

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

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

- 1.1 Product Code:** 10011263
Product Name: 15-Lipoxygenase-2 (human recombinant)
- 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
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300
CHEMTREC Outside USA and Canada: +1 (703)527-3887

Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**
Skin Corrosion/Irritation, Category 3
Serious Eye Damage/Eye Irritation, Category 2
- 2.2 Label Elements:**
- 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



GHS Signal Word: Warning

GHS Hazard Phrases:

H316: Causes mild skin irritation.

H319: Causes serious eye irritation.

GHS Precaution Phrases:

P264: Wash {hands} thoroughly after handling.

P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

GHS Response Phrases:

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332+313: If skin irritation occurs, get medical advice/attention.

P337+313: If eye irritation persists, get medical advice/attention.

GHS Storage and Disposal Phrases:

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

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2.3 Adverse Human Health	Causes mild skin irritation.
Effects and Symptoms:	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 respiratory system irritation. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
NA NA	15-Lipoxygenase-2 (human recombinant)	0.0 -1.0 %	NA NA	No data available.
56-81-5 MA8050000	Glycerol	0.0 -20.0 %	200-289-5 NA	Skin Corr. 3: H316 Eye Damage 2B: H320
3483-12-3 EK1610000	DL-Dithiothreitol	0.02 %	222-468-7 NA	Acute Tox.(O) 4: H302 Skin Corr. 2: H315 Eye Damage 2A: H319 STOT (SE) 3: H335 H336
7447-14-5 NA	Potassium Chloride	0.02 %	NA NA	No data available.
7647-14-5 VZ4725000	Sodium chloride	0.8 %	231-598-3 NA	Eye Damage 2A: H319 STOT (SE) 3: H335 H336
7778-77-0 TC6615500	Potassium phosphate, Monobasic	0.02 %	231-913-4 NA	No data available.
7558-79-4 WC4500000	Sodium phosphate, Dibasic	0.14 %	231-448-7 NA	Eye Damage 2: H319
7732-18-5 ZC0110000	Water	78.0 -99.0 %	231-791-2 NA	No data available.

Section 4. First Aid Measures
4.1 Description of First Aid
Measures:

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

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.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Media: Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing A solid water stream may be inefficient.
Media:
- 5.2 Flammable Properties and Hazards:** Emits toxic fumes under fire conditions.
Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Autoignition Pt: No data.
- 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,** Avoid breathing vapors and provide adequate ventilation.
Protective Equipment and Emergency Procedures: 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.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
NA	15-Lipoxygenase-2 (human recombinant)	No data.	No data.	No data.
56-81-5	Glycerol	TWA: 10 mg/m3 () STEL: ()	TWA: 10 mg/m3	No data.
3483-12-3	DL-Dithiothreitol	No data.	No data.	No data.
7447-14-5	Potassium Chloride	No data.	No data.	No data.
7647-14-5	Sodium chloride	No data.	No data.	No data.
7778-77-0	Potassium phosphate, Monobasic	No data.	No data.	No data.
7558-79-4	Sodium phosphate, Dibasic	No data.	No data.	No data.
7732-18-5	Water	No data.	No data.	No data.

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
NA	15-Lipoxygenase-2 (human recombinant)	No data.	No data.	No data.
56-81-5	Glycerol	PEL: 15 (dust); 5 (resp.) mg/m3	TLV: 10 mg/m3	No data.
3483-12-3	DL-Dithiothreitol	No data.	No data.	No data.
7447-14-5	Potassium Chloride	No data.	No data.	No data.
7647-14-5	Sodium chloride	No data.	No data.	No data.
7778-77-0	Potassium phosphate, Monobasic	No data.	No data.	No data.
7558-79-4	Sodium phosphate, Dibasic	No data.	No data.	No data.
7732-18-5	Water	No data.	No data.	No data.

8.2 Exposure Controls:

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 Personal protection equipment:

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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.

No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: [] Gas [X] Liquid [] Solid

Appearance and Odor: Solution

pH: 7.4

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

Flammability (solid, gas): No data available.

Explosive Limits: LEL: No data. UEL: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Hg):

Vapor Density (vs. Air = 1): No data.

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: No data.

9.2 Other Information
Percent Volatile: No data.

Section 10. Stability and Reactivity

- 10.1 Reactivity:** No data available.
- 10.2 Stability:** Unstable [] Stable [X]
- 10.3 Stability Note(s):** Stable if stored in accordance with information listed on the product insert.
- Polymerization:** Will occur [] Will not occur [X]
- 10.4 Conditions To Avoid:** No data available.
- 10.5 Incompatibility - Materials To Avoid:** strong bases
strong oxidizing agents
- 10.6 Hazardous Decomposition or Byproducts:** carbon dioxide
carbon monoxide

Section 11. Toxicological Information

- 11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.
- Chronic Toxicological Effects:** Glycerol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild;
Glycerol - Investigated as a mutagen, reproductive effector, and tumorigen.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.
See actual entry in RTECS for complete information.
Glycerol RTECS Number: MA8050000
- Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
NA	15-Lipoxygenase-2 (human recombinant)	n.a.	n.a.	n.a.	n.a.
56-81-5	Glycerol	n.a.	n.a.	n.a.	n.a.
3483-12-3	DL-Dithiothreitol	n.a.	n.a.	n.a.	n.a.
7447-14-5	Potassium Chloride	n.a.	n.a.	n.a.	n.a.
7647-14-5	Sodium chloride	n.a.	n.a.	n.a.	n.a.
7778-77-0	Potassium phosphate, Monobasic	n.a.	n.a.	n.a.	n.a.
7558-79-4	Sodium phosphate, Dibasic	n.a.	n.a.	n.a.	n.a.
7732-18-5	Water	n.a.	n.a.	n.a.	n.a.

Section 12. Ecological Information

- 12.1 Toxicity:** Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.
- 12.2 Persistence and Degradability:** No data available.
- 12.3 Bioaccumulative Potential:** No data available.
- 12.4 Mobility in Soil:** No data available.
- 12.5 Results of PBT and vPvB assessment:** No data available.
- 12.6 Other adverse effects:** No data available.



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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.

DOT Hazard Class:

UN/NA Number:

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.

UN Number:

Hazard Class:

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

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
NA	15-Lipoxygenase-2 (human recombinant)	No	No	No
56-81-5	Glycerol	No	No	No
3483-12-3	DL-Dithiothreitol	No	No	No
7447-14-5	Potassium Chloride	No	No	No
7647-14-5	Sodium chloride	No	No	No
7778-77-0	Potassium phosphate, Monobasic	No	No	No
7558-79-4	Sodium phosphate, Dibasic	No	Yes 5000 LB	No
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
NA	15-Lipoxygenase-2 (human recombinant)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
56-81-5	Glycerol	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
3483-12-3	DL-Dithiothreitol	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
7447-14-5	Potassium Chloride	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
7647-14-5	Sodium chloride	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
7778-77-0	Potassium phosphate, Monobasic	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
7558-79-4	Sodium phosphate, Dibasic	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
7732-18-5	Water	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No



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Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

Section 16. Other Information

Revision Date: 05/21/2015

Additional Information About This Product: No data available.

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.