

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



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

Product Code: 600051
Product Name: Cell-Based Assay Hydrogen Peroxide Standard
Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

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

2. Hazards Identification

GHS Classification	Placard	Key word	GHS Hazard
Oxidizing Liquids, Category 1	Oxidizer	Danger	May cause fire or explosion; strong oxidizer
Acute Toxicity: Oral, Category 4	Exclamation point	Warning	Harmful if swallowed
Acute Toxicity: Inhalation, Category 4	Exclamation point	Warning	Harmful if inhaled
Skin Corrosion/Irritation, Category 1A	Corrosive	Danger	Causes severe skin burns and eye damage

GHS Hazard Phrases:
 H271: May cause fire or explosion; strong oxidizer
 H302: Harmful if swallowed.
 H332: Harmful if inhaled.
 H314: Causes severe skin burns and eye damage.

GHS Precaution Phrases:
 P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.
 P220: Keep away from combustible materials.
 P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
 P264: Wash hands thoroughly after handling.
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.

GHS Response Phrases:
 P306+360: IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
 P303+361+353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
 P363: Wash contaminated clothing before reuse.
 P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P312: Call a POISON CENTER or doctor/physician if you feel unwell.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

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Supercedes Revision: 05/15/2009

Potential Health Effects (Acute and Chronic):	Causes severe skin burns. Causes serious eye damage. Harmful if swallowed or by inhalation. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
Target Organs:	Eyes, Respiratory system, Skin.
LD 50 / LC 50:	Please refer to Section 11.
Signs and Symptoms Of Exposure:	Exposure may cause: nausea, headache, vomiting, stomach pains, sore throat, cough, dizziness, or shortness of breath. Eye contact may result in pain, redness, blurred vision, or corneal ulcer. Skin contact may result in redness, itching, pain, severe burn, or vesiculation skin. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
Medical Conditions Generally Aggravated By Exposure:	Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Hydrogen peroxide	7722-84-1	25.0 %	231-765-0	R5-8-20/22-35-41-5 2	MX0899000
2. Water	7732-18-5	75.0 %	231-791-2	No phrases apply.	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures:

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 20 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 20 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.
Indication of any immediate medical attention and special treatment needed:	No data available.

5. Fire Fighting Measures

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.
Flammable Properties and Hazards:	Strong oxidizer - may intensify fire.
Flash Pt:	No data.
Autoignition Pt:	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Hazardous Combustion Products:	No data available.
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.

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6. Accidental Release Measures

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).
Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
Steps To Be Taken In Case Material Is Released Or Spilled:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

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.
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:	Keep away from combustible materials. Light sensitive.
Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Hydrogen peroxide	7722-84-1	1 ppm	1 ppm	No data.
2. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Hydrogen peroxide	7722-84-1	TWA: 1.4 mg/m3 (1 ppm) STEL: 2.8 mg/m3 (2 ppm)	TWA: 1.5 mg/m3 (1 ppm)	No data.
2. Water	7732-18-5	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information:	Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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.
Environmental Exposure Controls:	No data available.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Appearance and Odor:	Solution
Melting Point:	No data.

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

10. Stability and Reactivity

Reactivity:	No data available.
Stability:	Unstable [<input type="checkbox"/>] Stable [<input checked="" type="checkbox"/>]
Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
Conditions To Avoid:	heat, flames and sparks
Polymerization:	Will occur [<input type="checkbox"/>] Will not occur [<input checked="" type="checkbox"/>]
Incompatibility - Materials To Avoid:	brass bronze chromium combustible materials copper iron and iron salts lead manganese nickel oxidizable materials powdered metals silver zinc
Hazardous Decomposition Or Byproducts:	No data available.

11. Toxicological Information

Toxicological Information:	The toxicological effects of this product have not been thoroughly studied. Hydrogen peroxide - Toxicity Data: Oral LD50 (rabbit): 820 mg/kg; Oral LD50 (rat): 910 mg/kg; Skin LD50 (rat): 3 g/kg; Oral TDLO (woman): 1,200 mg/kg; Hydrogen peroxide - Irritation Data: Eyes (rabbit): 1 mg severe;
Chronic Toxicological Effects:	Hydrogen Peroxide - Investigated as a mutagen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Hydrogen Peroxide RTECS Number: MX0900000, MX0899000, MX0888000, MX0899500, MX0890000, MX0887000
Carcinogenicity/Other Information:	Hydrogen peroxide - IARC: Group 3: Not classifiable as to its carcinogenicity to humans;

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Hydrogen peroxide	7722-84-1	n.a.	3	A3	n.a.

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

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

12. Ecological Information

General Ecological Information: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

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

14. Transport Information**Globally Harmonized System of Classification and Labelling**

Oxidizing Liquids, Category 1 - Danger! May cause fire or explosion; strong oxidizer
Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Acute Toxicity: Inhalation, Category 4 - Warning! Harmful if inhaled
Skin Corrosion/Irritation, Category 1A - Danger! Causes severe skin burns and eye damage

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Hydrogen peroxide, aqueous solution (with 20% or more but 40% or less hydrogen peroxide (stabilized as necessary))
DOT Hazard Class: 5.1 (8)
DOT Hazard Label: OXIDIZER, CORROSIVE
UN/NA Number: 2014
Packing Group: II

LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Hydrogen peroxide, aqueous solution (with 20% or more but 40% or less hydrogen peroxide (stabilized as necessary))
UN Number: 2014
Hazard Class: 5.1 (8) - OXIDIZER, CORROSIVE
Packing Group: II

AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Hydrogen peroxide, aqueous solution (with 20% or more but 40% or less hydrogen peroxide (stabilized as necessary))
UN Number: 2014
Hazard Class: 5.1 (8) - OXIDIZER, CORROSIVE
Packing Group: II
IATA Classification: 5.1 (8)

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

15. Regulatory Information

European Community Hazard Symbol codes C: Corrosive; O: Oxidizing; Xn: Harmful

European Community Risk and Safety Phrases

R5 - Heating may cause an explosion.
R8 - Contact with combustible material may cause fire.
R20/22 - Harmful by inhalation and if swallowed.
R35 - Causes severe burns.
R41 - Risk of serious damage to the eyes.
S17 - Keep away from combustible material.



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- S24/25 - Avoid contact with skin and eyes.
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S28 - After contact with skin, wash immediately with plenty of soap-suds.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Hydrogen peroxide	7722-84-1	Yes 1000 LB	Yes NA	No	No
2. Water	7732-18-5	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Hydrogen peroxide	7722-84-1	No	No	Inventory	No
2. Water	7732-18-5	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

16. Other Information

Revision Date: 12/06/2012

Company Policy or Disclaimer

For research use only, not for human or veterinary use.

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

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

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



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

Product Code: 600052

Product Name: Cell-Based Assay Hydrogen Peroxide Detector ADHP

Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

Company Name: Cayman Chemical Company

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

2. Hazards Identification

GHS Classification	Placard	Key word	GHS Hazard
Acute Toxicity: Oral, Category 4	Exclamation point	Warning	Harmful if swallowed
Flammable Liquids, Category 4	none	Warning	Combustible liquid
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Skin Corrosion/Irritation, Category 2	Exclamation point	Warning	Causes skin irritation

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

GHS Precaution Phrases:
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
P210: Keep away from {heat/sparks/open flames/hot surfaces}. - No smoking.

GHS Response Phrases:
P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330: Rinse mouth.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P332+313: If skin irritation occurs, get medical advice/attention.
P362: Take off contaminated clothing and wash before re-use.

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

Route(s) of Entry:
Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic):
Causes eye and skin irritation.
DMSO has the potential to carry toxic materials or materials of unknown toxicity into the body.
DMSO is readily absorbed through skin.
Harmful if swallowed.
Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation or skin absorption.
May cause respiratory system irritation.

Cell-Based Assay Hydrogen Peroxide Detector

Revision: 10/06/2012

ADHP

Supercedes Revision: 05/15/2009

Target Organs:	Eyes, Reproductive system, Kidneys, Respiratory system, Liver, Skin.
LD 50 / LC 50:	Please refer to Section 11.
Signs and Symptoms Of Exposure:	Exposure may cause: hematuria or shortness of breath (dyspnea). Exposure may cause: gastrointestinal irritation with nausea, vomiting, diarrhea, headache, dizziness, and drowsiness. Eye contact may cause blurry vision, burning sensation, redness, tearing, and vasodilation. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
Medical Conditions Generally Aggravated By Exposure:	No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP)	119171-73-2	1.0 -10.0 %	NA	R22	NA
2. Dimethyl sulfoxide, anhydrous	67-68-5	90.0 -99.0 %	200-664-3	R36/38	PV6210000

4. First Aid Measures

Emergency and First Aid Procedures:	
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 20 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 20 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.
Indication of any immediate medical attention and special treatment needed:	No data available.

5. Fire Fighting Measures

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.
Flammable Properties and Hazards:	Can release vapors that form explosive mixtures at temperatures at or above the flashpoint. Container explosion may occur under fire conditions. Emits toxic fumes under fire conditions. Sensitive to static discharge. Vapors can travel to a source of ignition and flash back.
Flash Pt:	89.00 C Method Used: Closed Cup
Autoignition Pt:	215.00 C
Explosive Limits:	LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C
Hazardous Combustion Products:	No data available.
Fire Fighting Instructions:	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes. Note: Combustible as diluted in dimethyl sulfoxide

Cell-Based Assay Hydrogen Peroxide Detector

Revision: 10/06/2012

ADHP

Supercedes Revision: 05/15/2009

6. Accidental Release Measures

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).
Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
Steps To Be Taken In Case Material Is Released Or Spilled:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

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.
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:	Air sensitive. Hygroscopic. Light sensitive.
Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP)	119171-73-2	No data.	No data.	No data.
2. Dimethyl sulfoxide, anhydrous	67-68-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP)	119171-73-2	No data.	No data.	No data.
2. Dimethyl sulfoxide, anhydrous	67-68-5	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information:	Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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.
Environmental Exposure Controls:	No data available.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Appearance and Odor:	Solution
Melting Point:	No data.

Boiling Point:	No data.
Flash Pt:	89.00 C Method Used: Closed Cup
Evaporation Rate:	No data.
Explosive Limits:	LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C
Vapor Pressure (vs. Air or mm Hg):	0.37 MM_HG at 20.0 C
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	215.00 C
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.
Other Information	
Percent Volatile:	No data.

10. Stability and Reactivity

Reactivity:	No data available.
Stability:	Unstable [] Stable [X]
Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
Conditions To Avoid:	heat, flames and sparks
Polymerization:	Will occur [] Will not occur [X]
Incompatibility - Materials To Avoid:	acid chlorides phosphorus halides strong acids alkali metals strong oxidizing agents strong reducing agents
Hazardous Decomposition Or Byproducts:	carbon monoxide carbon dioxide nitrogen oxides sulfur oxides

11. Toxicological Information

Toxicological Information:	The toxicological effects of this product have not been thoroughly studied.
	DMSO - Toxicity Data: Oral LD50 (rat): 14,500 mg/kg; Skin LD50 (rat): 40,000 mg/kg; Oral LD50 (mouse): 7,920 mg/kg; Skin LD50 (mouse): 50,000 mg/kg; Skin TDLO (woman): 1,800 mg/kg; Inhalation LC50 (rat): >1,600 mg/m3 (4h); DMSO - Irritation Data: Eyes (rabbit): 100 mg mild; Skin (rabbit): 500 mg (24h) mild;
Chronic Toxicological Effects:	DMSO - Investigated as a mutagen, reproductive effector, and tumorigen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. DMSO RTECS Number: PV6210000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP)	119171-73-2	n.a.	n.a.	n.a.	n.a.
2. Dimethyl sulfoxide, anhydrous	67-68-5	n.a.	n.a.	n.a.	n.a.

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



SAFETY DATA SHEET

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12. Ecological Information

General Ecological Information: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

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

14. Transport Information

Globally Harmonized System of Classification and Labelling

Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Flammable Liquids, Category 4 - Warning! Combustible liquid
Serious Eye Damage/Eye Irritation, Category 2A - Warning! Causes serious eye irritation
Skin Corrosion/Irritation, Category 2 - Warning! Causes skin irritation

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

15. Regulatory Information

European Community Hazard Symbol codes Xn: Harmful

European Community Risk and Safety Phrases

R22 - Harmful if swallowed.
R36/38 - Irritating to eyes and skin.
S24/25 - Avoid contact with skin and eyes.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP)	119171-73-2	No	No	No	No
2. Dimethyl sulfoxide, anhydrous	67-68-5	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP)	119171-73-2	No	No	No	No
2. Dimethyl sulfoxide, anhydrous	67-68-5	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

16. Other Information

Revision Date: 10/06/2012

Company Policy or Disclaimer

For research use only, not for human or veterinary use.
DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

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



Cell-Based Assay Horseradish Peroxidase

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

Revision: 12/06/2012
Supersedes Revision: 05/15/2009

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

Product Code: 600053

Product Name: Cell-Based Assay Horseradish Peroxidase

Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

Company Name: Cayman Chemical Company

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

2. Hazards Identification

GHS Hazard Phrases: Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS.

GHS Precaution Phrases: No data available.

GHS Response Phrases: No data available.

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

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.

Target Organs: No data available.

Signs and Symptoms Of Exposure: To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Medical Conditions Generally Aggravated By Exposure: No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Horseradish peroxidase Type IV	9003-99-0	< 1.0 %	232-668-6	R42/43	NA
2. Potassium chloride	7447-40-7	< 1.0 %	231-211-8	No phrases apply.	TS8050000
3. Sodium chloride	7647-14-5	< 5.0 %	231-598-3	R36	VZ4725000
4. Potassium phosphate, Monobasic	7778-77-0	< 1.0 %	231-913-4	No phrases apply.	TC6615500
5. Sodium phosphate, Dibasic	7558-79-4	< 1.0 %	231-448-7	R36	WC4500000
6. Water	7732-18-5	>91.0 %	231-791-2	No phrases apply.	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures:

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 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

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In Case of Eye Contact:	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
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.
Indication of any immediate medical attention and special treatment needed:	No data available.

5. Fire Fighting Measures

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.
Flammable Properties and Hazards:	No data available.
Flash Pt:	No data.
Autoignition Pt:	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Hazardous Combustion Products:	No data available.
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.

6. Accidental Release Measures

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).
Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
Steps To Be Taken In Case Material Is Released Or Spilled:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

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

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Horseradish peroxidase Type IV	9003-99-0	No data.	No data.	No data.
2. Potassium chloride	7447-40-7	No data.	No data.	No data.
3. Sodium chloride	7647-14-5	No data.	No data.	No data.
4. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
5. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
6. Water	7732-18-5	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Horseradish peroxidase Type IV	9003-99-0	No data.	No data.	No data.
2. Potassium chloride	7447-40-7	No data.	No data.	No data.
3. Sodium chloride	7647-14-5	No data.	No data.	No data.
4. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.

Cell-Based Assay Horseradish Peroxidase

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Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
5. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
6. Water	7732-18-5	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information:	Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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.
Environmental Exposure Controls:	No data available.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Appearance and Odor:	Solution
Melting Point:	No data.
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.
Autoignition Pt:	No data.
Explosive Properties:	No data available.
Oxidizing Properties:	No data available.
Other Information	
Percent Volatile:	No data.

10. Stability and Reactivity

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



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11. Toxicological Information

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

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Horseradish peroxidase Type IV	9003-99-0	n.a.	n.a.	n.a.	n.a.
2. Potassium chloride	7447-40-7	n.a.	n.a.	n.a.	n.a.
3. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
4. Potassium phosphate, Monobasic	7778-77-0	n.a.	n.a.	n.a.	n.a.
5. Sodium phosphate, Dibasic	7558-79-4	n.a.	n.a.	n.a.	n.a.
6. Water	7732-18-5	n.a.	n.a.	n.a.	n.a.

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

12. Ecological Information

General Ecological Information: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

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

14. Transport Information

LAND TRANSPORT (US DOT)**DOT Proper Shipping Name** Not dangerous goods.**LAND TRANSPORT (European ADR/RID)****ADR/RID Shipping Name** Not dangerous goods.**AIR TRANSPORT (ICAO/IATA)****ICAO/IATA Shipping Name** Not dangerous goods.**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes

No data available.

European Community Risk and Safety Phrases

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Horseradish peroxidase Type IV	9003-99-0	No	No	No	No
2. Potassium chloride	7447-40-7	No	No	No	No
3. Sodium chloride	7647-14-5	No	No	No	No
4. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
5. Sodium phosphate, Dibasic	7558-79-4	No	Yes 5000 LB	No	No
6. Water	7732-18-5	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Horseradish peroxidase Type IV	9003-99-0	No	No	Inventory	No
2. Potassium chloride	7447-40-7	No	No	Inventory	No
3. Sodium chloride	7647-14-5	No	No	Inventory	No
4. Potassium phosphate, Monobasic	7778-77-0	No	No	Inventory	No



SAFETY DATA SHEET

Cell-Based Assay Horseradish Peroxidase

Revision: 12/06/2012

Supercedes Revision: 05/15/2009

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
5. Sodium phosphate, Dibasic	7558-79-4	No	No	Inventory	No
6. Water	7732-18-5	No	No	Inventory	No

Regulatory Information Statement:

This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

16. Other Information

Revision Date: 12/06/2012

Company Policy or Disclaimer

For research use only, not for human or veterinary use.

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

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

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



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

Product Code: 600054

Product Name: Cell-Based Assay Catalase

Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

Company Name: Cayman Chemical Company

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

2. Hazards Identification

GHS Classification	Placard	Key word	GHS Hazard
Respiratory Sensitization, Category 1	Health hazard	Danger	May cause allergy or asthma symptoms or breathing difficulties if inhaled

GHS Hazard Phrases: H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled

GHS Precaution Phrases: P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

GHS Response Phrases: P304+341: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
 P342+311: If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.

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

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
 May be harmful by inhalation, ingestion, or skin absorption.
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause eye, skin, or respiratory system irritation.

Target Organs: No data available.

Signs and Symptoms Of Exposure: To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Medical Conditions Generally Aggravated By Exposure: No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Catalase	9001-05-2	100.0 %	232-577-1	R42	FI4378000

4. First Aid Measures

Emergency and First Aid Procedures:

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 20 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 20 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.
Indication of any immediate medical attention and special treatment needed:	No data available.

5. Fire Fighting Measures

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.
Flammable Properties and Hazards:	No data available.
Flash Pt:	No data.
Autoignition Pt:	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Hazardous Combustion Products:	No data available.
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.

6. Accidental Release Measures

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).
Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
Steps To Be Taken In Case Material Is Released Or Spilled:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

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

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Catalase	9001-05-2	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Catalase	9001-05-2	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information:	Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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.

Environmental Exposure Controls: No data available.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical States: Gas Liquid Solid

Appearance and Odor: A lyophilized powder

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

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

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

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

Other Information

Percent Volatile: No data.

10. Stability and Reactivity

Reactivity: No data available.

Stability: Unstable Stable

Stability Note(s): Stable if stored in accordance with information listed on the product insert.

Conditions To Avoid: No data available.

Polymerization: Will occur Will not occur

Incompatibility - Materials To Avoid: strong oxidizing agents

Hazardous Decomposition Or Byproducts: No data available.

11. Toxicological Information

Toxicological Information: The toxicological effects of this product have not been thoroughly studied.

Chronic Toxicological Effects: No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Catalase	9001-05-2	n.a.	n.a.	n.a.	n.a.

12. Ecological Information

General Ecological Information: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

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

14. Transport Information

Globally Harmonized System of Classification and Labelling

Respiratory Sensitization, Category 1 - Danger! May cause allergy or asthma symptoms or breathing difficulties if inhaled

LAND TRANSPORT (US DOT)
DOT Proper Shipping Name Not dangerous goods.

LAND TRANSPORT (European ADR/RID)
ADR/RID Shipping Name Not dangerous goods.

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

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

15. Regulatory Information

European Community Hazard Symbol codes Xi: Irritant

European Community Risk and Safety Phrases

- R42 - May cause sensitization by inhalation.
- S22 - Do not breathe dust.
- S24/25 - Avoid contact with skin and eyes.
- S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Catalase	9001-05-2	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Catalase	9001-05-2	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

16. Other Information

Revision Date: 12/06/2012

Company Policy or Disclaimer

For research use only, not for human or veterinary use.

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

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

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



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

Product Code: 10009322

Product Name: Cell-Based Assay Buffer Tablet

Intended Use: For research use only, not for human or veterinary use.

Manufacturer Information

Company Name: Cayman Chemical Company

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300

Alternate Emergency Contact: CHEMTREC Outside USA and Canada: +1 (703)527-3887

Information: Cayman Chemical Company +1 (734)971-3335

Web site address: www.caymanchem.com

2. Hazards Identification

GHS Classification	Placard	Key word	GHS Hazard
Serious Eye Damage/Eye Irritation, Category 2A	Exclamation point	Warning	Causes serious eye irritation
Skin Corrosion/Irritation, Category 3	none	Warning	Causes mild skin irritation
Acute Toxicity: Oral, Category 4	Exclamation point	Warning	Harmful if swallowed
Acute Toxicity: Skin, Category 5	none	Warning	May be harmful in contact with skin
Aquatic Toxicity (Acute), Category 3	none		Harmful to aquatic life

GHS Hazard Phrases:

H319: Causes serious eye irritation
 H316: Causes mild skin irritation.
 H302: Harmful if swallowed.
 H313: May be harmful in contact with skin.
 H320: Causes eye irritation.
 H402: Harmful to aquatic life.

GHS Precaution Phrases:

P264: Wash hands thoroughly after handling.
 P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.
 P273: Avoid release to the environment - if this is not the intended use.

GHS Response Phrases:

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists, get medical advice/attention.
 P332+313: If skin irritation occurs, get medical advice/attention.
 P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P330: Rinse mouth.
 P312: Call a POISON CENTER or doctor/physician if you feel unwell.

GHS Storage and Disposal Phrases:

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

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic): Causes eye irritation.
 Causes mild 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.

Target Organs:	Heart.
LD 50 / LC 50:	Please refer to Section 11.
Signs and Symptoms Of Exposure:	Exposure may cause: Hyperkalaemia, nausea, vomiting, abdominal pain, diarrhea or constipation, paraesthesia, thirst, dizziness, skin rash, pruritus, weakness, muscle cramps, and minor psychiatric or visual changes. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
Medical Conditions Generally Aggravated By Exposure:	No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	Risk Phrases	RTECS #
1. Sodium phosphate, Dibasic	7558-79-4	> 1.0 %	231-448-7	R36	WC4500000
2. Sodium chloride	7647-14-5	> 1.0 %	231-598-3	R36	VZ4725000
3. Potassium phosphate, Monobasic	7778-77-0	> 1.0 %	231-913-4	No phrases apply.	TC6615500
4. Potassium chloride	7447-40-7	> 1.0 %	231-211-8	No phrases apply.	TS8050000

4. First Aid Measures

Emergency and First Aid Procedures:

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 20 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 20 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.
Indication of any immediate medical attention and special treatment needed:	No data available.

5. Fire Fighting Measures

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.
Flammable Properties and Hazards:	No data available.
Flash Pt:	No data.
Autoignition Pt:	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Hazardous Combustion Products:	No data available.
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.

6. Accidental Release Measures

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).
Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
Steps To Be Taken In Case Material Is Released Or Spilled:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

7. Handling and Storage

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

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
4. Potassium chloride	7447-40-7	No data.	No data.	No data.
Hazardous Components (Chemical Name)	CAS #	Britain EH40	France VL	Europe
1. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
4. Potassium chloride	7447-40-7	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information:	Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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.
Environmental Exposure Controls:	No data available.

9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Solid
Appearance and Odor:	tablet(s)
Melting Point:	No data.
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	No data.
Solubility in Water:	No data.

Autoignition Pt: No data.

Explosive Properties: No data available.

Oxidizing Properties: No data available.

Other Information

Percent Volatile: No data.

10. Stability and Reactivity

Reactivity: No data available.

Stability: Unstable [] Stable [X]

Stability Note(s): Stable if stored in accordance with information listed on the product insert.

Conditions To Avoid: No data available.

Polymerization: Will occur [] Will not occur [X]

Incompatibility - Materials To Avoid: strong acids
strong oxidizing agents

Hazardous Decomposition Or Byproducts: hydrogen chloride gas
phosphorus oxides
potassium oxides
sodium oxides

11. Toxicological Information

Toxicological Information: The toxicological effects of this product have not been thoroughly studied.

Potassium chloride - Toxicity Data: Oral LD50 (mouse): 1,500 mg/kg; Oral LD50 (rat): 2,600 mg/kg;

Potassium chloride - Irritation Data: Eyes (rabbit): 500 mg (24h) mild;

Potassium phosphate, Monobasic - Toxicity Data: Skin LD50 (rabbit): >4,640 mg/kg;

Sodium chloride - Toxicity Data: Oral LD50 (rat): 3,000 mg/kg; Oral LD50 (mouse): 4,000 mg/kg;

Sodium chloride - Irritation Data: Eyes (rabbit): 100 mg (24h) moderate; Skin (rabbit): 500 mg (24h) mild;

Sodium phosphate, Dibasic - Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild;

Chronic Toxicological Effects: Potassium chloride - Investigated as a mutagen and tumorigen. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

Potassium chloride RTECS Number: TS8050000

Potassium phosphate, Monobasic RTECS Number: TC6615500

Sodium chloride RTECS Number: VZ4725000

Sodium phosphate, Dibasic RTECS Number: WC4500000

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Sodium phosphate, Dibasic	7558-79-4	n.a.	n.a.	n.a.	n.a.
2. Sodium chloride	7647-14-5	n.a.	n.a.	n.a.	n.a.
3. Potassium phosphate, Monobasic	7778-77-0	n.a.	n.a.	n.a.	n.a.
4. Potassium chloride	7447-40-7	n.a.	n.a.	n.a.	n.a.

12. Ecological Information

General Ecological Information: Avoid release into the environment.
Harmful to aquatic organisms.
Runoff from fire control or dilution water may cause pollution.



SAFETY DATA SHEET

Cell-Based Assay Buffer Tablet

13. Disposal Considerations

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

14. Transport Information

Globally Harmonized System of Classification and Labelling

Serious Eye Damage/Eye Irritation, Category 2A - Warning! Causes serious eye irritation
Skin Corrosion/Irritation, Category 3 - Warning! Causes mild skin irritation
Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Acute Toxicity: Skin, Category 5 - Warning! May be harmful in contact with skin
Aquatic Toxicity (Acute), Category 3 - Harmful to aquatic life

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not dangerous goods.

LAND TRANSPORT (European ADR/RID)

ADR/RID Shipping Name Not dangerous goods.

AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name Not dangerous goods.

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

15. Regulatory Information

European Community Hazard Symbol codes Xn: Harmful; N: Dangerous for the environment

European Community Risk and Safety Phrases

R22 - Harmful if swallowed.
R36 - Irritating to eyes.
R52 - Harmful to aquatic organisms.
S22 - Do not breathe dust.
S24/25 - Avoid contact with skin and eyes.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Sodium phosphate, Dibasic	7558-79-4	No	Yes 5000 LB	No	No
2. Sodium chloride	7647-14-5	No	No	No	No
3. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
4. Potassium chloride	7447-40-7	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Sodium phosphate, Dibasic	7558-79-4	No	No	Inventory	No
2. Sodium chloride	7647-14-5	No	No	Inventory	No
3. Potassium phosphate, Monobasic	7778-77-0	No	No	Inventory	No
4. Potassium chloride	7447-40-7	No	No	Inventory	No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200, Regulation (EC) No.1272/2008, and European Directive 67/548/EEC as amended.

16. Other Information

Revision Date: 10/26/2012

Company Policy or Disclaimer

For research use only, not for human or veterinary use.

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

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