

Material Safety Data Sheet

Imject™ Freund's Complete Adjuvant

1. Product and company identification

Product name	: Imject™ Freund's Complete Adjuvant	Manufacturer	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723
Synonym	: FCA; CFA; Freund's Adjuvant		
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723		
Code	: 0077140 0077140B 1950039		
MSDS #	: 0816		
Validation date	: 2/1/2011.		
Print date	: 2/1/2011.		
Responsible name	: MSDS Specialist		
In case of emergency	: CHEMTREC: 800.424.9300 OUTSIDE US: 202.483.7616	Material uses	: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.
Product type	: Liquid.		

2. Hazards identification

Emergency overview

Physical state	: Liquid. [Liquid with oily cell suspension until emulsified with antigen when it takes on a milky color and precipitate evenly disperses.]
Color	: Clear. Yellow. Amber. [Light]
Odor	: Characteristic.
Signal word	: WARNING!
Hazard statements	: CAUSES EYE IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAN CAUSE TARGET ORGAN DAMAGE.
Precautionary measures	: Do not breathe vapor or mist. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes. Avoid prolonged contact with eyes, skin and clothing. Keep container 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	: May cause sensitization by inhalation.
Ingestion	: No known significant effects or critical hazards.

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Imject™ Freund's Complete Adjuvant

2. Hazards identification

Skin	: Harmful in contact with skin.
Eyes	: Severely irritating to eyes. Risk of serious damage to eyes.
Potential chronic health effects	
Chronic effects	: Can cause target organ damage. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
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	: Causes damage to the following organs: immune system. May cause damage to the following organs: upper respiratory tract, skin, eyes.
Over-exposure signs/symptoms	
Inhalation	: Adverse symptoms may include the following: wheezing and breathing difficulties asthma
Ingestion	: No specific data.
Skin	: No specific data.
Eyes	: Adverse symptoms may include the following: pain or irritation watering redness
Medical conditions aggravated by over-exposure	: Pre-existing respiratory disorders and disorders involving any other 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	%
Freund's adjuvant	9007-81-2	98 - 100

Canada

Name	CAS number	%
Freund's adjuvant	9007-81-2	98 - 100

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.

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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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- 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** : In a fire or if heated, a pressure increase will occur and the container may burst.
- 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** : No specific data.
- 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.
- Special remarks on fire hazards** : Emits acrid smoke and irritating fumes when heated to decomposition.

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. Avoid breathing vapor or mist. 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** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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. Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. 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.

8. Exposure controls/personal protection

- 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.

9. Physical and chemical properties

- Physical state** : Liquid. [Liquid with oily cell suspension until emulsified with antigen when it takes on a milky color and precipitate evenly disperses.]
- Color** : Clear. Yellow. Amber. [Light]
- Odor** : Characteristic.
- Relative density** : 0.79 to 0.85
- Viscosity** : Kinematic: 0.1 to 0.14 cm²/s (10 to 14 cSt)
- Solubility** : Partially 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 informationUnited StatesAcute toxicity

Conclusion/Summary : NOTE: Contains killed cells of *Mycobacterium sp.*

Chronic toxicity

Conclusion/Summary : Delayed hypersensitivity and immune responses to tuberculosis test serums. In animals it may produce severe chronic local inflammation causing skin ulcerations and draining sinuses with granulomas. The oil droplet may disseminate and produce systemic granulomas and chronic wasting disease. It may also induce an autoimmune disease, especially arthritis.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

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11. Toxicological informationMutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Freund's adjuvant	-	-	-	Rat - Female	Parenteral: 1 g/kg	-

Conclusion/Summary : Not available.

CanadaAcute toxicity

Conclusion/Summary : NOTE: Contains killed cells of *Mycobacterium sp.*

Chronic toxicity

Conclusion/Summary : Delayed hypersensitivity and immune responses to tuberculosis test serums. In animals it may produce severe chronic local inflammation causing skin ulcerations and draining sinuses with granulomas. The oil droplet may disseminate and produce systemic granulomas and chronic wasting disease. It may also induce an autoimmune disease, especially arthritis.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Freund's adjuvant	-	-	-	Rat - Female	Parenteral: 1 g/kg	-

Conclusion/Summary : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United StatesAquatic ecotoxicity

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

CanadaAquatic ecotoxicity

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12. Ecological information**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

15. Regulatory information**United States****HCS Classification** : Irritating material
Sensitizing 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**: Freund's adjuvant**SARA 311/312 MSDS distribution - chemical inventory - hazard identification**:

Freund's adjuvant: 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

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15. Regulatory information**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** : This material is not listed.**New York** : This material is not listed.**New Jersey** : This material is not listed.**Pennsylvania** : This material is not listed.**United States inventory (TSCA 8b)** : Not determined.**Canada****WHMIS (Canada)** : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).**Canadian lists****Canadian NPRI** : This material is not listed.**CEPA Toxic substances** : This material is not 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**International lists** : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): This material is listed or exempted.**16. Other information****Label requirements** : CAUSES EYE IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAN CAUSE TARGET ORGAN DAMAGE.**Hazardous Material Information System (U.S.A.)** :

Health	*	1
Flammability		0
Physical hazards		0

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

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

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16. Other information



Date of printing : 2/1/2011.
Date of issue : 2/1/2011.
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.