

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 700030  
**Product Name:** Protein Carbonyl Hydrochloric Acid
- 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:**

**Corrosive To Metals, Category 1**

**Skin Corrosion/Irritation, Category 1B**

**2.2 Label Elements:**



**GHS Signal Word:** **Danger**

**GHS Hazard Phrases:**

H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage.

**GHS Precaution Phrases:**

P234: Keep only in original container.

P260: Do not breathe {dust/fume/gas/mist/vapors/spray}.

P264: Wash {hands} thoroughly after handling.

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

**GHS Response Phrases:**

P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P310: Immediately call a POISON CENTER or doctor/physician.

P363: Wash contaminated clothing before reuse.

P390: Absorb spillage to prevent material damage.

**GHS Storage and Disposal Phrases:**

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

<b>2.3 Adverse Human Health</b>	Causes severe skin burns and eye damage.
<b>Effects and Symptoms:</b>	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
7647-01-0 MW4025000	Hydrochloric acid 01-2119484862-27	11.7 %	231-595-7 017-002-00-2	Skin Corr. 1B: H314 STOT (SE) 3: H335 H336 Corrosive 1: H290
7732-18-5 ZC0110000	Water na	88.3 %	231-791-2 NA	No GHS classifications apply.

### Section 4. First Aid Measures

<b>4.1 Description of First Aid Measures:</b>	
<b>In Case of Inhalation:</b>	Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
<b>In Case of Skin Contact:</b>	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.
<b>In Case of Eye Contact:</b>	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.
<b>In Case of Ingestion:</b>	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

<b>5.1 Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.
<b>5.2 Flammable Properties and Hazards:</b>	No data available.
<b>Flash Pt:</b>	No data.
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<b>Autoignition Pt:</b>	No data.
<b>5.3 Fire Fighting Instructions:</b>	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 raising and breathing dust, 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.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

CAS #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
7647-01-0	Hydrochloric acid	ACGIH TLV	CEIL: 2 ppm	
		Europe	TWA: 8 mg/m3 (5 ppm) STEL: 15 mg/m3 (10 ppm)	
		France VL	STEL: 7.6 mg/m3 (5 ppm)	
		OSHA PELs	CEIL: 5 ppm	
		Britain EH40	TWA: 2 mg/m3 (1 ppm) STEL: 8 mg/m3 (5 ppm)	

**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

<b>Physical States:</b>	<input type="checkbox"/> Gas	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Solid
<b>Appearance and Odor:</b>	A solution		
<b>pH:</b>	No data.		
<b>Melting Point:</b>	No data.		
<b>Boiling Point:</b>	No data.		
<b>Flash Pt:</b>	No data.		
<b>Evaporation Rate:</b>	No data.		
<b>Flammability (solid, gas):</b>	No data available.		
<b>Explosive Limits:</b>	LEL: No data.	UEL: No data.	
<b>Vapor Pressure (vs. Air or mm Hg):</b>	No data.		
<b>Vapor Density (vs. Air = 1):</b>	No data.		
<b>Specific Gravity (Water = 1):</b>	No data.		
<b>Solubility in Water:</b>	No data.		
<b>Octanol/Water Partition Coefficient:</b>	No data.		
<b>Autoignition Pt:</b>	No data.		
<b>Decomposition Temperature:</b>	No data.		
<b>Viscosity:</b>	No data.		

### 9.2 Other Information

<b>Percent Volatile:</b>	No data.	
<b>Molecular Formula &amp; Weight:</b>	HCl	36.5

## Section 10. Stability and Reactivity

<b>10.1 Reactivity:</b>	No data available.	
<b>10.2 Stability:</b>	Unstable <input type="checkbox"/>	Stable <input checked="" type="checkbox"/>
<b>10.3 Stability Note(s):</b>	Stable if stored in accordance with information listed on the product insert.	
<b>Polymerization:</b>	Will occur <input type="checkbox"/>	Will not occur <input checked="" type="checkbox"/>
<b>10.4 Conditions To Avoid:</b>	No data available.	
<b>10.5 Incompatibility - Materials To Avoid:</b>	alkali metals amines bases fluorine hexalithium disilicide metals metal acetylides permanganates	
<b>10.6 Hazardous Decomposition or Byproducts:</b>	hydrogen chloride gas	

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

**Chronic Toxicological Effects:** Hydrochloric acid - Toxicity Data: Oral LDLO (man): 2857 ug/kg; Oral LDLO (woman): 420 uL/kg; Intraperitoneal LD50 (mouse): 40142 ug/kg;

Hydrochloric acid - Investigated as a mutagen, rprimary irritant, 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.

Hydrochloric acid RTECS Number: MW4025000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
7647-01-0	Hydrochloric acid	n.a.	3	A4	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.

### 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:** Hydrochloric acid, solution

**DOT Hazard Class:** 8 CORROSIVE

**UN/NA Number:** UN1789 **Packing Group:** II



**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Hydrochloric acid, solution

**UN Number:** 1789 **Packing Group:** II

**Hazard Class:** 8 - CORROSIVE



# SAFETY DATA SHEET

## Protein Carbonyl Hydrochloric Acid

**14.3 AIR TRANSPORT (ICAO/IATA):**

<b>ICAO/IATA Shipping Name:</b>	Hydrochloric acid, solution		
<b>UN Number:</b>	1789	<b>Packing Group:</b>	II
<b>Hazard Class:</b>	8 - CORROSIVE	<b>IATA Classification:</b>	8

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

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

### 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)
7647-01-0	Hydrochloric acid	Yes 500 LB	Yes 5000 LB	Yes
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
7647-01-0	Hydrochloric acid	CAA HAP,ODC: HAP: NvHAP; 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

**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:** 06/10/2019

**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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 700566  
**Product Name:** Ethanol Assay Reagent
- 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:**

**Flammable Liquids, Category 2**

**2.2 Label Elements:**



**GHS Signal Word:** **Danger**

**GHS Hazard Phrases:**

H225: Highly flammable liquid and vapor.

**GHS Precautionary Phrases:**

P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.

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

**GHS Response Phrases:**

P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

**GHS Storage and Disposal Phrases:**

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

**UFI:**

**2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.

**Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.

May cause eye, skin, or 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
64-17-5 KQ6300000	Ethyl alcohol 01-2119457610-43-0000	100.0 %	200-578-6 603-002-00-5	Flam. Liq. 2: H225

### 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.

### 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:** 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.  
No data available.
- Flash Pt:** 14.00 C Method Used: Closed Cup
- Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
- Autoignition Pt:** 363.00 C
- 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: Flammable as diluted in ethanol.

### 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 #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
64-17-5	Ethyl alcohol	ACGIH TLV	TLV: 1000 ppm STEL: 1000 ppm	
		France VL	TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm)	
		OSHA PELs	PEL: 8H TWA:1000 ppm (1900 mg/m3)	
		Britain EH40	TWA: 1920 mg/m3 (1000 ppm) STEL: ()	

**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.  
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:** Liquid

**pH:** No data.

**Melting Point:** No data.

**Boiling Point:** No data.

**Flash Pt:** 14.00 C Method Used: Closed Cup

**Evaporation Rate:** No data.

**Flammability (solid, gas):** No data available.

**Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C

**Vapor Pressure (vs. Air or mm Hg):** 43 MM\_HG at 20.0 C

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

**Specific Gravity (Water = 1):** No data.

**Solubility in Water:** No data.

**Octanol/Water Partition Coefficient:** No data.

**Autoignition Pt:** 363.00 C

**Decomposition Temperature:** No data.

**Viscosity:** No data.

### 9.2 Other Information

**Percent Volatile:** No data.

**Molecular Formula & Weight:** C<sub>2</sub>H<sub>6</sub>O 46.1

## 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:** heat, flames, and sparks

**10.5 Incompatibility - Materials To Avoid:** alkali metals  
ammonia  
peroxides  
strong oxidizing agents

**10.6 Hazardous Decomposition or Byproducts:** carbon monoxide  
carbon dioxide

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

Ethanol - Toxicity Data: Oral TDLO (man): 1.14 ml/kg; Oral TDLO (man): 650 mg/kg; Oral LD50 (rat): 7,060 mg/kg; Oral LD50 (mouse): 3,450 mg/kg; Oral LD50 (mouse): 10.5 ml/kg; Oral LD50 (rabbit): 6,300 mg/kg; Inhalation LC50 (rat): 20,000 ppm (10h); Inhalation TCLO (human): 1,800 ppm (30m); Inhalation TCLO (human): 2,500 mg/m<sup>3</sup> (20m); Inhalation LC50 (rat): 5,900 mg/m<sup>3</sup> (6h); Inhalation LCLO (mouse): 29,300 ppm (7h);

Ethanol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 20 mg (24h) moderate;

**Chronic Toxicological Effects:** Ethanol - Investigated as a drug, mutagen, natural product, primary irritant, 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.

Ethanol RTECS Number: KQ6300000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
64-17-5	Ethyl alcohol	n.a.	1	A4	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.

### 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:** Ethyl alcohol

**DOT Hazard Class:** 3 FLAMMABLE LIQUID

**UN/NA Number:** UN1170 **Packing Group:** II



**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Ethyl alcohol

**UN Number:** 1170 **Packing Group:** II

**Hazard Class:** 3 - FLAMMABLE LIQUID



# SAFETY DATA SHEET

## Ethanol Assay Reagent

Revision: 01/07/2020  
Supersedes Revision: 06/10/2019

### 14.3 AIR TRANSPORT (ICAO/IATA):

**ICAO/IATA Shipping Name:** Ethyl alcohol  
**UN Number:** 1170  
**Hazard Class:** 3 - FLAMMABLE LIQUID  
**Packing Group:** II  
**IATA Classification:** 3

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.  
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10.  
Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

## 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)
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
64-17-5	Ethyl alcohol	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No

**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:** 01/07/2020

**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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701531  
**Product Name:** Protein Carbonyl Reaction Buffer
- 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:**  
 Skin Corrosion/Irritation, Category 3
- 2.2 Label Elements:**
- GHS Signal Word:** Warning
- GHS Hazard Phrases:**  
 H316: Causes mild skin irritation.
- GHS Precaution Phrases:**  
 No phrases apply.
- GHS Response Phrases:**  
 P332+313: If skin irritation occurs, get medical advice/attention.
- GHS Storage and Disposal Phrases:**  
 Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Causes mild skin irritation.  
**Effects and Symptoms:** Material may be irritating to the mucous membranes and upper respiratory tract.  
 May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye or 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
77-92-9 GE7350000	Citric acid 01-2119457026-42	2.54 %	201-069-1 NA	No data available.
7758-11-4 TC5580000	Potassium phosphate, dibasic 01-2119493919-15	1.18 %	231-834-5 NA	No GHS classifications apply.
50-01-1 MF4300000	Guanidinium chloride	3.82 %	200-002-3 607-148-00-0	Acute Tox.(O) 4: H302 Skin Corr. 2: H315

				Eye Damage 2: H319
7732-18-5 ZC0110000	Water na	92.46 %	231-791-2 NA	No GHS classifications apply.

### 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** No data available.

**Hazards:**

No data available.

**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 raising and breathing dust, and provide adequate ventilation.

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

**6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.

**Precautions:**

**6.3 Methods and Material For** Contain spill and collect, as appropriate.

**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.

**Up:**

### Section 7. Handling and Storage

**7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.

**in Handling:** Avoid prolonged or repeated exposure.

**7.2 Precautions To Be Taken** Keep container tightly closed.

**in Storing:** Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

- 8.1 Exposure Parameters:**
- 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:** 132/68 mM Citrate/Phosphate – 0.4 M guanidine-HCl Buffer, pH 3.0
- pH:** 3.0
- 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.
- Vapor Density (vs. Air = 1):** No data.
- Specific Gravity (Water = 1):** No data.
- Solubility in Water:** No data.
- Octanol/Water Partition Coefficient:** No data.
- Autoignition Pt:** No data.
- Decomposition Temperature:** No data.
- Viscosity:** 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:** 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.  
Guanidinium chloride - Toxicity Data: Oral LD50 (rat): 475 mg/kg; Subcutaneous LDLO (rat): 404 mg/kg; Oral LD50 (mouse): 571 mg/kg; Intraperitoneal LD50 (mouse): 500 mg/kg;
- Chronic Toxicological Effects:** Guanidinium chloride - Investigated as a mutagen and primary irritant.  
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
See actual entry in RTECS for complete information.  
Guanidinium chloride RTECS Number: MF4300000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
77-92-9	Citric acid	n.a.	n.a.	n.a.	n.a.
7758-11-4	Potassium phosphate, dibasic	n.a.	n.a.	n.a.	n.a.
50-01-1	Guanidinium chloride	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.



### 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)
77-92-9	Citric acid	No	No	No
7758-11-4	Potassium phosphate, dibasic	No	No	No
50-01-1	Guanidinium chloride	No	No	No
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
77-92-9	Citric acid	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
7758-11-4	Potassium phosphate, dibasic	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
50-01-1	Guanidinium chloride	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

**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:** 06/10/2019

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

**This Product:**

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according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701532  
**Product Name:** Protein Carbonyl Assay Buffer
- 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:**  
**Acute Toxicity: Oral, Category 4**  
**Skin Corrosion/Irritation, Category 2**  
**Serious Eye Damage/Eye Irritation, Category 2**

**2.2 Label Elements:**



**GHS Signal Word:** **Warning**

**GHS Hazard Phrases:**

H302: Harmful if swallowed.

H315: Causes 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:**

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P302+352: IF ON SKIN: Wash with plenty of soap and water.

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

P330: Rinse mouth.

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

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

P362+364: Take off contaminated clothing and wash it before reuse.

**GHS Storage and Disposal Phrases:**

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

<b>2.3 Adverse Human Health Effects and Symptoms:</b>	<p>Causes serious eye irritation.</p> <p>Causes skin irritation.</p> <p>Harmful if swallowed.</p> <p>Material may be irritating to the mucous membranes and upper respiratory tract.</p> <p>May be harmful by inhalation or skin absorption.</p> <p>May cause respiratory system irritation.</p> <p>To the best of our knowledge, the toxicological properties have not been thoroughly investigated.</p>
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### Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
77-92-9 GE7350000	Citric acid 01-2119457026-42	0.633 %	201-069-1 NA	No data available.
7758-11-4 TC5580000	Potassium phosphate, dibasic 01-2119493919-15	0.297 %	231-834-5 NA	No GHS classifications apply.
50-01-1 MF4300000	Guanidinium chloride	76.4 %	200-002-3 607-148-00-0	Acute Tox.(O) 4: H302 Skin Corr. 2: H315 Eye Damage 2: H319
7732-18-5 ZC0110000	Water na	22.67 %	231-791-2 NA	No GHS classifications apply.

### Section 4. First Aid Measures

<b>4.1 Description of First Aid Measures:</b>	<p><b>In Case of Inhalation:</b> Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.</p> <p><b>In Case of Skin Contact:</b> 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.</p> <p><b>In Case of Eye Contact:</b> Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.</p> <p><b>In Case of Ingestion:</b> 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.</p>
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### Section 5. Fire Fighting Measures

<b>5.1 Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
<b>Media:</b>	Use water spray to cool fire-exposed containers.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.
<b>5.2 Flammable Properties and Hazards:</b>	No data available.
<b>Hazards:</b>	No data available.
<b>Flash Pt:</b>	No data.
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<b>Autoignition Pt:</b>	No data.
<b>5.3 Fire Fighting Instructions:</b>	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 raising and breathing dust, and provide adequate ventilation.  
**Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,  
**Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.  
**Precautions:**
- 6.3 Methods and Material For** Contain spill and collect, as appropriate.  
**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.  
**Up:**

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.  
**in Handling:** Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken** Keep container tightly closed.  
**in Storing:** Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

- 8.1 Exposure Parameters:**
- 8.2 Exposure Controls:**
- 8.2.1 Engineering Controls** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne  
**(Ventilation etc.):** 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** NIOSH approved respirator, as conditions warrant.  
**(Specify Type):**
- Work/Hygienic/Maintenan** Do not take internally.  
**ce Practices:** 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:** 33/17 mM Citrate/Phosphate – 8 M guanidine-HCl Buffer, pH 5.0
- pH:** 3.5
- 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** No data.  
**Hg):**
- Vapor Density (vs. Air = 1):** No data.

<b>Specific Gravity (Water = 1):</b>	No data.
<b>Solubility in Water:</b>	No data.
<b>Octanol/Water Partition Coefficient:</b>	No data.
<b>Autoignition Pt:</b>	No data.
<b>Decomposition Temperature:</b>	No data.
<b>Viscosity:</b>	No data.
<b>9.2 Other Information</b>	
<b>Percent Volatile:</b>	No data.

### Section 10. Stability and Reactivity

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

### Section 11. Toxicological Information

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied. Guanidinium chloride - Toxicity Data: Oral LD50 (rat): 475 mg/kg; Subcutaneous LDLO (rat): 404 mg/kg; Oral LD50 (mouse): 571 mg/kg; Intraperitoneal LD50 (mouse): 500 mg/kg;
<b>Chronic Toxicological Effects:</b>	Guanidinium chloride - Investigated as a mutagen and primary irritant. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Guanidinium chloride RTECS Number: MF4300000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
77-92-9	Citric acid	n.a.	n.a.	n.a.	n.a.
7758-11-4	Potassium phosphate, dibasic	n.a.	n.a.	n.a.	n.a.
50-01-1	Guanidinium chloride	n.a.	n.a.	n.a.	n.a.
7732-18-5	Water	n.a.	n.a.	n.a.	n.a.

### Section 12. Ecological Information

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

### 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)
77-92-9	Citric acid	No	No	No
7758-11-4	Potassium phosphate, dibasic	No	No	No
50-01-1	Guanidinium chloride	No	No	No
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
77-92-9	Citric acid	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
7758-11-4	Potassium phosphate, dibasic	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
50-01-1	Guanidinium chloride	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

**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:** 06/10/2019

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

**This Product:**


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according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701533  
**Product Name:** Protein Carbonyl RBH
- 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:**  
 Flammable Liquids, Category 2
- 2.2 Label Elements:**
- 
- GHS Signal Word:** **Danger**
- GHS Hazard Phrases:**  
 H225: Highly flammable liquid and vapor.
- GHS Precaution Phrases:**  
 P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.  
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
- GHS Response Phrases:**  
 P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
- GHS Storage and Disposal Phrases:**  
 Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.  
**Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye, skin, or 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
74317-53-6 NA	Rhodamine B hydrazide	0.05 %	634-768-9 NA	Acute Tox.(O) 4: H302 Skin Corr. 2: H315 Eye Damage 1: H318 STOT (SE) 3: H335 H336
64-17-5 KQ6300000	Ethyl alcohol 01-2119457610-43	99.95 %	200-578-6	Flam. Liq. 2: H225



603-002-00-5

### 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.
- 4.2 Important Symptoms and Effects, Both Acute and Delayed:** May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.

### 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:** 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.  
No data available.
- Flash Pt:** 14.00 C Method Used: Closed Cup
- Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
- Autoignition Pt:** 363.00 C
- 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: Flammable as diluted in ethanol.

### 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 #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
64-17-5	Ethyl alcohol	ACGIH TLV	TLV: 1000 ppm STEL: 1000 ppm	
		France VL	TWA: 1900 mg/m3 (1000 ppm) STEL: 9500 mg/m3 (5000 ppm)	
		OSHA PELs	PEL: 1000 ppm	
		Britain EH40	TWA: 1920 mg/m3 (1000 ppm) STEL: ()	

**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:** 1 mM RBH in ethanol
- pH:** No data.
- Melting Point:** No data.
- Boiling Point:** No data.
- Flash Pt:** 14.00 C Method Used: Closed Cup
- Evaporation Rate:** No data.
- Flammability (solid, gas):** No data available.
- Explosive Limits:** LEL: 3.3% at 25.0 C UEL: 19.0% at 25.0 C
- Vapor Pressure (vs. Air or mm Hg):** 43 MM\_HG at 20.0 C
- Vapor Density (vs. Air = 1):** No data.

<b>Specific Gravity (Water = 1):</b>	No data.
<b>Solubility in Water:</b>	No data.
<b>Octanol/Water Partition Coefficient:</b>	No data.
<b>Autoignition Pt:</b>	363.00 C
<b>Decomposition Temperature:</b>	No data.
<b>Viscosity:</b>	No data.
<b>9.2 Other Information</b>	
<b>Percent Volatile:</b>	No data.
<b>Molecular Formula &amp; Weight:</b>	C <sub>28</sub> H <sub>32</sub> N <sub>4</sub> O <sub>2</sub> 456.6

### Section 10. Stability and Reactivity

<b>10.1 Reactivity:</b>	No data available.
<b>10.2 Stability:</b>	Unstable [ <input type="checkbox"/> ]      Stable [ <input checked="" type="checkbox"/> ]
<b>10.3 Stability Note(s):</b>	Stable if stored in accordance with information listed on the product insert.
<b>Polymerization:</b>	Will occur [ <input type="checkbox"/> ]      Will not occur [ <input checked="" type="checkbox"/> ]
<b>10.4 Conditions To Avoid:</b>	heat, flames, and sparks
<b>10.5 Incompatibility - Materials To Avoid:</b>	alkali metals ammonia peroxides strong oxidizing agents
<b>10.6 Hazardous Decomposition or Byproducts:</b>	carbon dioxide carbon monoxide

### Section 11. Toxicological Information

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied. Ethanol - Toxicity Data: Oral TDLO (man): 1.14 ml/kg; Oral TDLO (man): 650 mg/kg; Oral LD50 (rat): 7,060 mg/kg; Oral LD50 (mouse): 3,450 mg/kg; Oral LD50 (mouse): 10.5 ml/kg; Oral LD50 (rabbit): 6,300 mg/kg; Inhalation LC50 (rat): 20,000 ppm (10h); Inhalation TCLO (human): 1,800 ppm (30m); Inhalation TCLO (human): 2,500 mg/m <sup>3</sup> (20m); Inhalation LC50 (rat): 5,900 mg/m <sup>3</sup> (6h); Inhalation LCLO (mouse): 29,300 ppm (7h); Ethanol - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 20 mg (24h) moderate;
<b>Chronic Toxicological Effects:</b>	Ethanol - Investigated as a drug, mutagen, natural product, primary irritant, 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. Ethanol RTECS Number: KQ6300000
<b>Carcinogenicity:</b>	NTP? No      IARC Monographs? No      OSHA Regulated? No

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
74317-53-6	Rhodamine B hydrazide	n.a.	n.a.	n.a.	n.a.
64-17-5	Ethyl alcohol	n.a.	1	A4	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.

### 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:** Ethyl Alcohol Solution  
**DOT Hazard Class:** 3 FLAMMABLE LIQUID  
**UN/NA Number:** UN1170 **Packing Group:** II



**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Ethyl Alcohol Solution  
**UN Number:** 1170 **Packing Group:** II  
**Hazard Class:** 3 - FLAMMABLE LIQUID

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Ethyl Alcohol Solution  
**UN Number:** 1170 **Packing Group:** II  
**Hazard Class:** 3 - FLAMMABLE LIQUID **IATA Classification:** 3

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.  
 When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10.  
 Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

### 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)
74317-53-6	Rhodamine B hydrazide	No	No	No
64-17-5	Ethyl alcohol	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
74317-53-6	Rhodamine B hydrazide	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
64-17-5	Ethyl alcohol	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes -

Inventory; CA PROP.65: No

**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:** 06/10/2019

**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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701534  
**Product Name:** Protein Carbonyl Additive
- 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:**
- 2.2 Label Elements:**  
**GHS Signal Word:** None  
**GHS Hazard Phrases:**  
 Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.  
**GHS Precaution Phrases:**  
 No phrases apply.  
**GHS Response Phrases:**  
 No phrases apply.  
**GHS Storage and Disposal Phrases:**  
 Please refer to Section 7 for Storage and Section 13 for Disposal information.
- 2.3 Adverse Human Health** Material may be irritating to the mucous membranes and upper respiratory tract.  
**Effects and Symptoms:** May be harmful by inhalation, ingestion, or skin absorption.  
 May cause eye, skin, or 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
145224-92-6 NA	Cholan-24-oic acid, 3,12-dihydroxy-, monosodium salt, monohydrate, (3.alpha.,5.beta.,12.alpha.)-	1.0 %	680-423-0 NA	Acute Tox.(O) 4: H302 STOT (SE) 3: H335 H336
7732-18-5 ZC0110000	Water na	99.0 %	231-791-2 NA	No GHS classifications apply.

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**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 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.

**Media:**

**5.2 Flammable Properties and Hazards:** No data available.

**Hazards:**

No data available.

**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 raising and breathing dust, 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.

**Precautions:**

**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:**

<b>8.2 Exposure Controls:</b>	
<b>8.2.1 Engineering Controls (Ventilation etc.):</b>	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
<b>8.2.2 Personal protection equipment:</b>	
<b>Eye Protection:</b>	Safety glasses
<b>Protective Gloves:</b>	Compatible chemical-resistant gloves
<b>Other Protective Clothing:</b>	Lab coat
<b>Respiratory Equipment (Specify Type):</b>	NIOSH approved respirator, as conditions warrant.
<b>Work/Hygienic/Maintenance Practices:</b>	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

<b>9.1 Information on Basic Physical and Chemical Properties</b>	
<b>Physical States:</b>	[ ] Gas [ X ] Liquid [ ] Solid
<b>Appearance and Odor:</b>	1% Na-Deoxycholate
<b>pH:</b>	No data.
<b>Melting Point:</b>	No data.
<b>Boiling Point:</b>	No data.
<b>Flash Pt:</b>	No data.
<b>Evaporation Rate:</b>	No data.
<b>Flammability (solid, gas):</b>	No data available.
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<b>Vapor Pressure (vs. Air or mm Hg):</b>	No data.
<b>Vapor Density (vs. Air = 1):</b>	No data.
<b>Specific Gravity (Water = 1):</b>	No data.
<b>Solubility in Water:</b>	No data.
<b>Octanol/Water Partition Coefficient:</b>	No data.
<b>Autoignition Pt:</b>	No data.
<b>Decomposition Temperature:</b>	No data.
<b>Viscosity:</b>	No data.
<b>9.2 Other Information</b>	
<b>Percent Volatile:</b>	No data.

### Section 10. Stability and Reactivity

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

Decomposition or  
Byproducts:

### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
145224-92-6	Cholan-24-oic acid, 3,12-dihydroxy-, monosodium salt, monohydrate, (3.alpha.,5.beta.,12.alpha.)-	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.

### 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)
145224-92-6	Cholan-24-oic acid, 3,12-dihydroxy-, monosodium salt, monohydrate, (3.alpha.,5.beta.,12.alpha.)-	No	No	No
7732-18-5	Water	No	No	No





# SAFETY DATA SHEET

## Protein Carbonyl Additive

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
145224-92-6	Cholan-24-oic acid, 3,12-dihydroxy-, monosodium salt, monohydrate, (3.alpha.,5.beta.,12.alpha.)-	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No
7732-18-5	Water	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No

**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:** 06/10/2019

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

**This Product:**

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according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701535  
**Product Name:** Protein Carbonyl Wash Solution
- 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:**  
Flammable Liquids, Category 2  
Serious Eye Damage/Eye Irritation, Category 2  
Specific Target Organ Toxicity (single exposure), Category 3

**2.2 Label Elements:**



**GHS Signal Word:** Danger

**GHS Hazard Phrases:**

EUH066: Repeated exposure may cause skin dryness or cracking.

H225: Highly flammable liquid and vapor.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

**GHS Precaution Phrases:**

P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.

P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}.

P264: Wash {hands} thoroughly after handling.

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

**GHS Response Phrases:**

P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

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.

<b>2.3 Adverse Human Health Effects and Symptoms:</b>	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 skin or respiratory system irritation. May cause drowsiness or dizziness. Repeated exposure may cause skin dryness or cracking. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
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### Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
67-64-1 AL3150000	Acetone 01-2119471330-49	100.0 %	200-662-2 606-001-00-8	Flam. Liq. 2: H225 Eye Damage 2: H319 STOT (SE) 3: H336 EUH066

### Section 4. First Aid Measures

<b>4.1 Description of First Aid Measures:</b>	<p><b>In Case of Inhalation:</b> Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.</p> <p><b>In Case of Skin Contact:</b> 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.</p> <p><b>In Case of Eye Contact:</b> Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.</p> <p><b>In Case of Ingestion:</b> 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.</p>
<b>4.2 Important Symptoms and Effects, Both Acute and Delayed:</b>	Exposure may cause: dizziness, drowsiness, CNS depression, and narcosis.

### Section 5. Fire Fighting Measures

<b>5.1 Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.
<b>5.2 Flammable Properties and Hazards:</b>	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. No data available.
<b>Flash Pt:</b>	-18.00 C Method Used: Closed Cup
<b>Explosive Limits:</b>	LEL: 2.5% at 25.0 C UEL: 12.8% at 25.0 C
<b>Autoignition Pt:</b>	465.00 C
<b>5.3 Fire Fighting Instructions:</b>	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: Flammable as diluted in acetone.

### 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.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

CAS #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
67-64-1	Acetone	ACGIH TLV	TLV: 500 ppm STEL: 750 ppm	
		Europe	TWA: 1210 mg/m3 (500 ppm)	
		France VL	TWA: 1210 mg/m3 (500 ppm) STEL: 2420 mg/m3 (1000 ppm)	
		OSHA PELs	PEL: 1000 ppm	
		Britain EH40	TWA: 1210 mg/m3 (500 ppm) STEL: 3620 mg/m3 (1500 ppm)	

**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:** 100% acetone

**pH:** No data.

**Melting Point:** No data.

**Boiling Point:** No data.

**Flash Pt:** -18.00 C Method Used: Closed Cup

**Evaporation Rate:** No data.

**Flammability (solid, gas):** No data available.

**Explosive Limits:** LEL: 2.5% at 25.0 C UEL: 12.8% at 25.0 C

**Vapor Pressure (vs. Air or mm Hg):** 180 MM\_HG at 20.0 C

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

**Specific Gravity (Water = 1):** No data.

**Solubility in Water:** No data.

**Octanol/Water Partition Coefficient:** No data.

**Autoignition Pt:** 465.00 C

**Decomposition Temperature:** No data.

**Viscosity:** No data.

**9.2 Other Information**

**Percent Volatile:** No data.

**Molecular Formula & Weight:** C3H6O 58.1

### 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:** heat, flames, and sparks

**10.5 Incompatibility - Materials To Avoid:** bases  
oxidizing agents  
phosphorous oxychloride  
reducing 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.  
 Acetone - Toxicity Data: Oral TDLO (man): 2857 mg/kg; Oral LD50 (rat): 5,800 mg/kg; Oral LD50 (rabbit): 5,340 mg/kg; Oral LD50 (mouse): 3,000 mg/kg; Inhalation TCLO (human): 10 mg/m<sup>3</sup> (6 hr); Inhalation LC50 (rat): 50,100 mg/m<sup>3</sup> (8 hr); Intraperitoneal LDLO (rat): 500 mg/kg;  
 Acetone - Irritation Data: Eye (human): 186,300 ppm mild; Eye (rabbit): 20 mg (24h) moderate; Skin (rabbit): 500 mg (24 hr) mild;

**Chronic Toxicological Effects:** Acetone - Investigated as a mutagen, primary irritant, reproductive effector, and teratogen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.  
 Acetone RTECS Number: AL3150000

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

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
67-64-1	Acetone	n.a.	n.a.	A4	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.

### 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:** Acetone  
**DOT Hazard Class:** 3                      FLAMMABLE LIQUID  
**UN/NA Number:** UN1090                      **Packing Group:** II



**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Acetone  
**UN Number:** 1090                      **Packing Group:** II  
**Hazard Class:** 3 - FLAMMABLE LIQUID



# SAFETY DATA SHEET

## Protein Carbonyl Wash Solution

**14.3 AIR TRANSPORT (ICAO/IATA):**

<b>ICAO/IATA Shipping Name:</b>	Acetone	<b>Packing Group:</b>	II
<b>UN Number:</b>	1090	<b>IATA Classification:</b>	3
<b>Hazard Class:</b>	3 - FLAMMABLE LIQUID		

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

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

### 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)
67-64-1	Acetone	No	Yes 5000 LB	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
67-64-1	Acetone	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No

**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:** 06/10/2019

**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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701536  
**Product Name:** Protein Carbonyl Sample Diluent (20X)
- 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:**

**Skin Corrosion/Irritation, Category 2**

**2.2 Label Elements:**



**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H315: Causes skin irritation.

**GHS Precaution Phrases:**

P264: Wash {hands} thoroughly after handling.

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

**GHS Response Phrases:**

P302+352: IF ON SKIN: Wash with plenty of soap and water.

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

P362+364: Take off contaminated clothing and wash it before reuse.

**GHS Storage and Disposal Phrases:**

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

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

**Effects and Symptoms:** Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye or 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
1310-73-2 WB4900000	Sodium hydroxide 01-2119457892-27	4.0 %	215-185-5 011-002-00-6	Skin Corr. 1A: H314
7732-18-5 ZC0110000	Water na	96.0 %	231-791-2 NA	No GHS classifications apply.

### 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** No data available.

**Hazards:**

No data available.

**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 raising and breathing dust, and provide adequate ventilation.

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

**6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.

**Precautions:**

**6.3 Methods and Material For** Contain spill and collect, as appropriate.

**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.

**Up:**

### 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 #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
1310-73-2	Sodium hydroxide	ACGIH TLV	CEIL: 2 mg/m3	
		France VL	TWA: 2 mg/m3	
		OSHA PELs	PEL: 2 mg/m3	
		Britain EH40	STEL: 2 mg/m3 ( )	

**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:** 500 mM NaOH
- pH:** No data.
- 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.
- Vapor Density (vs. Air = 1):** No data.
- Specific Gravity (Water = 1):** No data.
- Solubility in Water:** No data.
- Octanol/Water Partition Coefficient:** No data.

<b>Autoignition Pt:</b>	No data.
<b>Decomposition Temperature:</b>	No data.
<b>Viscosity:</b>	No data.
<b>9.2 Other Information</b>	
<b>Percent Volatile:</b>	No data.
<b>Molecular Formula &amp; Weight:</b>	NaOH      40.0

### Section 10. Stability and Reactivity

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

### Section 11. Toxicological Information

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied. Sodium hydroxide - Toxicity Data: Intraperitoneal LD50 (mouse): 40 mg/kg; Oral LDLO (human): 1.57 mg/kg; Oral TDLO (rat): 44 mg/kg;
<b>Chronic Toxicological Effects:</b>	Sodium hydroxide - Investigated as an agricultural chemical, mutagen, and primary irritant. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Sodium hydroxide RTECS Number: WB4900000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
1310-73-2	Sodium hydroxide	n.a.	n.a.	n.a.	n.a.
7732-18-5	Water	n.a.	n.a.	n.a.	n.a.

### Section 12. Ecological Information

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

**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:** Sodium hydroxide solution  
**DOT Hazard Class:** 8 CORROSIVE  
**UN/NA Number:** UN1824 **Packing Group:** III



**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Sodium hydroxide solution  
**UN Number:** 1824 **Packing Group:** III  
**Hazard Class:** 8 - CORROSIVE

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Sodium hydroxide solution  
**UN Number:** 1824 **Packing Group:** III  
**Hazard Class:** 8 - CORROSIVE **IATA Classification:** 8

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.  
 When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

**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)
1310-73-2	Sodium hydroxide	No	Yes 1000 LB	No
7732-18-5	Water	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
1310-73-2	Sodium hydroxide	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

**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:** 06/10/2019

**Additional Information About** 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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701537  
**Product Name:** Oxidized (High) Protein Carbonyl 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:**  
**Acute Toxicity: Oral, Category 4**  
**Skin Corrosion/Irritation, Category 2**  
**Serious Eye Damage/Eye Irritation, Category 2**  
**Specific Target Organ Toxicity (single exposure), Category 3**

**2.2 Label Elements:**



**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

**GHS Precaution Phrases:**

P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}.

P264: Wash {hands} thoroughly after handling.

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

**GHS Response Phrases:**

P301+312: IF SWALLOWED: P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P302+352: IF ON SKIN: Wash with plenty of soap and water.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P330: Rinse mouth.

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

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

P362+364: Take off contaminated clothing and wash it before reuse.

**GHS Storage and Disposal Phrases:**

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

- 2.3 Adverse Human Health** Causes serious eye irritation.
- Effects and Symptoms:** Causes skin irritation.  
 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 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
10049-21-5 NA	Sodium phosphate monobasic, monohydrate	20.27 %	600-102-0 NA	Skin Corr. 2: H315 Eye Damage 2A: H319 STOT (SE) 3: H335 H336
7647-14-5 VZ4725000	Sodium chloride 01-2119485491-33	8.34 %	231-598-3 NA	No GHS classifications apply.
9048-46-8 AY9296000	Bovine Serum Albumin (BSA)	71.39 %	232-936-2 NA	Acute Tox.(O) 4: H302

### 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 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:** No data available.  
**Hazards:** No data available.  
**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 raising and breathing dust, and provide adequate ventilation.  
**Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,  
**Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.  
**Precautions:**
- 6.3 Methods and Material For** Contain spill and collect, as appropriate.  
**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.  
**Up:**

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.  
**in Handling:** Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken** Keep container tightly closed.  
**in Storing:** Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

- 8.1 Exposure Parameters:**
- 8.2 Exposure Controls:**
- 8.2.1 Engineering Controls** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne  
**(Ventilation etc.):** 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** NIOSH approved respirator, as conditions warrant.  
**(Specify Type):**
- Work/Hygienic/Maintenan** Do not take internally.  
**ce Practices:** 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 [ ] Liquid [ X ] Solid
- Appearance and Odor:** 2 mg oxidized BSA (lyophilized)
- pH:** No data.
- 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** No data.  
**Hg):**
- Vapor Density (vs. Air = 1):** No data.



<b>Specific Gravity (Water = 1):</b>	No data.
<b>Solubility in Water:</b>	No data.
<b>Octanol/Water Partition Coefficient:</b>	No data.
<b>Autoignition Pt:</b>	No data.
<b>Decomposition Temperature:</b>	No data.
<b>Viscosity:</b>	No data.
<b>9.2 Other Information</b>	
<b>Percent Volatile:</b>	No data.

### Section 10. Stability and Reactivity

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

### Section 11. Toxicological Information

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied.
<b>Chronic Toxicological Effects:</b>	Bovine Serum Albumin - Toxicity Data: Intraperitoneal TDLO (mouse): 0.2 pph; Bovine Serum Albumin - Investigated as a natural product. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Bovine Serum Albumin RTECS Number: AY9296000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
10049-21-5	Sodium phosphate monobasic, monohydrate	n.a.	n.a.	n.a.	n.a.
7647-14-5	Sodium chloride	n.a.	n.a.	n.a.	n.a.
9048-46-8	Bovine Serum Albumin (BSA)	n.a.	n.a.	n.a.	n.a.

### Section 12. Ecological Information

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

### 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)
10049-21-5	Sodium phosphate monobasic, monohydrate	No	No	No
7647-14-5	Sodium chloride	No	No	No
9048-46-8	Bovine Serum Albumin (BSA)	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
10049-21-5	Sodium phosphate monobasic, monohydrate	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
9048-46-8	Bovine Serum Albumin (BSA)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory: Active; CA PROP.65: No

**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:** 06/10/2019

**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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701538  
**Product Name:** Oxidized (Low) Protein Carbonyl 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:**  
**Acute Toxicity: Oral, Category 4**  
**Skin Corrosion/Irritation, Category 2**  
**Serious Eye Damage/Eye Irritation, Category 2**  
**Specific Target Organ Toxicity (single exposure), Category 3**

**2.2 Label Elements:**



**GHS Signal Word:** Warning

**GHS Hazard Phrases:**

H302: Harmful if swallowed.  
 H315: Causes skin irritation.  
 H319: Causes serious eye irritation.  
 H335: May cause respiratory irritation.

**GHS Precaution Phrases:**

P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}.  
 P264: Wash {hands} thoroughly after handling.  
 P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

**GHS Response Phrases:**

P301+312: IF SWALLOWED: P312: Call a POISON CENTER or doctor/physician if you feel unwell.  
 P302+352: IF ON SKIN: Wash with plenty of soap and water.  
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P330: Rinse mouth.  
 P332+313: If skin irritation occurs, get medical advice/attention.  
 P337+313: If eye irritation persists, get medical advice/attention.  
 P362+364: Take off contaminated clothing and wash it before reuse.

**GHS Storage and Disposal Phrases:**

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

- 2.3 Adverse Human Health** Causes serious eye irritation.
- Effects and Symptoms:** Causes skin irritation.  
 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 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
10049-21-5 NA	Sodium phosphate monobasic, monohydrate	20.27 %	600-102-0 NA	Skin Corr. 2: H315 Eye Damage 2A: H319 STOT (SE) 3: H335 H336
7647-14-5 VZ4725000	Sodium chloride 01-2119485491-33	8.34 %	231-598-3 NA	No GHS classifications apply.
9048-46-8 AY9296000	Bovine Serum Albumin (BSA)	71.39 %	232-936-2 NA	Acute Tox.(O) 4: H302

### 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:** No data available.
- Hazards:** No data available.
- 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, Protective Equipment and Emergency Procedures:** Avoid raising and breathing dust, 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.

### Section 8. Exposure Controls/Personal Protection

- 8.1 Exposure Parameters:**
- 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  Liquid  Solid
- Appearance and Odor:** 2 mg BSA (lyophilized)
- pH:** No data.
- 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.
- Vapor Density (vs. Air = 1):** No data.

<b>Specific Gravity (Water = 1):</b>	No data.
<b>Solubility in Water:</b>	No data.
<b>Octanol/Water Partition Coefficient:</b>	No data.
<b>Autoignition Pt:</b>	No data.
<b>Decomposition Temperature:</b>	No data.
<b>Viscosity:</b>	No data.
<b>9.2 Other Information</b>	
<b>Percent Volatile:</b>	No data.

**Section 10. Stability and Reactivity**

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

**Section 11. Toxicological Information**

<b>11.1 Information on Toxicological Effects:</b>	The toxicological effects of this product have not been thoroughly studied.
<b>Chronic Toxicological Effects:</b>	Bovine Serum Albumin - Toxicity Data: Intraperitoneal TDLO (mouse): 0.2 pph; Bovine Serum Albumin - Investigated as a natural product. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Bovine Serum Albumin RTECS Number: AY9296000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
10049-21-5	Sodium phosphate monobasic, monohydrate	n.a.	n.a.	n.a.	n.a.
7647-14-5	Sodium chloride	n.a.	n.a.	n.a.	n.a.
9048-46-8	Bovine Serum Albumin (BSA)	n.a.	n.a.	n.a.	n.a.

**Section 12. Ecological Information**

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

**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)
10049-21-5	Sodium phosphate monobasic, monohydrate	No	No	No
7647-14-5	Sodium chloride	No	No	No
9048-46-8	Bovine Serum Albumin (BSA)	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
10049-21-5	Sodium phosphate monobasic, monohydrate	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
9048-46-8	Bovine Serum Albumin (BSA)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory: Active; CA PROP.65: No

**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:** 06/10/2019

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

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according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 2015/830 and US OSHA HCS 2015

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

- 1.1 Product Code:** 701539  
**Product Name:** Protein carbonyl TCA Solution
- 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:**

**Skin Corrosion/Irritation, Category 1A**

**Aquatic Toxicity (Acute), Category 1**

**Aquatic Toxicity (Chronic), Category 1**

**2.2 Label Elements:**



**GHS Signal Word:** **Danger**

**GHS Hazard Phrases:**

H314: Causes severe skin burns and eye damage.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

**GHS Precaution Phrases:**

P260: Do not breathe {dust/fume/gas/mist/vapors/spray}.

P264: Wash {hands} thoroughly after handling.

P273: Avoid release to the environment.

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

**GHS Response Phrases:**

P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P310: Immediately call a POISON CENTER or doctor/physician.

P363: Wash contaminated clothing before reuse.

P391: Collect spillage.

**GHS Storage and Disposal Phrases:**

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



<b>2.3 Adverse Human Health</b>	Causes severe skin burns and eye damage.
<b>Effects and Symptoms:</b>	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. Very toxic to aquatic life with long lasting effects. 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
76-03-9 AJ7875000	Trichloroacetic acid 01-2119485186-30	100.0 %	200-927-2 607-004-00-7	Skin Corr. 1A: H314 Aquatic (A) 1: H400 Aquatic (C) 1: H410

### Section 4. First Aid Measures

<b>4.1 Description of First Aid Measures:</b>	
<b>In Case of Inhalation:</b>	Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
<b>In Case of Skin Contact:</b>	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.
<b>In Case of Eye Contact:</b>	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.
<b>In Case of Ingestion:</b>	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.
<b>4.2 Important Symptoms and Effects, Both Acute and Delayed:</b>	Exposure may cause: shortness of breath, cough, inflammation and edema of the larynx or bronchi, pneumonitis, or pulmonary edema. Very destructive to mucous membranes, upper respiratory tract, eyes, and skin.

### Section 5. Fire Fighting Measures

<b>5.1 Suitable Extinguishing Media:</b>	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
<b>Unsuitable Extinguishing Media:</b>	A solid water stream may be inefficient.
<b>5.2 Flammable Properties and Hazards:</b>	No data available.
<b>Flash Pt:</b>	No data.
<b>Explosive Limits:</b>	LEL: No data. UEL: No data.
<b>Autoignition Pt:</b>	No data.
<b>5.3 Fire Fighting Instructions:</b>	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 raising and breathing dust, and provide adequate ventilation.  
**Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,  
**Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.  
**Precautions:**
- 6.3 Methods and Material For** Contain spill and collect, as appropriate.  
**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.  
**Up:**

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.  
**in Handling:** Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken** Keep container tightly closed.  
**in Storing:** Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

CAS #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
76-03-9	Trichloroacetic acid	ACGIH TLV	TLV: 1 ppm	
		France VL	TWA: 5 mg/m3 (1 ppm)	

**8.2 Exposure Controls:**

- 8.2.1 Engineering Controls** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne  
**(Ventilation etc.):** 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** NIOSH approved respirator, as conditions warrant.  
**(Specify Type):**
- Work/Hygienic/Maintenan** Do not take internally.  
**ce Practices:** Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.  
 Wash thoroughly after handling.  
 No data available.



### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.  
Trichloroacetic acid - Toxicity Data: Intraperitoneal LDLO (mouse): 500 mg/kg; Subcutaneous LD50 (mouse): 270 mg/kg; Subcutaneous TDLO (mouse): 270 mg/kg; Oral TDLO (mouse): 1420 mg/kg/10W (continuous);

**Chronic Toxicological Effects:** Trichloroacetic acid - Investigated as an agricultural chemical, drug, mutagen, primary irritant, 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.  
Trichloroacetic acid RTECS Number: AJ7875000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
76-03-9	Trichloroacetic acid	n.a.	3	A3	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.

### 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:** Trichloroacetic acid  
**DOT Hazard Class:** 8 CORROSIVE  
**UN/NA Number:** UN1839 **Packing Group:** II



**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Trichloroacetic acid  
**UN Number:** 1839 **Packing Group:** II  
**Hazard Class:** 8 - CORROSIVE

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Trichloroacetic acid  
**UN Number:** 1839 **Packing Group:** II  
**Hazard Class:** 8 - CORROSIVE **IATA Classification:** 8



# SAFETY DATA SHEET

## Protein carbonyl TCA Solution

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

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

### 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)
76-03-9	Trichloroacetic acid	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
76-03-9	Trichloroacetic acid	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: Yes: Canc.

**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:** 06/10/2019

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

**This Product:**

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