



# MATERIAL SAFETY DATA SHEET

## Section 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier:  
 Product name: **MitoPT-TMRE**  
 Product no./Catalog #(s): 6253, 6254  
 Internal ID: TMRE; tetramethylrhodamine ethyl ester perchlorate
- 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:  
 Supplier: ImmunoChemistry Technologies, LLC  
 9401 James Avenue South, Suite #155  
 Bloomington, MN 55431-2500 USA  
[www.immunochemistry.com](http://www.immunochemistry.com)  
 1-800-829-3194 and 952-888-8788  
 Fax 952-888-8988  
[help@immunochemistry.com](mailto:help@immunochemistry.com)  
 Contact person: Sally Hed
- 1.4 Emergency telephone number:  
 1-800-829-3194 / 952-888-8788 (Hours: 8 am-6 pm central standard time, Monday-Friday)

## Section 2: Hazards identification

- 2.1 Classification of the substance or mixture:  
 Classification (EC 1272/2008)  
 Physical and chemical hazards: Not classified.  
 Human health: Acute Tox. 4 – H302; Acute Tox. 4 – H332; Skin Irrit. 2 – H315; Eye Irrit. 2 – H319  
 Environment: Not classified.  
 Classification (67/548/EEC) Xn; R20/22. Xi; R36/38.
- 2.2 Label elements:  
 Label in accordance with (EC) No. 1272/2008:



Signal word: Warning

Hazard statements:

H302 Harmful if swallowed.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.

Precautionary statements:

P264 Wash hands/skin thoroughly after handling.  
 P305+351+338 If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P321a Specific treatment (see first aid advice on this label).  
 P501 Dispose of contents/containers in accordance with local regulations.

Supplementary precautionary statements:

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P270 Do not eat, drink or smoke when using this product.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P301+312 If swallowed, call a poison center or doctor/physician if you feel unwell.  
 P302+352 If on skin, wash with plenty of soap and water.  
 P304+340 If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P312 Call a poison center or doctor/physician if you feel unwell.  
 P313 Get medical advice/attention.  
 P330 Rinse mouth.

- 2.3 Other hazards:
- |          |  |
|----------|--|
| P332+313 | If skin irritation occurs: get medical advice/attention. |
| P337     | If eye irritation persists: ...                          |
| P362     | Take off contaminated clothing and wash before reuse.    |
|          | No information available.                                |

### Section 3: Composition/information on ingredients

- 3.1 Substances:
- |                |   |
|----------------|---|
| Product name:  | MitoPT-TMRE   |
| CAS-No.:       | 115532-52-0   |
| Gross formula: | C <sub>26</sub> H <sub>27</sub> ClN <sub>2</sub> O <sub>7</sub> |

### Section 4: First aid measures

- 4.1 Description of first aid measures:
- |               |  |
|---------------|--|
| Inhalation:   | Due to the small packaging the risk of inhalation is minimal. Move the exposed person to fresh air at once. Provide rest, warmth, and fresh air. Rinse nose and mouth with water. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention if any discomfort continues. |
| Ingestion:    | DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Remove victim immediately from source of exposure. Rinse mouth thoroughly. Get medical attention immediately! Provide rest, warmth, and fresh air.   |
| Skin contact: | Remove affected person from source of contamination. Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur after washing.  |
| Eye contact:  | Remove victim immediately from source of exposure. Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.   |
- 4.2 Most important symptoms and effects, both acute and delayed:
- |                      |   |
|----------------------|---|
| General information: | The severity of the symptoms described will vary dependant of the concentration and the length of exposure. |
| Inhalation:          | Dust may irritate throat and respiratory system and cause coughing.   |
| Ingestion:           | May cause discomfort if swallowed.  |
| Skin contact:        | Skin irritation.  |
| Eye contact:         | May cause severe irritation to eyes.  |
- 4.3 Indication of any immediate medical attention and special treatment needed: no specific first aid measures noted.

### Section 5: Firefighting measures

- 5.1 Extinguishing media: Use fire-extinguishing media appropriate for the surrounding materials.
- 5.2 Special hazards arising from the substance or mixture:
- Specific hazards: Oxides of: Carbon. Nitrogen. Hydrogen Chloride (HCl)
- 5.3 Advice for firefighters:
- Protective measures in fire: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### Section 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures: Avoid inhalation of dust. Use protective gloves, goggles, and suitable protective clothing. Avoid contact with eyes. Provide adequate ventilation.
- 6.2 Environmental precautions: Do not discharge into the ground or into water courses.
- 6.3 Methods and materials for containment and clean up: Wear necessary protective equipment. Collect in containers and seal securely. Dispose of waste and residues in accordance with local authority requirements.
- 6.4 Reference to other sections: For waste disposal, see Section 13.

### Section 7: Handling and storage

- 7.1 Precautions for safe handling: Avoid inhalation of dust and contact with skin and eyes. Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site.
- 7.2 Conditions for safe storage, including any incompatibilities: Store in tightly closed original container in a dry, cool and well-ventilated place. Protect from light. Keep in original container. Store at specified temperature. Refer to product label.
- 7.3 Specific end use(s) The identified uses for this product are detailed in Section 1.2.

### Section 8: Exposure controls/personal protection

- 8.1 Control parameters:
- 8.2 Exposure controls:

Protective equipment:



|                        |   |
|------------------------|---|
| Process conditions:    | Provide eyewash station.  |
| Engineering measures:  | Provide sufficient ventilation for operations causing dust formation.   |
| Respiratory equipment: | No specific recommendations. If ventilation is insufficient, suitable respiratory protection must be provided.  |
| Hand protection:       | Use suitable protective gloves if risk of skin contact.   |
| Eye protection:        | If risk of splashing, wear safety goggles or face shield.   |
| Other protection:      | Wear appropriate clothing to prevent any possibility of skin contact and repeated or prolonged vapor contact.   |
| Hygiene measures:      | DO NOT SMOKE IN WORK AREA! Wash at the end of each work shift and before eating, smoking, and using the toilet. Promptly remove any clothing that becomes contaminated. Wash promptly with soap and water if skin becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink, or smoke. |
| Skin protection:       | Wear apron or protective clothing in case of contact.   |

## Section 9: Physical and chemical properties

|     |  |  |
|-----|--|--|
| 9.1 | Information on basic physical and chemical properties: |  |
|     | Appearance:  | Powder, dust.                                    |
|     | Color:   | Varying.   |
|     | Odor:  | No characteristic odor.                          |
|     | Solubility:  | Insoluble in water; soluble in organic solvents. |
|     | Initial boiling point and boiling range:               | Not determined.                                  |
|     | Melting point (°C):                                    | Not determined.                                  |
|     | Relative density:                                      | Not determined.                                  |
|     | Vapor density (Air =1):                                | Not determined.                                  |
|     | Vapor pressure:  | Not determined.                                  |
|     | Evaporation rate:                                      | Not determined.                                  |
|     | pH-Value, conc. solution:                              | Not determined.                                  |
|     | Viscosity:   | Not determined.                                  |
|     | Decomposition temperature (°C):                        | Not determined.                                  |
|     | Odor threshold, lower:                                 | Not determined.                                  |
|     | Flash point (°C):                                      | Not determined.                                  |
|     | Auto ignition temperature (°C):                        | Not determined.                                  |
|     | Flammability limit – lower (%):                        | Not determined.                                  |
|     | Flammability limit – upper (%):                        | Not determined.                                  |
|     | Partition coefficient (N-octanol/water):               | Not determined.                                  |
|     | Explosive properties:                                  | Not determined.                                  |
|     | Oxidizing properties:                                  | Not determined.                                  |
| 9.2 | Other information:                                     | No data available.                               |

## Section 10: Stability and reactivity

|      |                                     |   |
|------|-------------------------------------|---|
| 10.1 | Reactivity:                         | No data available.  |
| 10.2 | Chemical stability:                 | No data available. Stable under normal temperature conditions.  |
| 10.3 | Possibility of hazardous reactions: | No data available.  |
| 10.4 | Conditions to avoid:                | Avoid exposure to high temperatures or direct sunlight.   |
| 10.5 | Incompatible materials:             | Materials to avoid: Strong oxidizing substances.  |
| 10.6 | Hazardous decomposition products:   | No data available. Fire creates: vapors/gases/fumes of: carbon monoxide (CO), carbon dioxide (CO <sub>2</sub> ), nitrous gases (NO <sub>x</sub> ), hydrogen chloride (HCl). |

## Section 11: Toxicological information

|      |  |  |
|------|--|--|
| 11.1 | Information on toxicological effects:    |  |
|      | Toxicological information                | No information available.  |
|      | Skin corrosion/irritation – animal data: | Not determined.  |
|      | Serious eye damage/irritation:           | Not determined.  |
|      | Respiratory sensitization:               | Not determined.  |
|      | Skin sensitization:                      | Not determined.  |
|      | Germ cell mutagenicity (in vitro):       | Not determined.  |
|      | Reproductive toxicity                    | Not determined.  |
|      | STOT-single exposure:                    | Not determined. May cause irritation to the respiratory system.        |
|      | STOT-repeated exposure:                  | Not determined.  |
|      | Aspiration hazard:                       | Not determined.  |
|      | Inhalation:                              | Harmful by inhalation. May cause irritation to the respiratory system. |
|      | Ingestion:                               | Harmful if swallowed.  |

|                |  |
|----------------|--|
| Skin contact:  | Harmful in contact with skin. Irritating to skin. May cause sensitization by skin contact. |
| Eye contact:   | May cause severe irritation to eyes.   |
| Target organs: | Skin, eyes, respiratory system, lungs.   |

**Section 12: Ecological information**

|  |  |
|--|--|
| Ecotoxicity:                             | No data on possible environmental effects have been found.             |
| 12.1 Acute toxicity – Fish:              | No data available.   |
| 12.2 Persistence and degradability:      | Degradability: there are no data on the degradability of this product. |
| 12.3 Bioaccumulative potential:          | No data available.   |
| 12.4 Mobility in soil:                   | No data available.   |
| 12.5 Results of PBT and vPvB assessment: | No information available.  |
| 12.6 Other adverse effects:              | No data available.   |

**Section 13: Disposal considerations**

General information: When handling waste, consideration should be made to the safety precautions applying to handling of the product.

- 13.1 Waste treatment methods: dispose of waste and residues in accordance with local authority requirements.

**Section 14: Transport information**

General: The product is not covered by international regulation on the transport of dangerous goods (DOT, IMDG, IATA, ADR/RID).

|   |                 |
|---|-----------------|
| Road transport notes:   | Not classified. |
| Rail transport notes:   | Not classified. |
| Sea transport notes:  | Not classified. |
| Air transport notes:  | Not classified. |
| 14.1 UN number:   | Not applicable. |
| 14.2 UN proper shipping name:   | Not applicable. |
| 14.3 Transport hazard class(es):  | Not applicable. |
| 14.4 Packing group:   | Not applicable. |
| 14.5 Environmental hazards: Environmentally hazardous substance/marine pollutant: | No.             |
| 14.6 Special precautions for user:  | Not known.      |
| 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code:     | Not applicable. |

**Section 15: Regulatory information**

|  |   |
|--|---|
| 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture: |   |
| Approved code of practice:   | Classification and labeling of substances and preparations dangerous for supply. Safety data sheets for substances and preparations.  |
| Guidance notes:  | Workplace exposure limits EH40.   |
| EU Legislation:  | Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. |
| 15.2 Chemical safety assessment:   | No chemical safety assessment has been carried out.   |

**Section 16: Other information**

General information: Only trained personnel should use this material.

SDS No: F17-657-3-A

Date: July 1, 2012

Risk phrases in full:

R20/22 Harmful by inhalation and if swallowed.

R36/38 Irritating to eyes and skin.

Hazard statements in full:

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

**DISCLAIMER:** This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



## MATERIAL SAFETY DATA SHEET

### Section 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier:  
 Product name: **10X Assay Buffer**  
 Product no./Catalog #(s): 685, 686, 6161, 6259  
 Internal ID: 10X AB, AB, MitoPT Assay Buffer, Assay Buffer
- 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:  
 Supplier: ImmunoChemistry Technologies, LLC  
 9401 James Avenue South, Suite #155  
 Bloomington, MN 55431-2500 USA  
[www.immunochemistry.com](http://www.immunochemistry.com)  
 1-800-829-3194 and 952-888-8788  
 Fax 952-888-8988  
[help@immunochemistry.com](mailto:help@immunochemistry.com)  
 Contact person: Sally Hed
- 1.4 Emergency telephone number:  
 1-800-829-3194 / 952-888-8788 (Hours: 8 am-6 pm central standard time, Monday-Friday)

### Section 2: Hazards identification

- 2.1 Classification of the substance or mixture:  
 Classification (EC 1272/2008):  
 Physical and chemical hazards: Not classified.  
 Human health: Not classified.  
 Environment: Not classified.  
 Classification (1999/45/EEC): Not classified.
- 2.2 Label elements:  
 Label in accordance with (EC) No. 1272/2008: Not classified.
- 2.3 Other hazards: No information available.

### Section 3: Composition/information on ingredients

#### 3.2 Mixtures:

|  |                              |
|--|------------------------------|
| Sodium hydrogen phosphate heptahydrate | 1-5%                         |
| CAS-No.:                               | 7782-85-6                    |
| EC No.:                                | 237-707-0                    |
| Classification (EC 1272/2008):         | Classification (67/548/EEC): |
| Not classified.                        | Not classified.              |

The full text for all R-phrases and hazard statements is displayed in Section 16.

### Section 4: First aid measures

- 4.1 Description of first aid measures:  
 Inhalation: In case of inhalation of spray mist: move person into fresh air and keep at rest. Rinse nose and mouth with water. Get medical attention if any discomfort continues.  
 Ingestion: NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention if any discomfort continues.  
 Skin contact: Wash skin thoroughly with soap and water. Get medical attention promptly if symptoms occur after washing.  
 Eye contact: Promptly wash eyes with plenty of water while lifting the eyelids. Make sure to remove any contact lenses from the eyes before rinsing. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.
- 4.2 Most important symptoms and effects, both acute and delayed:  
 Inhalation: May cause coughing or mild irritation.  
 Ingestion: May cause discomfort if swallowed.  
 Skin contact: Prolonged skin contact may cause redness and irritation.  
 Eye contact: May cause temporary eye irritation.
- 4.3 Indication of any immediate medical attention and special treatment needed: no specific first aid measures noted.

**Section 5: Firefighting measures**

- 5.1 Extinguishing media: This product is not flammable. Use fire-extinguishing media appropriate for the surrounding materials.
- 5.2 Special hazards arising from the substance or mixture:  
 Hazardous combustion products: None under normal conditions.  
 Unusual fire & explosion hazards: No unusual fire or explosion hazards noted.
- 5.3 Advice for firefighters:  
 Special firefighting procedures: No specific firefighting procedure given.  
 Protective measures in fire: Use protective equipment appropriate for the surrounding materials.

**Section 6: Accidental release measures**

- 6.1 Personal precautions, protective equipment and emergency procedures: Use protective gloves, goggles, and suitable protective clothing.
- 6.2 Environmental precautions: Do not allow to enter drains, sewers, or watercourses.
- 6.3 Methods and material for containment and clean up: Absorb spillage with suitable absorbent material. Flush with plenty of water to clean spillage area. Do not contaminate water sources or sewer.
- 6.4 Reference to other sections: Wear protective clothing as described in Section 8 of this safety data sheet.

**Section 7: Handling and storage**

- 7.1 Precautions for safe handling: Avoid spilling, skin and eye contact. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site.
- 7.2 Conditions for safe storage, including any incompatibilities: Keep in original container. Store at specified temperature. Refer to product label.
- 7.3 Specific end use(s): The identified uses for this product are detailed in Section 1.2.

**Section 8: Exposure controls/personal protection**

- 8.1 Control parameters:
- 8.2 Exposure controls:  
 Protective equipment:



- Process conditions: Provide eyewash station.
- Engineering measures: Provide adequate ventilation.
- Respiratory equipment: No specific recommendation made.
- Hand protection: Use suitable protective gloves if risk of skin contact.
- Eye protection: If risk of splashing, wear safety goggles or face shield.
- Other protection: Wear appropriate clothing to prevent any possibility of skin contact.
- Hygiene measures: Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink, or smoke.
- Skin protection: Wear apron or protective clothing in case of contact.

**Section 9: Physical and chemical properties**

- 9.1 Information on basic physical and chemical properties:
- Appearance: Liquid
- Color: Colorless
- Odor: No characteristic odor.
- Solubility: Soluble in water.
- Initial boiling point and boiling range: <100 @ 760 mm Hg
- Melting point (°C): Not determined.
- Relative density: Not determined.
- Vapor density (Air =1): Not determined.
- Vapor pressure: Not determined.
- Evaporation rate: Not determined.
- pH-value, conc. solution: 6.8-7.0.
- Viscosity: Not determined.
- Solubility value (G/100G H<sub>2</sub>O@20°C): Not determined.
- Decomposition temperature (°C): Not determined.
- Flash point (°C): Not applicable.
- Auto ignition temperature (°C): Not determined.
- Flammability limit – lower (%): Not applicable.
- Flammability limit – upper (%): Not applicable.
- Partition coefficient (N-octanol/water): Not determined.
- Explosive properties: Not determined.

|     |                       |                 |
|-----|-----------------------|-----------------|
|     | Oxidizing properties: | Not determined. |
| 9.2 | Other information:    | None.           |

**Section 10: Stability and reactivity**

|      |                                     |   |
|------|-------------------------------------|---|
| 10.1 | Reactivity:                         | No data available.                                      |
| 10.2 | Chemical stability:                 | Stable under normal temperature conditions.             |
| 10.3 | Possibility of hazardous reactions: | Hazardous polymerization: will not polymerize.          |
| 10.4 | Conditions to avoid:                | Avoid exposure to high temperatures or direct sunlight. |
| 10.5 | Incompatible materials:             | Materials to avoid: No data available.                  |
| 10.6 | Hazardous decomposition products:   | None under normal conditions.                           |

**Section 11: Toxicological information**

|      |  |   |
|------|--|---|
| 11.1 | Information on toxicological effects:              |   |
|      | Toxicological information:                         | No information available.   |
|      | Acute toxicity (oral LD50):                        | Not determined.   |
|      | Skin corrosion/irritation – human skin model test: | Not determined.   |
|      | Serious eye damage/irritation:                     | Not determined.   |
|      | Respiratory sensitization:                         | Not determined.   |
|      | Skin sensitization:                                | Not determined.   |
|      | Germ cell mutagenicity (in vitro):                 | Not determined.   |
|      | Carcinogenicity:                                   | Not determined.   |
|      | Reproductive toxicity:                             | Not determined.   |
|      | STOT-single exposure:                              | Not determined.   |
|      | STOT-repeated exposure:                            | Not determined.   |
|      | Aspiration hazard:                                 | Not determined.   |
|      | Inhalation:  | In high concentrations, vapors may irritate throat and respiratory system and cause coughing. |
|      | Ingestion:   | May cause discomfort if swallowed.  |
|      | Skin contact:                                      | Skin irritation is not anticipated when used normally.  |
|      | Eye contact:                                       | Spray and vapor in the eyes may cause irritation and smarting.                                |
|      | Health warnings:                                   | Because of quantity and composition, the health hazard is small.                              |
|      | Route of entry:                                    | Ingestion. Skin and/or eye contact.   |

**Section 12: Ecological information**

Ecotoxicity: there are no data on the ecotoxicity of this product.

|      |                                     |   |
|------|-------------------------------------|---|
| 12.1 | Toxicity: Acute toxicity: Fish:     | Not determined.   |
| 12.2 | Persistence and degradability:      | There are no data on the degradability of this product. |
| 12.3 | Bioaccumulative potential:          | No data available on bioaccumulation.                   |
| 12.4 | Mobility in soil:                   | The product is soluble in water.                        |
| 12.5 | Results of PBT and vPvB assessment: | No information available.                               |
| 12.6 | Other adverse effects:              | Not determined.   |

**Section 13: Disposal considerations**

General information: when handling waste, consideration should be made to the safety precautions applying to handling of the product.

|      |   |
|------|---|
| 13.1 | Waste treatment methods: dispose of waste and residues in accordance with local authority requirements. |
|------|---|

**Section 14: Transport information**

General: the product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

|      |  |                 |
|------|--|-----------------|
|      | Road transport notes:  | Not classified. |
|      | Rail transport notes:  | Not classified. |
|      | Sea transport notes:   | Not classified. |
|      | Air transport notes:   | Not classified. |
| 14.1 | UN number:   | Not applicable. |
| 14.2 | UN proper shipping name:   | Not applicable. |
| 14.3 | Transport hazard class(es):  | Not applicable. |
| 14.4 | Packing group:   | Not applicable. |
| 14.5 | Environmental hazards: Environmentally hazardous substance/marine pollutant: | No.             |
| 14.6 | Special precautions for user:  | Not applicable. |
| 14.7 | Transport in bulk according to Annex II of MARPOL73/78 and the IBC code:     | Not applicable. |

#### Section 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
- |                            |   |
|----------------------------|---|
| Approved code of practice: | Classification and labeling of substances and preparations dangerous for supply.<br>Safety data sheets for substances and preparations.   |
| Guidance notes:            | Workplace exposure limits EH40.   |
| EU Legislation:            | Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. |
- 15.2 Chemical safety assessment: No chemical safety assessment has been carried out.

#### Section 16: Other information

General information: Only trained personnel should use this material.

SDS No: F17-685-2-A

Date: 7/31/2012

Risk phrases in full:

NC Not classified

**DISCLAIMER:** This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.





## MATERIAL SAFETY DATA SHEET

### Section 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier:
- Product name: **Carbonyl cyanide 3-chlorophenylhydrazone at 50 mM in DMSO**
- Product no./Catalog #(s): 5140, 6257, 6258
- Internal ID: CCCP
- 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:
- Supplier: ImmunoChemistry Technologies, LLC  
9401 James Avenue South, Suite #155  
Bloomington, MN 55431-2500 USA  
[www.immunochemistry.com](http://www.immunochemistry.com)  
1-800-829-3194 and 952-888-8788  
Fax 952-888-8988  
[help@immunochemistry.com](mailto:help@immunochemistry.com)
- Contact person: Sally Hed
- 1.4 Emergency telephone number:  
1-800-829-3194 / 952-888-8788 (Hours: 8 am-6 pm central standard time, Monday-Friday)

### Section 2: Hazards identification

- 2.1 Classification of the substance or mixture:
- Classification (EC 1272/2008)
- Physical and chemical hazards: Not classified.
- Human health: Skin Irrit. 2 – H315; Eye Irrit. 2 – H319
- Environment: Not classified.
- Classification (1999/45/EEC)
- Human health: Xi, R36/38
- This product is harmful if swallowed.
- 2.2 Label elements:
- Label in accordance with (EC) No. 1272/2008



- Signal word: Warning.
- Hazard statements: H315 Causes skin irritation.  
H319 Causes serious eye irritation.
- Precautionary statements:
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P264 Wash hands/skin thoroughly after handling.
- P302+352 If on skin: wash with plenty of soap and water.
- P305+351 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- +338 and easy to do. Continue rinsing.
- P313 Get medical advice/attention.
- P321a Specific treatment (see first aid advice on this label).
- Supplementary precaution statements:
- P332+313 If skin irritation occurs: get medical advice/attention.
- P337 If eye irritation persists:
- P362 Take off contaminated clothing and wash before reuse.
- 2.3 Other hazards: No information available.

### Section 3: Composition/information on ingredients

- 3.2 Mixtures:
- |  |      |
|--|------|
| [(3-Chlorophenyl)hydrazono]malononitrile | 1-5% |
|--|------|

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| CAS-No.:                              | 555-60-2                            |
| EC No.:                               | 209-103-7                           |
| <u>Classification (EC 1272/2008):</u> | <u>Classification (67/548/EEC):</u> |
| Acute Tox. 3 – H301                   | T; R23/24/25                        |
| Acute Tox. 3 – H311                   | Xi; R36/37/38                       |
| Acute Tox. 2 – H330                   |                                     |
| Skin Irrit. 2 – H315                  |                                     |
| Eye Irrit. 2 – H319                   |                                     |
| STOT Single 3 – H335                  |                                     |
| Dimethyl sulfoxide                    | 60-100%                             |
| CAS-No.:                              | 67-68-5                             |
| EC No.:                               | 200-664-3                           |
| <u>Classification (EC 1272/2008):</u> | <u>Classification (67/548/EEC):</u> |
| Skin Irrit. 2 – H315                  | Xi; R36/38                          |
| Eye Irrit. 2 – H319                   |                                     |

The full text for all R-phrases and hazard statements is displayed in Section 16.

#### Section 4: First aid measures

- 4.1 Description of first aid measures:
- Inhalation: In case of inhalation of spray mist: move person into fresh air and keep at rest. In case of persistent throat irritation or coughing: seek medical attention and bring these instructions.
- Ingestion: NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention.
- Skin contact: Wash skin thoroughly with soap and water. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.
- Eye contact: Promptly wash eyes with plenty of water while lifting the eyelids. Make sure to remove any contact lenses from the eyes before rinsing. Continue to rinse for at least 15 minutes. Obtain medical attention and bring these instructions.
- 4.2 Most important symptoms and effects, both acute and delayed:
- Inhalation: Irritation of nose, throat, and airway.
- Ingestion: This product is harmful if swallowed.
- Skin contact: Skin irritation.
- Eye contact: May cause severe irritation to eyes.
- 4.3 Indication of any immediate medical attention and special treatment needed: No recommendation given, but first aid may still be required in case of accidental exposure, inhalation, or ingestion of this chemical. If in doubt, get medical attention promptly.

#### Section 5: Firefighting measures

- 5.1 Extinguishing media: This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials. Water spray, dry powder or carbon dioxide.
- 5.2 Special hazards arising from the substance or mixture:
- Hazardous combustion products: In case of fire, toxic gases (CO, CO<sub>2</sub>, NO<sub>x</sub>) may be formed.
- Unusual fire & explosion hazards: No unusual fire or explosion hazards noted.
- 5.3 Advice for firefighters:
- Special firefighting procedures: No specific firefighting procedure given.
- Protective measures in fire: Use protective equipment appropriate for surrounding materials.

#### Section 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures: Avoid inhalation of spray mist and contact with skin and eyes. Use protective gloves, goggles, and suitable protective clothing.
- 6.2 Environmental precautions: Do not allow to enter drains, sewers, or watercourses.
- 6.3 Methods and material for containment and clean up: When dealing with a spillage, please consult the section relating to suitable protective measures. Absorb spillage with suitable absorbent material. Flush with plenty of water to clean spillage area. Do not contaminate water sources or sewer.
- 6.4 Reference to other sections: Wear protective clothing as described in Section 8 of this safety data sheet.

#### Section 7: Handling and storage

- 7.1 Precautions for safe handling: Avoid inhalation of vapors/spray and contact with skin and eyes. Avoid spilling, skin, and eye contact. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site.
- 7.2 Conditions for safe storage, including any incompatibilities: Keep in original container. Protect from light. Store at specified temperature. Refer to product label.
- 7.3 Specific end use(s): The identified uses for this product are detailed in Section 1.2.

#### Section 8: Exposure controls/personal protection

- 8.1 Control parameters:
- 8.2 Exposure controls:

Protective equipment:



|                        |  |
|------------------------|--|
| Process conditions:    | Provide eyewash station.   |
| Engineering measures:  | Provide adequate ventilation.  |
| Respiratory equipment: | No specific recommendations.   |
| Hand protection:       | Use suitable protective gloves if risk of skin contact.  |
| Eye protection:        | If risk of splashing, wear safety goggles or face shield.  |
| Other protection:      | Wear appropriate clothing to prevent any possibility of skin contact.  |
| Hygiene measures:      | Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using, do not eat, drink or smoke. |
| Skin protection:       | Wear apron or protective clothing in case of contact.  |

## Section 9: Physical and chemical properties

|     |  |                         |
|-----|--|-------------------------|
| 9.1 | Information on basic physical and chemical properties: |                         |
|     | Appearance:  | Liquid                  |
|     | Color:   | Yellow.                 |
|     | Odor:  | No characteristic odor. |
|     | Solubility:  | Soluble in water.       |
|     | Melting point (°C):                                    | 170                     |
|     | Relative density:                                      | Not determined.         |
|     | Vapor density (Air =1):                                | Not determined.         |
|     | Vapor pressure:  | Not determined.         |
|     | Evaporation rate:                                      | Not determined.         |
|     | Viscosity:   | Not determined.         |
|     | Decomposition temperature (°C):                        | Not determined.         |
|     | Flash point (°C):                                      | Not applicable.         |
|     | Auto ignition temperature (°C):                        | Not determined.         |
|     | Flammability limit – lower (%):                        | Not applicable.         |
|     | Partition coefficient (N-octanol/water)                | Not determined.         |
|     | Explosive properties:                                  | Not determined.         |
|     | Oxidizing properties:                                  | Not determined.         |
| 9.2 | Other information:                                     | None.                   |

## Section 10: Stability and reactivity

|      |                                     |  |
|------|-------------------------------------|--|
| 10.1 | Reactivity:                         | No data available.   |
| 10.2 | Chemical stability:                 | No data available.   |
| 10.3 | Possibility of hazardous reactions: | Hazardous polymerization: will not polymerize.   |
| 10.4 | Conditions to avoid:                | Avoid exposure to high temperatures or direct sunlight.  |
| 10.5 | Incompatible materials:             | Materials to avoid: Strong acids. Strong bases. Strong oxidizing substances.<br>Strong reducing agents.  |
| 10.6 | Hazardous decomposition products:   | Fire creates: vapors/gases/fumes of: carbon monoxide (CO); carbon dioxide (CO <sub>2</sub> ); nitrous gases (NO <sub>x</sub> ); hydrogen chloride (HCl); hydrogen cyanide (HCN). |

## Section 11: Toxicological information

|      |  |   |
|------|--|---|
| 11.1 | Information on toxicological effects:              |   |
|      | Other health effects:                              | IARC not listed.  |
|      | Acute toxicity (oral LD50):                        | 14500 mg/kg rat   |
|      | Acute toxicity (dermal LD50):                      | >5000 mg/kg rat   |
|      | Skin corrosion/irritation – human skin model test: | Not determined.   |
|      | Respiratory sensitization:                         | Not determined.   |
|      | Skin sensitization:                                | Not determined.   |
|      | Germ cell mutagenicity (in vitro):                 | Not determined.   |
|      | Germ cell mutagenicity (in vivo):                  | Not determined.   |
|      | Carcinogenicity:                                   | Not determined.   |
|      | Reproductive toxicity                              | Not determined.   |
|      | STOT-single exposure:                              | Not determined.   |
|      | STOT-repeated exposure:                            | Not determined.   |
|      | Aspiration hazard:                                 | Not determined.   |
|      | General information:                               | DMSO may be absorbed through the skin. Knowledge about health hazard is incomplete. |
|      | Inhalation:  | May cause irritation to the respiratory system.                                     |
|      | Ingestion:   | Harmful if swallowed.   |
|      | Skin contact:                                      | Irritating to skin.   |
|      | Eye contact:                                       | Spray and vapor in the eyes may cause irritation and smarting.                      |
|      | Route of entry:                                    | Ingestion. Skin and/or eye contact.   |

Name:

Dimethyl sulfoxide (DMSO)

**Section 12: Ecological information**

- 12.1 Toxicity: acute toxicity – fish: LC50 96 hours 34000 mg/l Pimephales promelas (fat-head minnow)  
LC50 96 hours 35000 mg/l Onchorhynchus mykiss (rainbow trout)
- 12.2 Persistence and degradability: No data available on degradability.
- 12.3 Bioaccumulative potential: No data available on bioaccumulation.
- 12.4 Mobility in soil: No data available.
- 12.5 Results of PBT and vPvB assessment: No information available.
- 12.6 Other adverse effects: Not determined.
- Name: Dimethyl sulfoxide (DMSO)

**Section 13: Disposal considerations**

General information: waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local waste disposal authority.

- 13.1 Waste treatment methods: dispose of waste and residues in accordance with local authority requirements.

**Section 14: Transport information**

General: the product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

- Road transport notes: Not classified.
- Rail transport notes: Not classified.
- Sea transport notes: Not classified.
- Air transport notes: Not classified.
- 14.1 UN number: Not applicable.
- 14.2 UN proper shipping name: Not applicable.
- 14.3 Transport hazard class(es): Not applicable.
- 14.4 Packing group: Not applicable.
- 14.5 Environmental hazards: Environmentally hazardous substance/marine pollutant: No.
- 14.6 Special precautions for user: Not applicable.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code: Not applicable.

**Section 15: Regulatory information**

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
- Approved code of practice: Classification and labeling of substances and preparations dangerous for supply.  
Safety data sheets for substances and preparations.
- Guidance notes: Workplace exposure limits EH40.
- EU Legislation: Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.
- 15.2 Chemical safety assessment: No chemical safety assessment has been carried out.

**Section 16: Other information**

General information: only trained personnel should use this material.

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Date: May 2, 2013

Risk phrases in full:

- R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R36/38 Irritating to eyes and skin.

Hazard statements in full:

- H319 Causes serious eye irritation.
- H315 Causes skin irritation.
- H330 Fatal if inhaled.
- H335 May cause respiratory irritation.
- H301 Toxic if swallowed.
- H311 Toxic in contact with skin.

**DISCLAIMER:**

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.