

Cayman Chemical Company
 1180 E. Ellsworth Rd.
 Ann Arbor, MI 48108



Section 1. Identification of the Substance/Mixture and of the

1.1 Product Code: 10011085
Product Name: SIRT1 FRET Developer

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet
Company Name: Cayman Chemical Company
Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887
Information: Cayman Chemical Company +1 (734)971-3335
Web site address: www.caymanchem.com

Section 2. Hazards Identification

GHS Classification	Placard	Key word	GHS hazard phrase
Skin Corrosion/Irritation, Category 3	none	Warning	Causes mild skin irritation
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Respiratory Sensitization, Category 1	Health hazard	Danger	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Target Organ Systemic Toxicity (single exposure), Category 3	Exclamation point	Warning	May cause respiratory irritation, or may cause drowsiness and dizziness

GHS Hazard Phrases:
 H316: Causes mild skin irritation.
 H319: Causes serious eye irritation.
 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335: May cause respiratory irritation.

GHS Precaution Phrases:
 P264: Wash hands thoroughly after handling.
 P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
 P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
 P284: Wear respiratory protection. as specified by the manufacturer/supplier or the competent authority.

GHS Response Phrases:
 P332+313: If skin irritation occurs, get medical advice/attention.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists, get medical advice/attention.
 P304+341: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
 P342+311: If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.
 P309+311: Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

GHS Storage and Disposal Phrases:
 Please refer to Section 7 for Storage and Section 13 for Disposal information.

2.3 Adverse Human Health Effects and Symptoms:
 Causes mild skin irritation.
 Causes respiratory system irritation.
 Causes serious eye irritation.
 Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation, ingestion, or skin absorption.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Target Organs: No data available.

Medical Conditions Generally Aggravated By Exposure: No data available.

Section 3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Endoproteinase Lys-C from Lysobacter enzymogenes	72561-05-8	< 0.9 %	276-716-4	R36/37/38-42	NA
2. Trizma base	77-86-1	< 0.9 %	201-064-4	R36/37/38	TY2900000
3. DL-Dithiothreitol	3483-12-3	< 0.9 %	222-468-7	R22-36/37/38	EK1610000
4. Magnesium chloride, hexahydrate	7791-18-6	> 0.9 %	NA	R36/37/38	OM2975000
5. Water	7732-18-5	>96.4 %	231-791-2	No phrases apply.	ZC0110000

Section 4. First Aid Measures

- 4.1 Description of First Aid Measures:**
- 4.1.1 In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
- 4.1.2 In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
- 4.1.3 In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
- 4.1.4 In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** No data available.
- 4.3 Indication of any immediate medical attention and special treatment needed:** No data available.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
- Unsuitable Extinguishing Media:** A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:** No data available.
- Flash Pt:** No data.
- Autoignition Pt:** No data available.
- Explosive Limits:** LEL: No data. UEL: No data.
- Hazardous Combustion Products:** No data available.
- 5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.
Store in accordance with information listed on the product insert.
- Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Section 8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Endoproteinase Lys-C from Lysobacter enzymogenes	72561-05-8	No data.	No data.	No data.
2. Trizma base	77-86-1	No data.	No data.	No data.
3. DL-Dithiothreitol	3483-12-3	No data.	No data.	No data.
4. Magnesium chloride, hexahydrate	7791-18-6	No data.	No data.	No data.
5. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Endoproteinase Lys-C from Lysobacter enzymogenes	72561-05-8	No data.	No data.	No data.
2. Trizma base	77-86-1	No data.	No data.	No data.
3. DL-Dithiothreitol	3483-12-3	No data.	No data.	No data.
4. Magnesium chloride, hexahydrate	7791-18-6	No data.	No data.	No data.
5. Water	7732-18-5	No data.	No data.	No data.

- Protective Equipment Summary - Hazard Label Information:** Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2.1 Eye Protection:** Safety glasses
- 8.2.2.2 Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- 8.2.2.3 Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance Practices:** Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
Wash thoroughly after handling.
- 8.2.3 Environmental Exposure Controls:** No data available.

Section 9. Physical and Chemical Properties

- 9.1 Information on Basic Physical and Chemical Properties**
- Physical States:** Gas Liquid Solid
- Appearance and Odor:** Solution
- pH:** 8.8
- Melting Point:** No data.



SAFETY DATA SHEET

SIRT1 FRET Developer

Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	No data.
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.
9.2 Other Information	
Percent Volatile:	No data.

Section 10. Stability and Reactivity

10.1 Reactivity:	No data available.
10.2 Stability:	Unstable [<input type="checkbox"/>] Stable [<input checked="" type="checkbox"/>]
10.3 Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.4 Conditions To Avoid:	No data available.
10.3 Polymerization:	Will occur [<input type="checkbox"/>] Will not occur [<input checked="" type="checkbox"/>]
10.5 Incompatibility - Materials To Avoid:	No data available.
10.6 Hazardous Decomposition Or Byproducts:	No data available.

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied.
Chronic Toxicological Effects:	No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Endoproteinase Lys-C from Lysobacter enzymogenes	72561-05-8	n.a.	n.a.	n.a.	n.a.
2. Trizma base	77-86-1	n.a.	n.a.	n.a.	n.a.
3. DL-Dithiothreitol	3483-12-3	n.a.	n.a.	n.a.	n.a.
4. Magnesium chloride, hexahydrate	7791-18-6	n.a.	n.a.	n.a.	n.a.
5. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Section 12. Ecological Information

12.1 Toxicity:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
-----------------------	--

Section 13. Disposal Considerations

13.1 Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
------------------------------------	---

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT)	
DOT Proper Shipping Name	Not dangerous goods.
14.1 LAND TRANSPORT (European ADR/RID)	



SAFETY DATA SHEET

SIRT1 FRET Developer

ADR/RID Shipping Name Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA)
ICAO/IATA Shipping Name Not dangerous goods.

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

Section 15. Regulatory Information

European Community Hazard Symbol codes Xi: Irritant

European Community Risk and Safety Phrases

R36/37 - Irritating to eyes and respiratory system.

R42 - May cause sensitization by inhalation.

S24/25 - Avoid contact with skin and eyes.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Endoproteinase Lys-C from Lysobacter enzymogenes	72561-05-8	No	No	No	No
2. Trizma base	77-86-1	No	No	Yes-Cat. N106	No
3. DL-Dithiothreitol	3483-12-3	No	No	No	No
4. Magnesium chloride, hexahydrate	7791-18-6	No	No	No	No
5. Water	7732-18-5	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Endoproteinase Lys-C from Lysobacter enzymogenes	72561-05-8	No	No	No	No
2. Trizma base	77-86-1	HAP	No	Inventory	No
3. DL-Dithiothreitol	3483-12-3	No	No	Inventory	No
4. Magnesium chloride, hexahydrate	7791-18-6	No	No	No	No
5. Water	7732-18-5	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 05/30/2013

Company Policy or Disclaimer

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required