

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:** 601081  
**Product Name:** Transcription Factor Oct4 Positive Control
- 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]:**  
**Flammable Liquids, Category 4**  
**Acute Toxicity: Oral, Category 4**  
**Skin Corrosion/Irritation, Category 2**  
**Serious Eye Damage/Eye Irritation, Category 2A**
- 2.1.2 Classification according to Directive 1999/45/EC:**  
**Xn: Harmful**  
**Risk Phrases: R22, R36/37/38, R52**  
**For full text of R- phrases: see SECTION 15.**
- 2.2 Label Elements:**
- 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**


**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H227: Combustible liquid.  
 H302: Harmful if swallowed.  
 H315: Causes skin irritation.  
 H319: Causes serious eye irritation.

**GHS Precaution Phrases:**

P280: Wear {protective gloves/protective clothing/eye protection/face protection}.  
 P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.  
 P264: Wash {hands} thoroughly after handling.  
 P362+364: Take off contaminated clothing and wash it before reuse.

**GHS Response Phrases:**

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
 P330: Rinse mouth.  
 P302+352: IF ON SKIN: Wash with plenty of soap and water.  
 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

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present and easy to do. Continue rinsing.  
 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.

**2.2.2 Labeling according to Directive 1999/45/EC:**

**Xn**
**2.3 Adverse Human Health Causes skin irritation.**

**Effects and Symptoms:** Causes serious eye irritation.

DMSO has the potential to carry toxic materials or materials of unknown toxicity into the body.

DMSO is readily absorbed through skin.

Harmful if swallowed.

Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation or skin absorption.

May cause respiratory 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.	Risk Phrases/ GHS Classification
NA NA	Transcription Factor Oct4 Positive Control	0.0 -15.0 %	NA NA	No phrases apply. No data available.
56-81-5 MA8050000	Glycerol	5.0 -20.0 %	200-289-5 NA	No phrases apply. No data available.
9048-46-8 MT6446000	Bovine Serum Albumin (BSA)	0.0 -5.0 %	232-936-2 NA	Xn; R22 Acute Tox.(O) 4: H302
67-68-5 PV6210000	Dimethyl sulfoxide, anhydrous	0.0 -5.0 %	200-664-3 NA	Xi; R36/38 Flam. Liq. 4: H227 Eye Damage 2A: H319 Skin Corr. 2: H315
7791-18-6 OM2975000	Magnesium chloride, hexahydrate	0.0 -5.0 %	NA NA	Xi; R36/37/38 Skin Corr. 2: H315 Eye Damage 2A: H319 TOST (SE) 3: H335 H336
7447-40-7 TS8050000	Potassium chloride	0.0 -5.0 %	231-211-8 NA	R52 Acute Tox.(O) 5: H303 Aquatic (A) 3: H402
7365-45-9 TL6809000	HEPES, free acid	0.0 -5.0 %	230-907-9 NA	Xi; R36/38 Skin Corr. 2: H315 Eye Damage 2A: H319
3483-12-3 EK1610000	DL-Dithiothreitol	0.0 -1.0 %	222-468-7 NA	Xn; R22-36/37/38 Acute Tox.(O) 4: H302 Skin Corr. 2: H315 Eye Damage 2A: H319 TOST (SE) 3: H335 H336
60-00-4 AH4025000	Ethylenediamine Tetraacetic Acid	0.0 -1.0 %	200-449-4 607-429-00-8	Xi; R36 Acute Tox.(O) 5: H303

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				Eye Damage 2A: H319 Aquatic (A) 3: H402
7647-14-5 VZ4725000	Sodium chloride	1.0 -10.0 %	231-598-3 NA	Xi; R36 Eye Damage 2A: H319
7732-18-5 ZC0110000	Water	28.0 -94.0 %	231-791-2 NA	No phrases apply. No data available.

### Section 4. First Aid Measures

- 4.1 Description of First Aid** No data available.
- 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:**
- Exposure may cause: damage to kidneys.
  - Exposure may cause: hematuria or shortness of breath (dyspnea).
  - Exposure may cause: gastrointestinal irritation with nausea, vomiting, diarrhea, headache, dizziness, and drowsiness.
  - Eye contact may cause blurry vision, burning sensation, redness, tearing, and vasodilation.
  - Prolonged exposure may cause nausea, headache, and vomiting.

### Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
- Media:** Use water spray to cool fire-exposed containers.
- Unsuitable Extinguishing Media:** A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:**
- Can release vapors that form explosive mixtures at temperatures at or above the flashpoint.
  - Container explosion may occur under fire conditions.
  - Emits toxic fumes under fire conditions.
  - Sensitive to static discharge.
  - Vapors can travel to a source of ignition and flash back.
- 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.
- Note: Combustible as diluted in dimethyl sulfoxide

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**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. Keep away from sources of ignition. Take precautionary measures against static discharge.
- 7.2 Precautions To Be Taken in Storing:** Keep away from heat, sparks and flame. Keep container tightly closed. Store in accordance with information listed on the product insert.
- Other Precautions:** Hygroscopic.

**Section 8. Exposure Controls/Personal Protection**
**8.1 Exposure Parameters:**

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
NA	Transcription Factor Oct4 Positive Control	No data.	No data.	No data.
56-81-5	Glycerol	TWA: 10 mg/m3 () STEL: ()	TWA: 10 mg/m3	No data.
9048-46-8	Bovine Serum Albumin (BSA)	No data.	No data.	No data.
67-68-5	Dimethyl sulfoxide, anhydrous	No data.	No data.	No data.
7791-18-6	Magnesium chloride, hexahydrate	No data.	No data.	No data.
7447-40-7	Potassium chloride	No data.	No data.	No data.
7365-45-9	HEPES, free acid	No data.	No data.	No data.
3483-12-3	DL-Dithiothreitol	No data.	No data.	No data.
60-00-4	Ethylenediamine Tetraacetic Acid	No data.	No data.	No data.
7647-14-5	Sodium chloride	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	Transcription Factor Oct4 Positive Control	No data.	No data.	No data.
56-81-5	Glycerol	PEL: 15 (dust); 5 (resp.) mg/m3	TLV: 10 mg/m3	No data.
9048-46-8	Bovine Serum Albumin (BSA)	No data.	No data.	No data.
67-68-5	Dimethyl sulfoxide, anhydrous	No data.	No data.	No data.
7791-18-6	Magnesium chloride, hexahydrate	No data.	No data.	No data.
7447-40-7	Potassium chloride	No data.	No data.	No data.

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7365-45-9	HEPES, free acid	No data.	No data.	No data.
3483-12-3	DL-Dithiothreitol	No data.	No data.	No data.
60-00-4	Ethylenediamine Tetraacetic Acid	No data.	No data.	No data.
7647-14-5	Sodium chloride	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 facility and a safety shower.

Wash thoroughly after handling.

## 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:** 7.9

**Melting Point:** No data.

**Boiling Point:** No data.

**Flash Pt:** No data.

**Evaporation Rate:** No data.

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

**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:** acid chlorides  
alkali metals  
phosphorus halides

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	strong acids
	strong bases
	strong oxidizing agents
	strong reducing agents
<b>10.6 Hazardous Decomposition Or Byproducts:</b>	carbon dioxide
	carbon monoxide
	sulfur oxides

**Section 11. Toxicological Information**

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied. DMSO - Toxicity Data: Oral LD50 (rat): 14,500 mg/kg; Skin LD50 (rat): 40,000 mg/kg; Oral LD50 (mouse): 7,920 mg/kg; Skin LD50 (mouse): 50,000 mg/kg; Skin TDLO (woman): 1,800 mg/kg; Inhalation LC50 (rat): >1,600 mg/m3 (4h); DMSO - Irritation Data: Eyes (rabbit): 100 mg mild; Skin (rabbit): 500 mg (24h) mild; Glycerol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild;
<b>Chronic Toxicological Effects:</b>	DMSO - Investigated as a mutagen, reproductive effector, and tumorigen. 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. DMSO RTECS Number: PV6210000 Glycerol RTECS Number: MA8050000
<b>Carcinogenicity:</b>	NTP? No      IARC Monographs? No      OSHA Regulated? No

**Section 12. Ecological Information**

<b>12.1 Toxicity:</b>	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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**Section 13. Disposal Considerations**

<b>13.1 Waste Disposal Method:</b>	Dispose in accordance with local, state, and federal regulations.
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**Section 14. Transport Information**

<b>14.1 LAND TRANSPORT (US DOT):</b>	<b>DOT Proper Shipping Name:</b> Not dangerous goods. <b>DOT Hazard Class:</b> <b>UN/NA Number:</b>
<b>14.1 LAND TRANSPORT (European ADR/RID):</b>	<b>ADR/RID Shipping Name:</b> Not dangerous goods. <b>UN Number:</b> <b>Hazard Class:</b>
<b>14.3 AIR TRANSPORT (ICAO/IATA):</b>	<b>ICAO/IATA Shipping Name:</b> Not dangerous goods.
<b>Additional Transport Information:</b>	Transport in accordance with local, state, and federal regulations.

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**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	Transcription Factor Oct4 Positive Control	No	No	No
56-81-5	Glycerol	No	No	No
9048-46-8	Bovine Serum Albumin (BSA)	No	No	No
67-68-5	Dimethyl sulfoxide, anhydrous	No	No	No
7791-18-6	Magnesium chloride, hexahydrate	No	No	No
7447-40-7	Potassium chloride	No	No	No
7365-45-9	HEPES, free acid	No	No	No
3483-12-3	DL-Dithiothreitol	No	No	No
60-00-4	Ethylenediamine Tetraacetic Acid	No	Yes 5000 LB	No
7647-14-5	Sodium chloride	No	No	No
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
NA	Transcription Factor Oct4 Positive Control	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: Inventory; CA PROP.65: No
9048-46-8	Bovine Serum Albumin (BSA)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
67-68-5	Dimethyl sulfoxide, anhydrous	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
7791-18-6	Magnesium chloride, hexahydrate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
7447-40-7	Potassium chloride	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
7365-45-9	HEPES, free acid	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
3483-12-3	DL-Dithiothreitol	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
60-00-4	Ethylenediamine Tetraacetic Acid	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
7647-14-5	Sodium chloride	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No
7732-18-5	Water	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No

**European Community Hazard Symbol codes:****Xn****European Community Risk and Safety Phrases:**

R22	Harmful if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R52	Harmful to aquatic organisms.
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.

**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:** 06/04/2014

**Additional Information About This Product:** No data available.

**This Product:**

**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.