluoroacetic Acid - Classified based on available data

Serious Eye Damage / Irritation
Acetonitrile Solution - Moderate irritant rabbit
Trifluoroacetic Acid - Classified based on available data

Respiratory or Skin Sensitization
Classified based on available data

Germ Cell Mutagenicity
Classified based on available data

Carcinogenicity
Classified based on available data

Reproductive Toxicity
Classified based on available data

Specific Target Organ Toxicity - Single Exposure
Classified based on available data

Specific Target Organ Toxicity - Repeated Exposure
Classified based on available data

Aspiration Hazard
Classified based on available data

Symptoms / Routes of Exposure

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest.
Ingestion: There may be irritation of the throat.
Skin: Acetonitrile Solution - Adverse symptoms may include the following: irritation, redness.
Trifluoroacetic Acid - There may be mild irritation at the site of contact.
Eyes: Acetonitrile Solution - Adverse symptoms may include the following: pain or irritation, watering, redness.
Trifluoroacetic Acid - There may be irritation and redness.
Delayed / Immediate Effects: No known symptoms.
12. **ECOLOGICAL INFORMATION**

12.1 *Toxicity*
- Acetonitrile Solution - Acute LC50 3600000 µg/L Fresh water Daphnia - Daphnia magna - <24 hours. Acute LC50 >1500 mg/L Fresh water Fish - Pimephales promelas - Juvenile) - 0.2 to 0.5 g at 96 hours.
- Trifluoroacetic Acid - No data available.

12.2 *Persistence and degradability*
No data available.

12.3 *Bioaccumulative potential*
- Acetonitrile Solution - Potential low.
- Trifluoroacetic Acid - No data available.

12.4 *Mobility in soil*
No data available.

12.5 *Results of PBT and vPvB assessment*
No data available.

12.6 *Other adverse effects*
No data available.

13. **DISPOSAL CONSIDERATIONS**

13.1 *Waste treatment methods*
- Product
  - Acetonitrile Solution - Dispose of waste in accordance to applicable national, regional, or local regulations.
  - Trifluoroacetic Acid - Transfer to a suitable container and arrange for collection by specialized disposal company in accordance with national, regional, or local legislation.

- **Contaminated Packaging**
  - Dispose of in a regulated landfill site or other method for hazardous or toxic wastes in accordance with national, regional, or local legislation.

14. **TRANSPORT INFORMATION**

14.1 *UN-Number*
- Acetonitrile Solution - UN1993

14.2 *UN proper shipping name*
- Acetonitrile Solution - Flammable liquids, n.o.s.
- Trifluoroacetic Acid - Does not meet the criteria for classification as hazardous for transport.

14.3 *Transport hazard class(es)*
- Acetonitrile Solution - 3
- Trifluoroacetic Acid - Does not meet the criteria for classification as hazardous for transport.

14.4 *Packaging group*
- Acetonitrile Solution - II
- Trifluoroacetic Acid - Does not meet the criteria for classification as hazardous for transport.

14.5 *Environmental hazards*
- Does not meet the criteria for classification as hazardous for transport.

14.6 *Special precautions for users*
- Does not meet the criteria for classification as hazardous for transport.

14.7 *Additional transport information*
- Does not meet the criteria for classification as hazardous for transport.

15. **REGULATORY INFORMATION**

15.1 *Safety, health and environmental regulations/legislation specific for the substance or mixture*
- **TSCA (Toxic Substances Control Act):** Not applicable.
- **SARA 313:** Not applicable.
- **SARA 311/312:** Not applicable.
- **CERCLA Reportable Quantity:** Not applicable.
- **California Proposition 65:** Not applicable.

15.2 *Chemical safety assessment*
- A Chemical Safety Assessment has not been made for this product.
16. OTHER INFORMATION

Further Information

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This company shall not be held liable for any damage resulting from handling or from contact with the above product. This material must only be handled by suitably qualified experienced scientists in appropriately equipped and authorized facilities. The above information is believed to be correct but does not purport to be all inclusive and should be used as a guide only for experienced personnel. Always consult your safety advisor and follow appropriate local and national safety legislature. The absence of warning must not, under any circumstance, be taken to mean that no hazard exists.

End of safety data sheet
1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifiers

- **Product Name:** Acetonitrile TFA - Lyophilized

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

- **Identified Uses:** For Research Use Only

1.3 Details of the supplier of the safety data sheet

- **Company:** R&D Systems, Inc. a Bio-Techne Brand
  - **Telephone:** 1-800-343-7475
  - **Fax:** 1-612-656-4400
  - **Internet:** www.rndsystems.com
  - **Email address:** info@bio-techne.com

- **Canada:**
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  - **Fax:** 902-827-6402
  - **Email address:** Canada.inquiries@bio-techne.com

- **United Kingdom:**
  - **19 Barton Lane, Abingdon, Science Park, Abingdon, OX14 3NB**
  - **Telephone:** +44 (0)1235 529449
  - **Fax:** +44 (0)1235 533420
  - **Email address:** info.emea@bio-techne.com

- **China:**
  - **1193 Changning Road, Unit 1901, Raffles Changning Office, Shanghai, China**
  - **Telephone:** 86-400-821-3475
  - **Fax:** 76 (021)52371001
  - **Email address:** techsupport.cn@bio-techne.com

1.4 Emergency Telephone Number

- **Emergency Tel:** US: 612-379-2956 or 800-343-7475 / Europe: +44(0)1235-529449 / China 86-400-821-3475

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

- This substance does not meet the classification criteria of the EC Directives 67/548/EEC, 1999/45/EC, 1272/2008 [CLP], GHS or 29 CFR 1910.1200 [OSHA].

2.2 Label Elements

- The product does not need to be labelled in accordance with EC directives or respective national laws.

2.3 Other Hazards - None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

- Not applicable.

3.2 Mixtures

- This product does not contain hazardous chemicals at concentrations of 1% or greater. This product is not known to contain carcinogens at concentrations of 0.1% or greater.

4. FIRST AID MEASURES

4.1 Description of first aid measures

- **General Advice**
  - Consult a doctor and show this safety data sheet.

  **If Inhaled**
  - Remove to fresh air and monitor breathing. If breathing becomes difficult, give oxygen. If breathing stops, give artificial respiration. Consult a doctor.

  **In Case of Skin Contact**
  - Immediately wash skin with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing and shoes and wash before reuse. Consult a doctor.

  **In Case of Eye Contact**
  - Flush with copious amounts of water for at least 15 minutes. Consult a doctor.

  **If Swallowed**
  - Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed

- To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

4.3 Indication of immediate medical attention and special treatment needed

- Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
5. FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

In combustion, may emit toxic fumes.

5.3 Precautions for fire-fighters

Wear suitable protective clothing to prevent contact with skin and eyes and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Do not take action without suitable protective clothing - see section 8 of SDS. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapors, mist, dust or gas.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover spillage with suitable absorbent material. Hold all material for appropriate disposal as described under section 13 of SDS.

6.4 Reference to other sections

For required PPE see section 8. For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation, contact with eyes, skin and clothing. Avoid the formation of dust and aerosols. Use in a well-ventilated area. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use.

7.3 Specific end uses

Not applicable.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate Engineering Controls

Use in a fume hood where applicable. Ensure all engineering measures described under section 7 of SDS are in place. Ensure laboratory is equipped with a safety shower and eye wash station.

Personal Protective Equipment

Eye / Face Protection

Use appropriate safety glasses.

Skin Protection

Use appropriate chemical resistant gloves (minimum requirement use standard BS EN 374:2003). Gloves should be inspected before use. Wash and dry hands thoroughly after handling.

Body Protection

Wear appropriate protective clothing.

Respiratory Protection

If risk assessment indicates necessary, use a suitable respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Lyophilized white powder or clear liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Little to none</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>Melting / Freezing Point</td>
<td>No data available.</td>
</tr>
<tr>
<td>Boiling Point / Range</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No data available.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flammability (Solid, Gas)</td>
<td>No data available.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available.</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No data available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available.</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>No data available.</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Product is not self igniting.</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available.</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No data available.</td>
</tr>
</tbody>
</table>
9.2 Other safety information
No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity
Stable under recommended transport or storage conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4 Conditions to avoid
Heat, moisture.

10.5 Incompatible materials
Strong acids/alkalis, strong oxidising/reducing agents.

10.6 Hazardous decomposition products
Strong acids/alkalis, strong oxidising/reducing agents.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity
Classified based on available data

Skin Corrosion / Irritation
Classified based on available data

Serious Eye Damage / Irritation
Classified based on available data

Respiratory or Skin Sensitization
Classified based on available data

Germ Cell Mutagenicity
Classified based on available data

Carcinogenicity
Classified based on available data

Reproductive Toxicity
Classified based on available data

Specific Target Organ Toxicity - Single Exposure
Classified based on available data

Specific Target Organ Toxicity - Repeated Exposure
May cause eye burns.

Aspiration Hazard
Classified based on available data

Symptoms / Routes of Exposure

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest.

Ingestion: There may be irritation of the throat.

Skin: There may be mild irritation at the site of contact.

Eyes: May cause eye burns.

Delayed / Immediate Effects: No known symptoms.

Additional Information
Classified based on available data

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available.

12.2 Persistence and degradability
No data available.

12.3 Bioaccumulative potential
12.4 Mobility in soil
No data available.

12.5 Results of PBT and vPvB assessment
No data available.

12.6 Other adverse effects
No data available.

13. DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods
Product
Transfer to a suitable container and arrange for collection by specialized disposal company in accordance with national, regional, or local legislation.

Contaminated Packaging
Dispose of in a regulated landfill site or other method for hazardous or toxic wastes in accordance with national, regional, or local legislation.

14. TRANSPORT INFORMATION
Classified according to the criteria of the UN Model Regulations as reflected in the IMDG Code, ADR, RID, DOT and IATA.

14.1 UN-Number
Does not meet the criteria for classification as hazardous for transport.

14.2 UN proper shipping name
Does not meet the criteria for classification as hazardous for transport.

14.3 Transport hazard class(es)
Does not meet the criteria for classification as hazardous for transport.

14.4 Packaging group
Does not meet the criteria for classification as hazardous for transport.

14.5 Environmental hazards
Does not meet the criteria for classification as hazardous for transport.

14.6 Special precautions for users
Does not meet the criteria for classification as hazardous for transport.

Additional Transport Information
Does not meet the criteria for classification as hazardous for transport.

15. REGULATORY INFORMATION
This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
TSCA (Toxic Substances Control Act): Not applicable.
SARA 313: Not applicable.
SARA 311/312: Not applicable.
CERCLA Reportable Quantity: Not applicable.
California Proposition 65:

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been made for this product.

16. OTHER INFORMATION
Further Information
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This company shall not be held liable for any damage resulting from handling or from contact with the above product. This material must only be handled by suitably qualified experienced scientists in appropriately equipped and authorized facilities. The above information is believed to be correct but does not purport to be all inclusive and should be used as a guide only for experienced personnel. Always consult your safety advisor and follow appropriate local and national safety legislature. The absence of warning must not, under any circumstance, be taken to mean that no hazard exists.

End of safety data sheet