

Material Safety Data Sheet

Imject® cBSA Immune Modulator

1. Product and company identification

| | | | |
|-----------------------------|--|----------------------|--|
| Product name | : Imject® cBSA Immune Modulator | Manufacturer | : Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723 |
| Supplier | : Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723 | | |
| Code | : 0077150 | | |
| MSDS # | : 2333 | | |
| Validation date | : 7/15/2011. | | |
| Print date | : 7/15/2011. | | |
| Responsible name | : MSDS Specialist | | |
| In case of emergency | : CHEMTREC: 800.424.9300 OUTSIDE US: 703.527.3887 | Material uses | : Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications. |
| Product type | : Solid. | | |

2. Hazards identification

Emergency overview

| | |
|---------------------------------------|--|
| Physical state | : Solid. [Lyophilized powder.] |
| Color | : White. |
| Odor | : Odorless. |
| Signal word | : WARNING! |
| Hazard statements | : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. |
| Precautionary measures | : Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling. |
| OSHA/HCS status | : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| Routes of entry | : Dermal contact. Eye contact. Inhalation. Ingestion. |
| Potential acute health effects | |
| Inhalation | : Irritating to respiratory system. |
| Ingestion | : No known significant effects or critical hazards. |
| Skin | : Irritating to skin. |

7/15/2011.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

1/1

Imject® cBSA Immune Modulator

2. Hazards identification

| | |
|---|--|
| Eyes | : Irritating to eyes. |
| Potential chronic health effects | |
| Chronic effects | : Contains material that may cause target organ damage, based on animal data. |
| Carcinogenicity | : No known significant effects or critical hazards. |
| Mutagenicity | : No known significant effects or critical hazards. |
| Teratogenicity | : No known significant effects or critical hazards. |
| Developmental effects | : No known significant effects or critical hazards. |
| Fertility effects | : No known significant effects or critical hazards. |
| Target organs | : Contains material which may cause damage to the following organs: skin, eyes, stomach. |

Over-exposure signs/symptoms

| | |
|---|--|
| Inhalation | : Adverse symptoms may include the following: respiratory tract irritation coughing |
| Ingestion | : No specific data. |
| Skin | : Adverse symptoms may include the following: irritation redness |
| Eyes | : Adverse symptoms may include the following: pain or irritation watering redness |
| Medical conditions aggravated by over-exposure | : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product. |

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

| Name | CAS number | % |
|---|-------------------------|--------------------|
| Phosphoric acid, monosodium salt, monohydrate sodium chloride | 10049-21-5 7647-14-5 | 25 - 45 20 - 25 |

Canada

| Name | CAS number | % |
|---|------------|---------|
| Phosphoric acid, monosodium salt, monohydrate | 10049-21-5 | 25 - 45 |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

| | |
|---------------------|---|
| Eye contact | : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately. |
| Skin contact | : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately. |

7/15/2011.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

2/1

4. First aid measures

- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
phosphorus oxides
halogenated compounds
metal oxide/oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7/15/2011.

Life Science Research
Pierce Biotechnology Inc. PO Box 117
3747 N. Meridian Road Rockford, IL 61105 (815) 968-0747
(815) 968-7316 Fax www.thermo.com

3/1

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Canada

Occupational exposure limits

No exposure limit value known.

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

7/15/2011.

Life Science Research
Pierce Biotechnology Inc. PO Box 117
3747 N. Meridian Road Rockford, IL 61105 (815) 968-0747
(815) 968-7316 Fax www.thermo.com

4/1

Imject® cBSA Immune Modulator

8. Exposure controls/personal protection

9. Physical and chemical properties

Physical state : Solid. [Lyophilized powder.]
Color : White.
Odor : Odorless.
Solubility : Soluble in the following materials: cold water and hot water.

10. Stability and reactivity

Chemical stability : The product is stable.
Conditions to avoid : No specific data.
Incompatible materials : No specific data.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

United States

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|---------------------|------------|-------------|----------|
| sodium chloride | LD50 Dermal | Rabbit | 10000 mg/kg | - |
| | LD50 Oral | Rat | 3000 mg/kg | - |
| | LDLo Intra-arterial | Guinea pig | 300 mg/kg | - |
| | | | | |

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|--------------------------|---------|-------|----------|-------------|
| sodium chloride | Eyes - Moderate irritant | Rabbit | - | - | - |
| | Skin - Mild irritant | Rabbit | - | - | - |

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

| Product/ingredient name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|---|-------|------|-----|-------|-----|-------|
| Phosphoric acid, monosodium salt, monohydrate | - | - | - | None. | - | None. |
| sodium chloride | - | - | - | None. | - | None. |

Mutagenicity

7/15/2011.

5/11

Life Science Research
Pierce Biotechnology Inc.
PO Box 117
3747 N. Meridian Road
Rockford, IL 61105
(815) 968-0747
(815) 968-7316 Fax
www.thermo.com

Imject® cBSA Immune Modulator

11. Toxicological information

| Product/ingredient name | Test | Experiment | Result |
|-------------------------|---------------------------------|--|----------|
| sodium chloride | Unscheduled DNA Synthesis (UDS) | Subject: Mammalian-Animal | Positive |
| | Other Mutation Test Systems | Subject: Mammalian-Animal | Positive |
| | Cytogenetic Analysis | Subject: Mammalian-Animal | Positive |
| | DNA Damage | Subject: Mammalian-Animal Cell: Somatic | Positive |
| | - | Subject: Mammalian-Animal Cell: Somatic | Positive |
| | Micronucleus Test | Subject: Mammalian-Animal Cell: Somatic | Positive |
| | DNA Damage | Subject: Mammalian-Animal Cell: Somatic | Positive |
| | Cytogenetic Analysis | Subject: Mammalian-Animal Cell: Somatic | Positive |
| | Cytogenetic Analysis | Subject: Mammalian-Animal Cell: Somatic | Positive |
| | DNA Inhibition | Subject: Mammalian-Human Cell: Somatic | Positive |

Conclusion/Summary : Not available.

Teratogenicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|----------------------------|---------|------------|--------------------------|
| sodium chloride | Positive - Subcutaneous | Mouse | 2500 mg/kg | 10 days During Pregnancy |
| | Positive - Subcutaneous | Mouse | 1900 mg/kg | 11 days During Pregnancy |
| | Positive - Subcutaneous | Mouse | 1900 mg/kg | 10 days During Pregnancy |
| | Positive - Intraperitoneal | Rat | 1710 mg/kg | 13 days During Pregnancy |

Conclusion/Summary : Not available.

Reproductive toxicity

| Product/ingredient name | Maternal toxicity | Fertility | Development toxin | Species | Dose | Exposure |
|-------------------------|-------------------|-----------|-------------------|----------------|------------------------------------|---------------------------|
| sodium chloride | - | Positive | - | Woman - Female | Unreported: 27 mg/kg | 15 weeks During Pregnancy |
| | - | Positive | - | Rat | Unreported: 500 mg/kg | 4 days During Pregnancy |
| | Positive | - | - | Rat | Oral: 56400 mg/kg During Pregnancy | - |
| | - | Positive | - | Rat | Unreported: 50 mg/kg | 6 days During Pregnancy |
| | - | - | - | Rat | Oral: 145 g/kg During | - |

7/15/2011.

6/11

Life Science Research
Pierce Biotechnology Inc.
PO Box 117
3747 N. Meridian Road
Rockford, IL 61105
(815) 968-0747
(815) 968-7316 Fax
www.thermo.com

11. Toxicological information

| | | | | | | |
|--|----------|----------|---|------------------------------|---|---------------------------|
| | - | Positive | - | Mouse | Pregnancy Subcutaneous: 13440 mg/kg | - |
| | - | - | - | Rat | During Pregnancy Intraperitoneal: 10 g/kg | - |
| | Positive | - | - | Rat | During Pregnancy Parenteral: 10 mg/kg | 1 days During Pregnancy |
| | - | Positive | - | Mammal - species unspecified | Unreported: 6 g/kg | 18 weeks During Pregnancy |
| | Positive | - | - | Mammal - species unspecified | Unreported: 480 mg/kg | 48 days During Pregnancy |

Conclusion/Summary : Not available.

Canada

Acute toxicity

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

| Product/ingredient name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|---|-------|------|-----|-------|-----|-------|
| Phosphoric acid, monosodium salt, monohydrate | - | - | - | None. | - | None. |
| sodium chloride | - | - | - | None. | - | None. |

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

7/15/2011.

7/1

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|--|----------------------------------|----------|
| sodium chloride | Acute EC50 402600 to 469200 ug/L Fresh water | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 >5600 ppm Fresh water | Crustaceans - Asellus communis | 48 hours |
| | Acute LC50 1000000 ug/L Fresh water | Fish - Morone saxatilis - Larvae | 96 hours |

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Canada

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

| Regulatory information | UN number | Proper shipping name | Classes | PG* |
|------------------------|----------------|----------------------|---------|-----|
| DOT Classification | Not regulated. | - | - | - |
| IATA-DGR Class | Not regulated. | - | - | - |

PG* : Packing group

7/15/2011.

8/1

15. Regulatory information

United States

HCS Classification : Irritating material
Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): Not determined.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: Phosphoric acid, monosodium salt, monohydrate; D-Glucitol; sodium chloride

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Phosphoric acid, monosodium salt, monohydrate: Immediate (acute) health hazard; D-Glucitol: Delayed (chronic) health hazard; sodium chloride: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

United States inventory (TSCA 8b) : Not determined.

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : Not determined.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

7/15/2011.

9/11

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

15. Regulatory information

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.

16. Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

| | |
|------------------|---|
| Health | 2 |
| Flammability | 0 |
| Physical hazards | 0 |

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Date of printing : 7/15/2011.

Date of issue : 7/15/2011.

Date of previous issue : No previous validation.

Version : 1

Prepared by : MSDS Specialist

✓ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

7/15/2011.

10/11

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax