

Material Safety Data Sheet

Isopropyl-Beta-D-Thiogalactopyranoside

1. Product and company identification

Product name	: Isopropyl-Beta-D-Thiogalactopyranoside		
Synonym	: .beta.-D-Galactopyranoside, 1-methylethyl 1-thio-; beta-D-Galactopyranoside, 1-methylethyl 1-thio-; Isopropyl thiogalactoside		
Chemical formula	: C9H18O5S		
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	Manufacturer	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723
Code	: 0034060		
MSDS #	: 0829		
Validation date	: 1/6/2011.		
Print date	: 1/6/2011.		
Responsible name	: MSDS (Regulatory 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	: Solid.		

2. Hazards identification

Emergency overview	
Physical state	: Solid. [Crystalline powder or pellets.]
Color	: White to brown.
Odor	: Odorless.
Hazard statements	: MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. 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	: Slightly irritating to the respiratory system.
Ingestion	: No known significant effects or critical hazards.
Skin	: Slightly irritating to the skin.
Eyes	: Slightly irritating to the eyes.

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2. Hazards identification

Potential chronic health effects

Chronic effects	: 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	: May cause damage to the following organs: kidneys, the nervous system, liver, upper respiratory tract, skin, eyes.

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: 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	%
isopropyl-β-D-thiogalactopyranoside	367-93-1	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.
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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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4. First aid measures

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
sulfur 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.

Special remarks on fire hazards : May be combustible at high temperature. Emits toxic fumes under fire conditions.

Special remarks on explosion hazards : Material, in powder form, capable of creating a dust explosion.

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. 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.

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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

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7. Handling and storage

Storage : Do not store above the following temperature: -20°C (-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.

9. Physical and chemical properties

Physical state : Solid. [Crystalline powder or pellets.]

Flash point : Closed cup: >110°C (>230°F)

Color : White to brown.

Odor : Odorless.

Molecular weight : 238.31 g/mole

Molecular formula : C9H18O5S

pH : 5 to 7 [Conc. (% w/w): 5%]

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9. Physical and chemical properties

- Boiling/condensation point** : Decomposes.
Melting/freezing point : 105 to 114°C (221 to 237.2°F)
Solubility : Soluble in the following materials: methanol.
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 information

United States

Acute toxicity

- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.

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
isopropyl-β-D-thiogalactopyranoside	-	-	-	None.	-	None.

Mutagenicity

- Conclusion/Summary** : Not available.

Teratogenicity

- Conclusion/Summary** : Not available.

Reproductive toxicity

- Conclusion/Summary** : Not available.

Canada

Acute toxicity

- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

Sensitizer

- Conclusion/Summary** : Not available.

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11. Toxicological information

Carcinogenicity

- Conclusion/Summary** : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
isopropyl-β-D-thiogalactopyranoside	-	-	-	None.	-	None.

Mutagenicity

- Conclusion/Summary** : Not available.

Teratogenicity

- Conclusion/Summary** : Not available.

Reproductive toxicity

- Conclusion/Summary** : Not available.

12. Ecological information

- Ecotoxicity** : This product shows a low bioaccumulation potential.

United States

Aquatic ecotoxicity

- Conclusion/Summary** : Not available.

Persistence/degradability

- Conclusion/Summary** : Not available.

Canada

Aquatic ecotoxicity

- Conclusion/Summary** : Not available.

Persistence/degradability

- Conclusion/Summary** : Not available.

Partition coefficient: n-octanol/water

- Conclusion/Summary** : -0.257

Bioconcentration factor

- Conclusion/Summary** : Not available.

Toxicity of the products of biodegradation

- Conclusion/Summary** : The products of degradation are more toxic than the product itself.

Other adverse effects

- Conclusion/Summary** : 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.

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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** : Target organ effects
U.S. Federal regulations : TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): This material is listed or exempted.
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: isopropyl-β-D-thiogalactopyranoside
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: isopropyl-β-D-thiogalactopyranoside: Immediate (acute) 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** : 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) : This material is listed or exempted.

Canada

- WHMIS (Canada)** : Not controlled under WHMIS (Canada).
Canadian lists
Canadian NPRI : This material is not listed.
CEPA Toxic substances : This material is not listed.
Canada inventory : This material is listed or exempted.

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

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15. Regulatory information

- International lists** : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): Not determined.

16. Other information

- Label requirements** : MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

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.) :



- Date of printing** : 1/6/2011.
Date of issue : 1/6/2011.
Date of previous issue : No previous validation.
Version : 1
Prepared by : MSDS (Regulatory 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.

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