

Revision: 08/28/2017 Supersedes Revision: 03/22/2017

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-		ding to Regulation (EC) No. 190	· · · · · ·	. ,	
	Section 1. Id	entification of the Substan	ce/Mixture and of t	he Company/Ur	ndertaking
.1	Product Code:	700001			
	Product Name:	DMSO Assay Reagent			
.2	Relevant identified uses of t	the substance or mixture a	nd uses advised ag	ainst:	
	Relevant identified uses:	For research use only, no	ot for human or veteri	nary use.	
1.3	Details of the Supplier of the	e Safety Data Sheet:			
	Company Name:	Cayman Chemical Comp	any		
		1180 E. Ellsworth Rd. Ann Arbor, MI 48108			
	Web site address:	www.caymanchem.com			
	Information:	Cayman Chemical Comp	anv	+1 (734	971-3335
1.4	Emergency telephone numb				,
1.4	Emergency Contact:	CHEMTREC Within USA	and Canada:	+1 (800	0)424-9300
		CHEMTREC Outside US		-	3)527-3887
		Section 2. Haz	zarde Identific	ation	
2.1	Classification of the Substa				
2.2	Flammable Liquids, Categ Label Elements:	jory 4			
	GHS Signal Word:	Warning			
	GHS Hazard Phrases:				
	4227: Compustible liquid				
	H227: Combustible liquid.				
	GHS Precaution Phrases:	at/sparks/open flames/hot su	rfaces) No smoking	1	
	GHS Precaution Phrases: P210: Keep away from {hea	at/sparks/open flames/hot sur		-	
	GHS Precaution Phrases: P210: Keep away from {hea			-	
	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov			-	
	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov GHS Response Phrases:	es/protective clothing/eye pr		-	
	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for	res/protective clothing/eye pr Il Phrases: r Storage and Section 13 for	otection/face protecti	ion}.	
2.3	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glow GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health	ves/protective clothing/eye pr II Phrases: r Storage and Section 13 for DMSO has the potential to ca	otection/face protecti Disposal information	ion}.	nown toxicity into the body.
2.3	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glow GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health	res/protective clothing/eye pr II Phrases: r Storage and Section 13 for DMSO has the potential to ca DMSO is readily absorbed the	otection/face protecti Disposal information arry toxic materials or rough skin.	ion}. materials of unki	
2.3	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health Effects and Symptoms:	ves/protective clothing/eye pr al Phrases: r Storage and Section 13 for DMSO has the potential to ca DMSO is readily absorbed the Material may be irritating to the	Disposal information nrry toxic materials or rough skin. ne mucous membran	ion}. [.] materials of unki es and upper res	
2.3	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glow GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health Effects and Symptoms:	res/protective clothing/eye pr I Phrases: r Storage and Section 13 for DMSO has the potential to ca DMSO is readily absorbed the Material may be irritating to the May be harmful by inhalation	Disposal information arry toxic materials or rough skin. ne mucous membran , ingestion, or skin ab	ion}. materials of unking es and upper res	
2.3	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health Effects and Symptoms:	res/protective clothing/eye pr al Phrases: r Storage and Section 13 for DMSO has the potential to ca DMSO is readily absorbed the Material may be irritating to the May be harmful by inhalation, May cause eye, skin, or respi	Disposal information pry toxic materials or rough skin. ne mucous membran , ingestion, or skin ab ratory system irritation	ion}. materials of unki es and upper res psorption.	
2.3	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health Effects and Symptoms:	res/protective clothing/eye pr al Phrases: r Storage and Section 13 for DMSO has the potential to ca DMSO is readily absorbed the Material may be irritating to the May be harmful by inhalation, May cause eye, skin, or respi	otection/face protection Disposal information arry toxic materials or rough skin. The mucous membran , ingestion, or skin ab ratory system irritatic , the toxicological pro	ion}. materials of unki es and upper res psorption. on. operties have not	piratory tract. been thoroughly investigated.
CAS	GHS Precaution Phrases: P210: Keep away from {hea P280: Wear {protective glov GHS Response Phrases: No phrases apply. GHS Storage and Disposa Please refer to Section 7 for Adverse Human Health Effects and Symptoms:	Al Phrases: T Storage and Section 13 for DMSO has the potential to can DMSO is readily absorbed the Material may be irritating to the May be harmful by inhalation, May cause eye, skin, or respine To the best of our knowledge Dn 3. Composition, ments (Chemical Name)/	otection/face protection Disposal information arry toxic materials or rough skin. The mucous membran , ingestion, or skin ab ratory system irritatic , the toxicological pro	ion}. materials of unki es and upper res psorption. on. operties have not	piratory tract. been thoroughly investigated.



Multi-region format

Revision: 08/28/2017 Supersedes Revision: 03/22/2017

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		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 contaminate
		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	Exposure may cause: hematuria or shortness of breath (dyspnea).
4.Z	Effects, Both Acute and	Exposure may cause: gastrointestinal irritation with nausea, vomiting, diarrhea, headache,
	Delayed:	dizziness, and drowsiness.
	Dolayou	Eye contact may cause blurry vision, burning sensation, redness, tearing, and vasodilation.
		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.
	Media:	A solid water stream may be inefficient.
5.2		dCan release vapors that form explosive mixtures at temperatures at or above the flashpoint.
J.Z	Hazards:	Container explosion may occur under fire conditions.
	11020103.	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:	89.00 C Method Used: Closed Cup
	Explosive Limits:	LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C
	Autoignition Pt:	215.00 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: Combustible as diluted in dimethyl sulfoxide.
		Section 6. Accidental Release Measures
6.1	Protective Precautions,	Avoid breathing vapors and provide adequate ventilation.
	Protective Equipment an	d 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 Fo	r Contain spill and collect, as appropriate.
	Containment and Cleanir	ngTransfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	



Revision: 08/28/2017 Supersedes Revision: 03/22/2017

	CHEMICAL	Supersedes Revision: 03/22/2017				
		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.					
		Keep away from sources of ignition.				
		Take precautionary measures against static discharge.				
7.2	Precautions To Be Taken	Keep away from heat, sparks and flame.				
	in Storing:	Keep container tightly closed.				
		Store in accordance with information listed on the product insert.				
	Other Precautions:	Hygroscopic				
	Sect	tion 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 airborn				
	(Ventilation etc.):	levels below recommended exposure limits.				
8.2.2	Personal protection equi	oment:				
	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 facility and a safety				
		shower.				
		Wash thoroughly after handling.				
		No data available.				
	S	ection 9. Physical and Chemical Properties				
9 .1		sical and Chemical Properties				
	Physical States:	[]Gas [X]Liquid []Solid				
	Appearance and Odor:	A liquid				
	pH:	No data.				
	Melting Point:	No data.				
	Boiling Point:	No data.				
	Flash Pt:	89.00 C Method Used: Closed Cup				
	Evaporation Rate:	No data.				
	Flammability (solid, gas):	No data available.				
	Explosive Limits:	LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C				
	Vapor Pressure (vs. Air o	r mm 0.37 MM_HG at 20.0 C				
	Hg):					
	Vapor Density (vs. Air = 1): No data.				
		1): No data.				
	Specific Gravity (Water =	1): No data. No data.				

.ay	men				Su	persedes Revis	ion: 03/22/2017		
	Autoigni	tion Pt:	215.00 C						
	Decomp	osition Temperat	ure: No data.						
	Viscosity	/:	No data.						
9.2	Other Info	ormation							
	Percent	Volatile:	No data.						
	Molecula	ır Formula & Weig	ght: C2H6OS 78.1						
			Section 10. Stability	/ and Reacti	vity				
10.1	Reactivit	y:	No data available.	, 					
10.2	Stability:		Unstable [] Stable [X]						
10.3	Stability	Note(s):	Stable if stored in accordance with	information listed of	on the product	insert.			
	Polymeri	zation:	Will occur [] Will not occur [X]					
10.4 Conditions To Avoid: heat, flames and sparks									
10.5	Incompa	tibility - Materials	acid chlorides						
	To Avoid	l:	phosphorus halides						
			strong acids						
			alkali metals						
			strong oxidizing agents						
			strong reducing agents						
10.6	Hazardo		carbon monoxide						
	Decomp	osition or	carbon dioxide						
	Byprodu	cts:	sulfur oxides						
			Section 11. Toxicolo	gical Informa	ation				
11.1	Informat	ion on	The toxicological effects of this pro	oduct have not beer	n thoroughly stu	udied.			
	Toxicolo	gical Effects:	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/n						
	.		DMSO - Irritation Data: Eyes (rabb				1;		
		Toxicological	DMSO - Investigated as a mutage	-		+	a a vata al la a va		
	Effects:		Only select Registry of Toxic Effect See actual entry in RTECS for con		stances (RTEC	5) data is pre	sented here.		
			DMSO RTECS Number: PV62100	•					
Carcir	nogenicity		NTP? No IARC Monographs?		egulated? No				
			ponents (Chemical Name)	NTP		ACGIH	OSHA		
	-68-5	Dimethyl sulfoxide		n.a.	n.a.	n.a.	n.a.		
							1		
10.4	Taviaitu		Section 12. Ecolog Avoid release into the environmen						
12.1	Toxicity:		Runoff from fire control or dilution		ollution				
12 2	Dorolate			water may cause p					
12.2	Persister		No data available.						
10 0	Degrada	-	No data available.						
12.3	Bioaccui Potential		INU UALA AVAIIADIE.						
12 /			No data available.						
12.4	Mobility								
12.5			No data available.						
	assessm		N 17						
12.6	Other ad	verse effects:	No data available.						



Multi-region format

Revision: 08/28/2017 Supersedes Revision: 03/22/2017

CHIMICAL				Supersec	des Revision: 03/22/2017		
		Section 13. Dispos	sal Considerat	ions			
13.1 Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.							
		Section 14. Tran	sport Informat	tion			
14.1 LAND	TRANSPORT (US	DOT):					
DOT Prop	er Shipping Name	e: Combustible liquid, n.o.s. (Dimethyl sulfoxide)				
DOT Haza	rd Class:						
UN/NA Nu	ımber:	NA1993	Packing Grou	ıp:	III		
14.1 LAND	TRANSPORT (Eur	ropean ADR/RID):					
ADR/RID	Shipping Name:	Not dangerous goods.					
UN Numb		1993	Packing Grou	ıb:	III		
Hazard Cl							
		-					
	A Shipping Name:						
Additional Tra	ansport	Transport in accordance with lo When sold in quantities of less		•	ntod Quantity Cada of		
Information:		E1, E2, E4, or E5, this item me	•				
		Therefore packaging does not		• •			
		Section 15. Regu					
		· · ·	•				
CAS #	-	ments and Reauthorization Act	S. 302 (EHS) S. 304 RQ S. 313 (TRI)				
67-68-5	Dimethyl sulfoxid	• • •	No	No	No		
CAS #		nponents (Chemical Name)	Other US EPA or S				
67-68-5	Dimethyl sulfoxio	de, annyarous	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No				
Regulatory In	formation	This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC)					
Statement:		No.1272/2008.					
		Section 16. Ot	her Information	n			
Revision Date	:	08/28/2017					
Additional Info	ormation About	No data available.					
This Product:							
Company Poli	cy 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 o	own investigations to o	determine the suitabil	ity of the information for		
		their particular purposes.					



Revision: 11/02/2017 Supersedes Revision: 05/02/2015

		accord	ling to Regulation (EC) No. 190)7/2006 as amended	by (EC) No. 1272/200	08			
		Section 1. Ide	entification of the Substar	nce/Mixture and o	f the Company/U	ndertaking			
.1	Produc		700471		1 9	5			
		t Name:	Pyruvate Assay Buffer (1	10X)					
.2	Relevar	nt identified uses of t	he substance or mixture a	and uses advised	against:				
		ant identified uses:	For research use only, n		-				
1.3	Details of the Supplier of the Safety Data Sheet:								
-		any Name:	Cayman Chemical Comp	bany					
			1180 E. Ellsworth Rd.						
			Ann Arbor, MI 48108						
		site address:	www.caymanchem.com		. 4 (70	4)074 0005			
		nation:	Cayman Chemical Comp	bany	+1 (73	4)971-3335			
.4	-	ency telephone numb			. 4 . (00	00 40 4 00 00			
	Emerg	gency Contact:	CHEMTREC Within USA CHEMTREC Outside US		-	0)424-9300 13)527-3887			
						0)021 0001			
			Section 2. Ha	zards identif	ication				
2.1		ication of the Substa	nce or Mixture:						
2.2	Label E	lements:							
	GHS S	Signal Word:	None						
		Hazard Phrases:							
			ently available data this sub	stance or mixture is	s not classifiable ad	ccording to GHS.			
		Precaution Phrases:							
	-	rases apply.							
		Response Phrases:							
	-	rases apply.							
		Storage and Disposa							
			Storage and Section 13 for	-		princtory tract			
2.3			laterial may be irritating to t lay be harmful by inhalatior						
	Lifeota		lay cause eye, skin, or resp	-	-				
						t been thoroughly investigated			
		Sectio	n 3. Composition	Information	on Ingredie	nts			
CAS	#1		ents (Chemical Name)/	Concentration	EC No./	GHS Classification			
	", CS #	REACH Registration			EC Index No.				
777	/8-77-0	Potassium phosphate, I		13.61 %	231-913-4	No data available.			
TC66	15500				NA				
60-00-4 Ethylenediamine Tetraacetic Acid AH4025000		Ethylenediamine Tetraa	cetic Acid	0.292 %	200-449-4 607-429-00-8	Eye Damage 2A: H319			
	1 10 0	Magnesium chloride, he	wabydrata	0.203 %	616-575-1	No data available.			
779 2M2	975000		stanyurate		NA				



Revision: 11/02/2017 Supersedes Revision: 05/02/2015

		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 Media:	A solid water stream may be inefficient.
5.2	Flammable Properties an Hazards:	dNo data available.
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	s: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
		Section 6. Accidental Release Measures
6.1	Protective Precautions,	Avoid breathing vapors and provide adequate ventilation.
	Protective Equipment an	d 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		r Contain spill and collect, as appropriate.
		hgTransfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1	Precautions To Be Taker	Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taker	Keep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Sec	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	



	HEMICAL	Supersedes Revision. 05/02/2015				
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 equip	ment:				
	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 facility and a safety				
		shower.				
		Wash thoroughly after handling.				
		No data available.				
	Se	ection 9. Physical and Chemical Properties				
9.1	Information on Basic Phys	ical and Chemical Properties				
	Physical States:	[] Gas [X] Liquid [] Solid				
	Appearance and Odor:	1 M potassium phosphate, pH 7.0, containing 10 mM EDTA and 10 mM MgCl2				
	pH:	7.0				
	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 No data.				
	Hg):					
	Vapor Density (vs. Air = 1)	: No data.				
	Specific Gravity (Water =	1): No data.				
	Solubility in Water:	No data.				
	Octanol/Water Partition	No data.				
	Coefficient:					
	Autoignition Pt:	No data.				
	Decomposition Temperati					
	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	strong oxidizing agents				
-	To Avoid:					
	· · · · · ·					
10.6	Hazardous	phosphorus oxides				



Revision:	11/02/2017
Supersedes Revision:	05/02/2015

Decomposition or			potassium oxides						
	Byprodu	cts:							
			Sectio	n 11. Toxicological	Informa	ation			
11.1	1.1 Information on The toxicological effects of this product have not been thoroughly studied.								
	Toxicolo	gical Effects:							
Carci	nogenicity	:	NTP? No	IARC Monographs? No	OSHA Re	egulated? No			
CAS	CAS # Hazardous Con		ponents (Ch	emical Name)	NTP	IARC	ACGIH	OSHA	
777	78-77-0	Potassium phosp	hate, Monoba	asic	n.a.	n.a.	n.a.	n.a.	
60)-00-4	Ethylenediamine	Tetraacetic A	cid	n.a.	n.a.	n.a.	n.a.	
779	91-18-6	Magnesium chlor	ide, hexahydı	ate	n.a.	n.a.	n.a.	n.a.	
773	32-18-5	Water			n.a.	n.a.	n.a.	n.a.	
			Sect	ion 12. Ecological I	nformat	ion			
12.1	Toxicity:		Avoid releas	e into the environment.					
			Runoff from	fire control or dilution water r	nay cause p	ollution.			
12.2	Persister	ice and	No data ava	ilable.					
	Degradal	oility:							
12.3	Bioaccur		No data ava	ilable.					
	Potential								
12.4	Mobility i		No data available.						
12.5			No data available.						
10.0	assessm		No data available.						
12.6	Other ad	verse effects:							
			Section 13. Disposal Considerations						
13.1	Waste Di	sposal Method:	Dispose in accordance with local, state, and federal regulations.						
			Sec	tion 14. Transport I	nformat	ion			
14.1	LAND TR	RANSPORT (US I	DOT):						
D	OT Proper	Shipping Name:	: Not dan	gerous goods.					
	OT Hazard								
U	IN/NA Num								
14.1		RANSPORT (Euro	•	•					
		ipping Name:	Not dan	gerous goods.					
-	IN Number lazard Clas								
14.3		IS. NSPORT (ICAO/I	IATA)-						
		Shipping Name:	-	gerous goods.					
	tional Tran			accordance with local, state	. and federal	l regulations.			
	mation:	open			,	. egulationer			



		Section 15. Regu	•				
-		dments and Reauthorization Act					
CAS #	_	omponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)		
7778-77-0		osphate, Monobasic	No	No	No		
60-00-4	-	ne Tetraacetic Acid	No	Yes 5000 LB	No		
7791-18-6		loride, hexahydrate	No	No	No		
7732-18-5	Water		No	No	No		
CAS #	Hazardous Co	omponents (Chemical Name)	Other US EPA o	r State Lists			
7778-77-0	Potassium pho	osphate, Monobasic	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No	No; TSCA: Yes -		
60-00-4	Ethylenediami	ne Tetraacetic Acid	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No	No; TSCA: Yes -		
7791-18-6	Magnesium ch	loride, hexahydrate	CAA HAP,ODC: PROP.65: No	No; CWA NPDES:	No; TSCA: No; CA		
7732-18-5	Water		CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No	No; TSCA: Yes -		
Regulatory In Statement:	formation	This SDS was prepared in acc No.1272/2008.	cordance with 29 CFF	R 1910.1200 and Re	gulation (EC)		
		Section 16. Of	ther Information	on			
Revision Date	:	11/02/2017					
Additional Info	ormation About	No data available.	No data available.				
This Product:							
Company Poli	cy or Disclaime	r: DISCLAIMER: This information	n is believed to be ac	curate and represer	nts the best information		
	-		currently available to us. However, we make no warranty of merchantability or any other warranty,				
		express or implied, with respe	ct to such informatior	n, and we assume no	b liability resulting from its		
		use. Users should make their	own investigations to	o determine the suita	ability of the information for		
		their particular purposes.					



	/			TY DATA SH say Cofactor N		Page: 1 of 5			
Caj	man		i ji uvute 115	Suy Contector 1		Revision: 11/02/2017 upersedes Revision: 05/02/2015			
		ac	cording to Regulation (EC) No. 190	7/2006 as amended by					
			Identification of the Substan						
1.1	Product		700472			3			
	Product		Pyruvate Assay Cofactor	Mixture					
1.2	Relevan	t identified uses	of the substance or mixture a	nd uses advised ag	ainst:				
	Releva	nt identified uses	s: For research use only, no	ot for human or veteri	nary use.				
1.3	Details o	of the Supplier of	the Safety Data Sheet:						
	Compa	any Name:	Cayman Chemical Comp 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	any					
	Web si	te address:	www.caymanchem.com						
	Inform	ation:	Cayman Chemical Comp	any	+1 (734	971-3335			
1.4	Emerger	ncy telephone nu	imber:						
	Emerg	ency Contact:	CHEMTREC Within USA	and Canada:	+1 (800))424-9300			
			CHEMTREC Outside US	A and Canada:	+1 (703	3)527-3887			
			Section 2. Haz	zards Identific	ation				
2.1	Classific	ation of the Sub	stance or Mixture:						
2.2	Label El	ements:							
	GHS S	ignal Word:	None						
	GHS H	lazard Phrases:							
	Based	on evaluation of c	currently available data this subs	stance or mixture is n	ot classifiable ac	cording to GHS.			
	GHS P	Precaution Phrase	es:						
	-	ases apply.							
		GHS Response Phrases:							
	No phrases apply. GHS Storage and Disposal Phrases:								
			osal Phrases: ' for Storage and Section 13 for	Disposal information					
2.3		e Human Health	Material may be irritating to the	-		oiratory tract			
		and Symptoms:	May be harmful by inhalation						
			May cause eye, skin, or resp	-	-				
			To the best of our knowledge	, the toxicological pro	operties have not	been thoroughly investigated.			
		Sec	tion 3. Composition	/Information c	on Ingredier	nts			
CAS RTE	;#/ CS#		ponents (Chemical Name)/	Concentration	EC No./ EC Index No.	GHS Classification			
<u> </u>									

	······································			
RTECS #	REACH Registration No.		EC Index No.	
146-14-5 AU7470000	Flavin adenine dinucleotide (FAD)	5.0 -10.0 %	205-663-1 NA	No data available.
154-87-0 XI7552000	Thiamine pyrophosphate	90.0 -95.0 %	205-836-1 NA	No data available.



SAFETY DATA SHEET Pyruvate Assay Cofactor Mixture

Revision: 11/02/2017 Supersedes Revision: 05/02/2015

		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:	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 Eye 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 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 Media:	a A solid water stream may be inefficient.
5.2	Flammable Properties an Hazards:	IdNo data available.
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	s: 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 an Emergency Procedures:	 Avoid breathing vapors and provide adequate ventilation. d 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 Fo	r Contain spill and collect, as appropriate.
	Containment and Cleanir	hgTransfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1	Precautions To Be Taker	Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taker	Neep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Sec	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	



Exposure Controls:

8.2

SAFETY DATA SHEET Pyruvate Assay Cofactor Mixture

0.2	Exposure controls.		
8.2.1	Engineering Controls	Use p	rocess enclosures, local exhaust ventilation, or other engineering controls to control airborne
	(Ventilation etc.):	levels	below recommended exposure limits.
8.2.2	Personal protection equi	pment:	
	Eye Protection:	Safety	glasses
	Protective Gloves:	Comp	atible chemical-resistant gloves
	Other Protective Clothing	g:Lab co	pat
	Respiratory Equipment	NIOSI	H approved respirator, as conditions warrant.
	(Specify Type):		
	Work/Hygienic/Maintena	n Do no	t take internally.
	ce Practices:		ies storing or utilizing this material should be equipped with an eyewash facility and a safety
		showe	er.
		Wash	thoroughly after handling.
		No da	ta available.
			n 9. Physical and Chemical Properties
9.1	Information on Basic Phy		
5.1	Physical States:	Sicai ai	[]Gas []Liquid [X]Solid
	Appearance and Odor:		A lyophilized powder
	pH:		No data.
	Melting Point:		No data.
	Boiling Point:		No data.
	Flash Pt:		No data.
			No data.
	Evaporation Rate:		No data available.
	Flammability (solid, gas)	•	
	Explosive Limits:		LEL: No data. UEL: No data.
	Vapor Pressure (vs. Air o	or mm	No data.
	Hg):	1).	No doto
	Vapor Density (vs. Air =	•	No data.
	Specific Gravity (Water =	: 1):	No data.
	Solubility in Water:		No data.
	Octanol/Water Partition		No data.
	Coefficient:		
	Autoignition Pt:		No data.
	Decomposition Tempera	ture:	No data.
	Viscosity:		No data.
9.2	Other Information		
	Percent Volatile:		No data.
		S	Section 10. Stability and Reactivity
10.1	Reactivity:	No da	ta available.
10.2	Stability:	Unsta	ble [] Stable [X]
10.3	Stability Note(s):	Stable	if stored in accordance with information listed on the product insert.
	Polymerization:	Will o	ccur [] Will not occur [X]
10.4	Conditions To Avoid:	No da	ta available.
10.5	Incompatibility - Material	s stronc	oxidizing agents
-	To Avoid:		
10.6	Hazardous	carbo	n dioxide
			Multi-region form



SAFETY DATA SHEET Pyruvate Assay Cofactor Mixture

Revision:	11/02/2017
Supersedes Revision:	05/02/2015

	Deee	socition or	oorbon monovide								
	Decomposition or Byproducts:		carbon monoxide								
Byproducts:		ucts:	hydrogen chloride gas nitrogen oxides								
			-								
			phosphorus oxides sulfur oxides								
			Sullul Oxides								
			Section 11. Toxicolo	•							
11.1	Informa Toxicole	tion on ogical Effects:	The toxicological effects of this pro	oduct have not beer	n thoroughly st	udied.					
CAS #	#	Hazardous Com	ponents (Chemical Name)	NTP	IARC	ACGIH	OSHA				
146	6-14-5	Flavin adenine di	nucleotide (FAD)	n.a.	n.a.	n.a.	n.a.				
154	l-87-0	Thiamine pyropho	osphate	n.a.	n.a.	n.a.	n.a.				
			Section 12. Ecolog	ical Informat	ion	·	·				
12.1	Toxicity	:	Avoid release into the environmen	t.							
			Runoff from fire control or dilution	water may cause p	ollution.						
12.2	Persiste	ence and	No data available.								
	Degrada	ability:									
12.3 Bioaccumulative		Imulative	No data available.								
12.3											
12.3	Potentia	al:			No data available.						
	Potentia Mobility		No data available.								
12.4	Mobility	in Soil:	No data available. No data available.								
12.4	Mobility	[,] in Soil: of PBT and vPvB									
12.3 12.4 12.5 12.6	Mobility Results assessr	[,] in Soil: of PBT and vPvB									
12.4 12.5	Mobility Results assessr	r in Soil: of PBT and vPvB nent:	No data available.	I Considerat	ions						
12.4 12.5 12.6	Mobility Results assessr Other ac	r in Soil: of PBT and vPvB nent:	No data available. No data available.								
12.4 12.5 12.6	Mobility Results assessr Other ac	r in Soil: of PBT and vPvB nent: dverse effects:	No data available. No data available. Section 13. Disposa	state, and federal r	egulations.						
12.4 12.5	Mobility Results assessr Other ad Waste D	r in Soil: of PBT and vPvB nent: dverse effects:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, s Section 14. Transp	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1	Mobility Results assessr Other ad Waste D	y in Soil: of PBT and vPvB ment: dverse effects: Disposal Method:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, s Section 14. Transport):	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1	Mobility Results assessr Other ad Waste D	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I	No data available. No data available. Section 13. Disposa Dispose in accordance with local, s Section 14. Transport):	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 D(Mobility Results assessr Other ad Waste D LAND 1	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I er Shipping Name: rd Class:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, s Section 14. Transport):	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 D(U)	Mobility Results assessr Other ad Waste D LAND 1 OT Prope OT Hazar	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I er Shipping Name: rd Class:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, a Section 14. Transp DOT): Not dangerous goods.	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 D(U) 14.1	Mobility Results assessr Other ad Waste D LAND 1 OT Prope OT Hazar N/NA Nur LAND 1	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I er Shipping Name: rd Class: mber:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, a Section 14. Transp DOT): Not dangerous goods.	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 D(UI 14.1 AI	Mobility Results assessr Other ad Waste D LAND 1 OT Prope OT Hazar N/NA Nur LAND 1	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I er Shipping Name: d Class: mber: TRANSPORT (Euro shipping Name:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, s Section 14. Transp DOT): Not dangerous goods.	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 Do UI 14.1 AI UI	Mobility Results assessr Other ad Waste D LAND T OT Prope OT Hazar N/NA Nur LAND T DR/RID S	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: CRANSPORT (US I er Shipping Name: rd Class: mber: FRANSPORT (Euro shipping Name: er:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, s Section 14. Transp DOT): Not dangerous goods.	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 Do UI 14.1 AI UI Ha	Mobility Results assessr Other ad Waste D LAND T OT Prope OT Hazar N/NA Nur LAND T DR/RID S N Numbe azard Cla	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: CRANSPORT (US I er Shipping Name: rd Class: mber: FRANSPORT (Euro shipping Name: er:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, a Section 14. Transp DOT): Not dangerous goods. Spean ADR/RID): Not dangerous goods.	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 Do UI 14.1 AI UI Ha 14.3	Mobility Results assessr Other ad Waste D LAND T OT Prope OT Hazar N/NA Nur LAND T DR/RID S N Numbe azard Cla AIR TR/	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I er Shipping Name: rd Class: mber: TRANSPORT (Euro shipping Name: er:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, a Section 14. Transp DOT): Not dangerous goods. Spean ADR/RID): Not dangerous goods.	state, and federal r	egulations.						
12.4 12.5 12.6 13.1 14.1 14.1 14.1 14.3 14.3 IC	Mobility Results assessr Other ad Waste D LAND T OT Prope OT Hazar N/NA Nur LAND T DR/RID S N Numbe azard Cla AIR TR/	r in Soil: of PBT and vPvB nent: dverse effects: Disposal Method: TRANSPORT (US I er Shipping Name: rd Class: mber: TRANSPORT (Euro shipping Name: er: ass: ANSPORT (ICAO/I a Shipping Name:	No data available. No data available. Section 13. Disposa Dispose in accordance with local, a Section 14. Transp DOT): Not dangerous goods. Depean ADR/RID): Not dangerous goods.	state, and federal r	egulations. ion						



SAFETY DATA SHEET Pyruvate Assay Cofactor Mixture

Revision: 11/02/2017 Supersedes Revision: 05/02/2015

FPA SARA (S		Section 15. Regu	<u>, , , , , , , , , , , , , , , , , , , </u>		
	Superfund Amendn	nents and Reauthorization Act	of 1986) Lists		
CAS #	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
146-14-5	Flavin adenine di	nucleotide (FAD)	No	No	No
154-87-0	Thiamine pyroph	osphate	No	No	No
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA o	r State Lists	
146-14-5	Flavin adenine di	nucleotide (FAD)	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No	No; TSCA: Yes -
154-87-0	Thiamine pyroph	osphate	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No	No; TSCA: Yes -
Regulatory In Statement:	formation	This SDS was prepared in acc No.1272/2008.	ordance with 29 CFF	R 1910.1200 and Re	egulation (EC)
		Section 16. Ot	her Informatio	on	
Revision Date	:	11/02/2017			
	ormation About	No data available.			
		use. Users should make their their their their their particular purposes.			



9003-99-0

NA

Horseradish peroxidase Type IV

SAFETY DATA SHEET Pyruvate Assay Enzyme Mixture

Revision: 11/02/2017

		ac	cording to Regulation (EC) No. 190	7/2006 as amended by	(EC) No. 1272/200	18
			Identification of the Substan	· · · · ·	, ,	
1.1	Produc Produc	t Code: t Name:	700473 Pyruvate Assay Enzyme	Mixture		
1.2	Relevar	nt identified uses o	of the substance or mixture a	nd uses advised ag	ainst:	
	Relev	ant identified uses	s: For research use only, no	ot for human or veteri	nary use.	
1.3	Details	of the Supplier of	the Safety Data Sheet:			
	Comp	any Name:	Cayman Chemical Comp 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	any		
	Web s	ite address:	www.caymanchem.com			
	Inforn	nation:	Cayman Chemical Comp	any	+1 (734	4)971-3335
1.4	Emerge	ency telephone nu	mber:			
	Emerg	gency Contact:	CHEMTREC Within USA CHEMTREC Outside US			0)424-9300 3)527-3887
			Section 2. Haz	zards Identific	ation	
2.1	Classifi	cation of the Subs	stance or Mixture:			
		ratory Sensitizatio				
2.2	-	lements:	on, outogory i			
		Signal Word:	Danger			
		Hazard Phrases:				
		Precaution Phrase	or asthma symptoms or breath	ling difficulties if inna	ied.	
			ust/fume/gas/mist/vapors/spray	ر م		
		÷ .	ate ventilation wear respiratory	-		
		Response Phrase				
	P304-	+340: IF INHALED:	Remove victim to fresh air and	keep at rest in a pos	sition comfortable	for breathing.
	P342-	⊦311: If experiencin	g respiratory symptoms call a I	POISON CENTER or	doctor/physician	l.
	GHS	Storage and Dispo	osal Phrases:			
	Pleas	e refer to Section 7	for Storage and Section 13 for	•		
2.3		e Human Health and Symptoms:	Material may be irritating to the May be harmful by inhalation May cause allergy or asthma May cause eye, skin, or resp To the best of our knowledge	, ingestion, or skin ab symptoms or breathi iratory system irritatio	osorption. ing difficulties if ir on.	
		Sec	tion 3. Composition		-	
CAS RTE	5#/ CS#	1	ponents (Chemical Name)/	Concentration	EC No./ EC Index No.	GHS Classification
	01-96-1	Oxidase, pyruvate		40.0 -60.0 %	232-644-5 NA	No data available.
				1	ł	1

40.0 -60.0 %

232-668-6

NA

Multi-region format

Resp. Sens. 1: H334



SAFETY DATA SHEET Pyruvate Assay Enzyme Mixture

Revision: 11/02/2017 Supersedes Revision: 05/02/2015

		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 Media:	a A solid water stream may be inefficient.
5.2	Flammable Properties an Hazards:	dNo data available.
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	s: 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 an Emergency Procedures:	d 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 Fo	r Contain spill and collect, as appropriate.
	Containment and Cleanir	hgTransfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1	Precautions To Be Taker	Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taker	Keep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Sec	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	



SAFETY DATA SHEET Pyruvate Assay Enzyme Mixture

	HEMICAL	Supersedes Revision: 05/02/2015
8.2	Exposure Controls:	
8.2.1	• •	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborn
	(Ventilation etc.):	evels below recommended exposure limits.
8.2.2	Personal protection equip	nent:
	Eye Protection:	Safety glasses
	Protective Gloves:	Compatible chemical-resistant gloves
	Other Protective Clothing:	Lab coat
	-	NIOSH approved respirator, as conditions warrant.
	(Specify Type):	
	Work/Hygienic/Maintenan	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.
		ction 9. Physical and Chemical Properties
9.1	-	cal and Chemical Properties
	Physical States:	[]Gas []Liquid [X]Solid
	Appearance and Odor:	A lyophilized powder
	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.
	Specific Gravity (Water = 1): No data.
	Solubility in Water:	No data.
	Octanol/Water Partition	No data.
	Coefficient:	
	Autoignition Pt:	No data.
	Decomposition Temperatu	
	Viscosity:	No data.
9.2	Other Information	
9.2	Percent Volatile:	No data.
	Depativity	Section 10. Stability and Reactivity
10.1		No data available.
10.2	-	Unstable [] Stable [X]
10.3	• • • •	Stable if stored in accordance with information listed on the product insert.
	•	Will occur [] Will not occur [X]
10.4		No data available.
10.5	Incompatibility - Materials	strong oxidizing agents
	To Avoid:	
10.6	Hazardous	No data available.
		Multi-region forn



SAFETY DATA SHEET Pyruvate Assay Enzyme Mixture

	Decomp Byprodu	osition or Icts:						
			Section 11. Toxico	ological In	forma	ition		
11.1	Informat Toxicolo	ion on ogical Effects:	The toxicological effects of this	s product have	not been	thoroughly stu	udied.	
CAS	#	Hazardous Com	ponents (Chemical Name)	N	ITP	IARC	ACGIH	OSHA
900	1-96-1	Oxidase, pyruvat	е	n	.a.	n.a.	n.a.	n.a.
900	3-99-0	Horseradish pero	oxidase Type IV	n	.a.	n.a.	n.a.	n.a.
			Section 12. Ecol	ogical Info	ormati	on		
12.1	Toxicity	:	Avoid release into the environr Runoff from fire control or dilut		cause po	ollution.		
12.2	Persiste Degrada		No data available.					
12.3	-	mulative	No data available.					
12.4	Mobility	in Soil:	No data available.					
12.5			No data available.					
12.6	assessn Other ac	lverse effects:	No data available.					
			Section 13. Dispo	sal Consi	derati	ons		
13.1	Waste D	isposal Method:	Dispose in accordance with lo	cal, state, and f	ederal re	gulations.		
			Section 14. Trar	nsport Info	ormati	on		
14.1	LAND T	RANSPORT (US I		-				
D		r Shipping Name d Class:	-					
14.1	LAND T	RANSPORT (Euro	opean ADR/RID):					
U	DR/RID S N Numbe azard Cla	-	Not dangerous goods.					
14.3	AIR TR	ANSPORT (ICAO/	IATA):					
IC	CAO/ΙΑΤΑ	Shipping Name:	Not dangerous goods.					
	tional Trai mation:	nsport	Transport in accordance with	local, state, and	l federal	regulations.		
			Section 15. Regu	ulatory Info	ormat	ion		
EPA	SARA (Su	perfund Amendm	nents and Reauthorization Act	t of 1986) Lists	;			
CAS	#	Hazardous Com	ponents (Chemical Name)	S. 302 (EH	S)	S. 304 RQ	S. 313	3 (TRI)
900	1-96-1	Oxidase, pyruvat	e	No		No	No	
900	3-99-0	Horseradish pero	oxidase Type IV	No		No	No	
CAS	#	Hazardous Com	ponents (Chemical Name)	Other US E	PA or S	tate Lists		
900	1-96-1	Oxidase, pyruvat	e	CAA HAP,0 PROP.65:		; CWA NPDE	S: No; TSCA	No; CA
		•		ł			Λ	Iulti-region forma



SAFETY DATA SHEET Pyruvate Assay Enzyme Mixture

Page: 5 of 5

Revision: 11/02/2017

Cayinan			Supersedes Revision: 05/02/2015
9003-99-0	Horseradish per	oxidase Type IV	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
Regulatory Info Statement:	ormation	This SDS was prepared in accor No.1272/2008.	rdance with 29 CFR 1910.1200 and Regulation (EC)
		Section 16. Oth	er Information
Revision Date:		11/02/2017	
Additional Infor This Product:	rmation About	No data available.	
Company Policy or Disclaimer:		currently available to us. However express or implied, with respect	is believed to be accurate and represents the best information er, we make no warranty of merchantability or any other warranty, to such information, and we assume no liability resulting from its wn investigations to determine the suitability of the information for



Revision: 11/02/2017 Supersedes Revision: 05/02/2015

				<u> </u>		<u> </u>
	# / CS #	1	onents (Chemical Name)/	Concentration	EC No./ EC Index No.	GHS Classification
	Effects	and Symptoms:	Material may be irritating to the May be harmful by inhalation May cause eye, skin, or resp To the best of our knowledge	or skin absorption. iratory system irritate, the toxicological p	ion. roperties have no	t been thoroughly investigate
3		e refer to Section 7	for Storage and Section 13 for Harmful if swallowed.	Disposal information	on.	
		Storage and Dispo				
	P301-	-	ED: Call a POISON CENTER	or doctor/physician	if you feel unwell.	
		Response Phrases	oughly after handling.			
		Precaution Phrase				
	H302	: Harmful if swallowe	ed.			
		Signal Word: Hazard Phrases:	Warning			
		>				
.2		elements:				
.1		ication of the Subs e Toxicity: Oral, Ca				
			Section 2. Haz	zards Identifi	cation	
			CHEMTREC Outside US			3)527-3887
.4	-	ency telephone nur gency Contact:	nber: CHEMTREC Within USA	and Canada:	+1 (80	0)424-9300
		nation:	Cayman Chemical Comp	bany	+1 (73	4)971-3335
		site address:	Ann Arbor, MI 48108 www.caymanchem.com			
		oany Name:	Cayman Chemical Comp 1180 E. Ellsworth Rd.	bany		
.3			the Safety Data Sheet:	of for numarior vere	annary use.	
.2		nt identified uses o ant identified uses	f the substance or mixture a : For research use only, no		-	
	Produc	t Name:	Pyruvate Assay Fluorom	etric Detector		
.1	Produc	t Code:	700474			-
				ice/Mixture and of	the company o	nuontuning



	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 Media:	A solid water stream may be inefficient.		
5.2	Flammable Properties an Hazards:	d No data available.		
		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 an Emergency Procedures:	Avoid raising and breathing dust, and provide adequate ventilation. d 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		${f r}$ Contain spill and collect, as appropriate. ${f ng}$ Transfer to a chemical waste container for disposal in accordance with local regulations.		
		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.		
	Other Precautions:	Light sensitive.		



Revision: 11/02/2017 Supersedes Revision: 05/02/2015

	TEMICAL	Supersedes Revision: 05/02/2015
	Section	on 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	
8.2	Exposure Controls:	
8.2.1	Engineering Controls	Jse process enclosures, local exhaust ventilation, or other engineering controls to control airborne
	(Ventilation etc.):	evels below recommended exposure limits.
8.2.2	Personal protection equipr	nent:
	Eye Protection:	Safety glasses
	Protective Gloves:	Compatible chemical-resistant gloves
	Other Protective Clothing:	Lab coat
		NIOSH approved respirator, as conditions warrant.
	(Specify Type):	
	Work/Hygienic/Maintenan	
		Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
		Wash thoroughly after handling.
		No data available.
		ction 9. Physical and Chemical Properties
9.1		cal and Chemical Properties
	Physical States:	[]Gas []Liquid [X]Solid
	Appearance and Odor:	A lyophilized powder
	pH: Molting Deint:	No data. No data.
	Melting Point: 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.
	Specific Gravity (Water = 1): No data.
	Solubility in Water:	No data.
	Solubility Notes:	Soluble in: a 1:5 solution of DMSO:PBS (pH 7.2); DMSO; DMF; EtOH;
	Octanol/Water Partition	No data.
	Coefficient:	
	Autoignition Pt:	No data.
	Decomposition Temperatu	
	Viscosity:	No data.
9.2	Other Information	
	Percent Volatile:	No data.
	Molecular Formula & Weig	ht: C14H11NO4 257.2



		Section 10. Stabilit	v and Reacti	vitv		
10.1	Reactivity:	No data available.	y and redden	vity		
10.1	-					
10.3	Stability Note(s):	Stable if stored in accordance with	n information listed (on the product	insert	
10.0	Polymerization:	Will occur [] Will not occur [
10.4	Conditions To Avoid:	No data available.	×1			
10.5	Incompatibility - Materials strong oxidizing agents To Avoid:					
10.6	Hazardous	carbon dioxide				
	Decomposition or carbon monoxide					
	Byproducts:	nitrogen oxides				
		Section 11. Toxicolo	gical Informa	ation		
11.1	Information on	The toxicological effects of this pr	oduct have not beer	n thoroughly st	udied.	
	Toxicological Effects:					
CAS	# Hazardous Com	ponents (Chemical Name)	NTP	IARC	ACGIH	OSHA
	1	Section 12 Ecolor	ical Informat	ion		
12.1	Tevisitu	Section 12. Ecolog				
12.1	Toxicity:	Runoff from fire control or dilution		ollution		
12.2	Persistence and	No data available.	water may cause p	onution.		
12.2	Degradability:	no dala avaliable.				
12.3	Bioaccumulative	No data available.				
12.3	Potential:	no data avaliable.				
12.4	Mobility in Soil:	No data available.				
12.5	Results of PBT and vPvB	No data available.				
	assessment:					
12.6	Other adverse effects:	No data available.				
		Section 13. Dispose				
13.1	Waste Disposal Method:	Dispose in accordance with local,	state, and federal re	egulations.		
		Section 14. Trans	port Informat	ion		
14.1	LAND TRANSPORT (US I	DOT):				
D	OT Proper Shipping Name:	Not dangerous goods.				
D	OT Hazard Class:					
U	N/NA Number:					
14.1	LAND TRANSPORT (Euro	opean ADR/RID):				
A	DR/RID Shipping Name:	Not dangerous goods.				
U U	N Number:					
н	azard Class:					
14.3	AIR TRANSPORT (ICAO/I	ATA):				
IC	CAO/IATA Shipping Name:	Not dangerous goods.				
Addit	ional Transport	Transport in accordance with loca	al, state, and federal	regulations.		
Inforr	mation:					
					Γ	Multi-region format



	Section 15. Regulatory Information						
EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists							
CAS #Hazardous Components (Chemical Name)S. 302 (EHS)S. 304 RQS. 313 (TRI)					S. 313 (TRI)		
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA or State Lists				
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:		11/02/2017					
Additional Infor	mation About	No data available.					
This Product:							
Company Policy or Disclaimer:		DISCLAIMER: This information is currently available to us. However express or implied, with respect use. Users should make their or their particular purposes.	er, we make no warra to such information, a	anty of merchantabilit and we assume no lia	y or any other warranty, ability resulting from its		



	Revision:	11/02/2017
Supersedes	Revision:	05/02/2015

ا 1.2 ا	Relevant i	Section 1. Iden de: me: entified uses of th identified uses:	ng to Regulation (EC) No. 190 ntification of the Substan 700475 Pyruvate Assay Standard e substance or mixture a For research use only, no	ce/Mixture and of t nd uses advised ag	the Company/Ur gainst:				
ا 1.2 ا	Product Nat Relevant ide Relevant i Details of th	de: me: entified uses of th identified uses:	700475 Pyruvate Assay Standard e substance or mixture a	nd uses advised ag	gainst:	ndertaking			
ا 1.2 ا	Product Nat Relevant ide Relevant i Details of th	me: entified uses of th identified uses:	Pyruvate Assay Standard e substance or mixture a	nd uses advised ag	-				
1.2	Relevant ide Relevant i Details of th	entified uses of th identified uses:	e substance or mixture a	nd uses advised ag	-				
	Relevant i Details of th	identified uses:			-				
1.3	Details of th		For research use only, no	ot for human or veter					
1.3		he Supplier of the			Relevant identified uses: For research use only, not for human or veterinary use.				
		ine oupplier of the	Safety Data Sheet:						
		Name:	Cayman Chemical Comp	any					
			1180 E. Ellsworth Rd.						
	Web site a	addross	Ann Arbor, MI 48108 www.caymanchem.com						
	Informatic		Cayman Chemical Comp	anv	+1 (734	4)971-3335			
1.4		v telephone numbe							
		cy Contact:	CHEMTREC Within USA	and Canada:	+1 (80)	0)424-9300			
		,	CHEMTREC Outside US			3)527-3887			
			Section 2. Haz	zarde Identific	ration				
		on of the Substand							
	Label Eleme		ce or mixture:						
2.2									
	GHS Sign		None						
		ard Phrases:	ntly available data this subs	stance er mixture is i	not classifiable as	cording to CHS			
		caution Phrases:							
	No phrase								
	-	ponse Phrases:							
	No phrase	-							
	-	age and Disposal	Phrases:						
	Please ref	fer to Section 7 for S	Storage and Section 13 for	Disposal information	n.				
2.3	Adverse Hu	uman Health Ma	aterial may be irritating to th	ne mucous membrar	nes and upper res	piratory tract.			
	Effects and		ay be harmful by inhalation	-	-				
			ay cause eye, skin, or respi						
		10	the best of our knowledge	, the toxicological pr	operties have not	been thoroughly investigated.			
		Sectior	n 3. Composition	/Information of	on Ingredier	nts			
CAS #	ŧ/ Ha	zardous Compone	ents (Chemical Name)/	Concentration	EC No./	GHS Classification			
RTEC	S#RE	EACH Registration	No.		EC Index No.				
113-2		ruvic acid, Sodium sal	t	100.0 %	204-024-4	No data available.			
UA2512	2000				NA				



Revision: 11/02/2017 Supersedes Revision: 05/02/2015

		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 Media:	A solid water stream may be inefficient.
5.2	Flammable Properties an Hazards:	d No data available.
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	s: 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 an	d 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 Precautions:	Take steps to avoid release into the environment, if safe to do so.
6.3	Methods and Material Fo	r Contain spill and collect, as appropriate.
	Containment and Cleanir	ng Transfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1	Precautions To Be Taker	Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taker	Keep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Sec	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	



Cay	man	Supersedes Revision: 05/02/2017 Supersedes Revision: 05/02/2015				
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 equip	ment:				
	Eye Protection:	Safety glasses				
	Protective Gloves:	patible 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 facility and a safety				
		shower.				
		Wash thoroughly after handling.				
		No data available.				
	Se	ection 9. Physical and Chemical Properties				
9.1	Information on Basic Physical and Chemical Properties					
	Physical States:	[]Gas []Liquid [X]Solid				
	Appearance and Odor:	A lyophilized powder				
	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.				
	Specific Gravity (Water = 2	1): No data.				
	Solubility in Water:	No data.				
	Solubility Notes:	Soluble in: water;				
	Octanol/Water Partition	No data.				
	Coefficient:					

9.2

Autoignition Pt:

Other Information Percent Volatile:

Viscosity:

Decomposition Temperature:

Molecular Formula & Weight:

No data.

No data. No data.

No data.

C3H3O3•Na

110.0



Multi-region format

ay					S	upersedes Revis	ion: 05/02/201	
			Section 10. Stability a	and Reactiv	/ity			
10.1	Reactivi	ty:	No data available.					
0.2	Stability	:	Unstable [] Stable [X]					
0.3	Stability	Note(s):	Stable if stored in accordance with inf	formation listed o	n the product	insert.		
	Polymer	ization:	Will occur [] Will not occur [X]					
10.4	Conditio	ons To Avoid:	No data available.					
10.5	Incompa	atibility - Materials	strong oxidizing agents					
	To Avoid: 0.6 Hazardous carbon dioxide							
10.6	Hazardo	ous	carbon dioxide					
	Decomp	osition or	carbon monoxide					
	Byprodu	ucts:	sodium oxides					
			Section 11. Toxicologi	cal Informa	ition			
11.1	Informat	tion on	The toxicological effects of this produ	ct have not been	thoroughly st	udied.		
	Toxicolo	ogical Effects:						
CAS	#	Hazardous Com	ponents (Chemical Name)	NTP	IARC	ACGIH	OSHA	
11:	3-24-6	Pyruvic acid, Sod	ium salt	n.a.	n.a.	n.a.	n.a.	
		·	Section 12. Ecologica	al Informati	on		·	
12.1	Toxicity	:	Avoid release into the environment.					
			Runoff from fire control or dilution water may cause pollution.					
12.2	Persiste	nce and	No data available.					
	Degrada	bility:						
12.3	Bioaccu	mulative	No data available.					
	Potentia	l:						
12.4	Mobility	in Soil:	No data available.					
12.5	Results	of PBT and vPvB	No data available.					
	assessm	nent:						
12.6	Other ac	verse effects:	No data available.					
			Section 13. Disposal (Considerati	ons			
13.1	Waste D	isposal Method:	Dispose in accordance with local, sta					
			Section 14. Transpo	rt Informati	on			
14.1	LAND T	RANSPORT (US I	•					
D	OT Prope	r Shipping Name:	Not dangerous goods.					
	OT Hazar							
U	N/NA Nun	nber:						
14.1	LAND T	RANSPORT (Euro	opean ADR/RID):					
А	DR/RID S	hipping Name:	Not dangerous goods.					
U	N Numbe	r:						
н	azard Cla	ss:						



14.3 AIR TRANSPORT (ICAO/IATA): ICAO/IATA Shipping Name: N

me: Not dangerous goods.

Additional Transport Information:

Transport in accordance with local, state, and federal regulations.

	Section 15. Regulatory Information					
EPA SARA (S	uperfund Amendm	nents and Reauthorization Act of	of 1986) Lists			
CAS #	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)	
113-24-6 Pyruvic acid, Sodium salt		No	No	No		
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA or S	State Lists		
113-24-6	113-24-6 Pyruvic acid, Sodium salt			CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No		
Regulatory Inf Statement:	ormation	This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.				
		Section 16. Oth	ner Information	า		
Revision Date	:	11/02/2017				
Additional Info	ormation 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.				



SAFETY DATA SHEET Potassium Carbonate Assay Reagent

Revision: 11/02/2017 inorcodos Povisio 0 02/10/2015

La)			Supersedes Revision: 02/10/2015
	accord	ling to Regulation (EC) No. 1907/2006 as amended by	(EC) No. 1272/2008
	Section 1. Id	entification of the Substance/Mixture and of th	ne Company/Undertaking
1.1	Product Code:	700517	
	Product Name:	Potassium Carbonate Assay Reagent	
1.2	Relevant identified uses of t	he substance or mixture and uses advised ag	ainst:
	Relevant identified uses:	For research use only, not for human or veteri	nary use.
1.3	Details of the Supplier of the	e Safety Data Sheet:	
	Company Name:	Cayman Chemical Company	
		1180 E. Ellsworth Rd.	
	Wab site addresses	Ann Arbor, MI 48108	
	Web site address: Information:	www.caymanchem.com	1 (724)074 2225
		Cayman Chemical Company	+1 (734)971-3335
1.4	Emergency telephone numb Emergency Contact:	er: CHEMTREC Within USA and Canada:	1 (800)424 0200
	Emergency Contact.	CHEMTREC Within USA and Canada. CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887
		Section 2. Hazards Identific	ation
2.1	Classification of the Substa		
	Skin Corrosion/Irritation, (
	Serious Eye Damage/Eye		
<u>.</u>	Label Elements:	icity (single exposure), Category 3	
2.2	Label Elements:		
	GHS Signal Word:	Warning	
	GHS Hazard Phrases:		
	H315: Causes skin irritation		
	H319: Causes serious eye i		
	H335: May cause respirator	y irritation.	
	GHS Precaution Phrases:		
	P261: Avoid breatning (dust P264: Wash (hands) thorou	/fume/gas/mist/vapours/spray}.	
		es/protective clothing/eye protection/face protecti	ion}.
	GHS Response Phrases:		
	•	sh with plenty of soap and water.	
		move victim to fresh air and keep at rest in a pos	ition 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.		
		ER or doctor/physician if you feel unwell.	
		ccurs, get medical advice/attention.	
		ersists, get medical advice/attention.	
		inated clothing and wash it before reuse.	
	GHS Storage and Disposa		
	Please refer to Section / for	Storage and Section 13 for Disposal information	



SAFETY DATA SHEET Potassium Carbonate Assay Reagent

Caj	Cayman		Potassium Ca	Irbonate Assa	• 0	Revision: 11/02/2017 Supersedes Revision: 02/10/2015	
2.3		e Human Health and Symptoms:	Causes serious eye irritation. Causes skin irritation. Material is 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 investigate				
		Sec	tion 3. Compositior	n/Information	on Ingredie	nts	
CAS RTE		Hazardous Com REACH Registra	ponents (Chemical Name)/ tion No.	Concentration	EC No./ EC Index No.	GHS Classification	
	4-08-7 50000	Potassium carbonat	e	69.0 %	209-529-3 NA	Skin Corr. 2: H315 Eye Damage 2A: H319 STOT (SE) 3: H335 H336	
	2-18-5 10000	Water		31.0 %	231-791-2 NA	No data available.	
		·	Section 4. Fi	rst Aid Meas	sures		
	 4.1 Description of First Aid Measures: In Case of Inhalation: In Case of Skin Contact: In Case of Eye Contact: In Case of Ingestion: 		Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention. 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. Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel. 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.				
5.1		le Extinguishing	Section 5. Fire	carbon dioxide, wat	ter, or dry chemical	spray.	
	Media: Unsuit Media:	able Extinguishing	Use water spray to cool fire- g A solid water stream may be	-	5.		
5.2		able Properties ar ls:	ndNo data available. No data available. No data.				
5.3	Explos Autoig	ive Limits: nition Pt:	LEL: No data. No data. s:As in any fire, wear self-cont	UEL: No o		lemand (NIOSH approved or	
			equivalent), and full protectiv				



SAFETY DATA SHEET

Potassium Carbonate Assay Reagent Revision: 11/02/2017 Supersedes Revision: 02/10/2015

	CHEMICAL .	Supersedes Revision. 02/10/2015					
	S	ection 6. Accidental Release Measures					
6.1	Protective Precautions, A	void breathing vapors and provide adequate ventilation.					
	Protective Equipment and As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,						
	Emergency Procedures: a	nd appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).					
6.2	Environmental T	ake 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 A	void breathing (dust, vapor, mist, gas).					
	in Handling: Av	void prolonged or repeated exposure.					
7.2	Precautions To Be Taken K	eep tightly closed.					
		ore at correct temperature.					
		n 8. Exposure Controls/Personal Protection					
8.1	Exposure Parameters:						
8.2	Exposure Controls:						
8.2.1		se process enclosures, local exhaust ventilation, or other engineering controls to control airborn					
	(Ventilation etc.): levels below recommended exposure limits.						
8.2.2	Personal protection equipm	ent:					
	Eye Protection: Sa	afety glasses					
	Protective Gloves: Compatible chemical-resistant gloves						
	Other Protective Clothing:Lab coat						
	Respiratory Equipment N	OSH approved respirator, as conditions warrant.					
	(Specify Type):						
	Work/Hygienic/Maintenan D	o not take internally.					
	ce Practices: Fa	acilities storing or utilizing this material should be equipped with an eyewash facility and a safety					
	sł	lower.					
	W	ash thoroughly after handling.					
	N	o data available.					
	Sec	tion 9. Physical and Chemical Properties					
9.1	Information on Basic Physica	al and Chemical Properties					
	Physical States:	[]Gas [X]Liquid []Solid					
	Appearance and Odor:	A solution of 5 M potassium carbonate					
	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 m	m No data.					
	Hg):						
	Vapor Density (vs. Air = 1):	No data.					

SAFETY DATA SHEET Potassium Carbonate Assay Reagent

	Revision:	11/02/2017
Supersedes	Revision:	02/10/2015

Solubi Octand Coeffic Autoig Decom Viscos 9.2 Other la Percen 10.1 Reactiv 10.2 Stabilit 10.3 Stabilit Polyma 10.4 Condit 10.5 Incom To Avc 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	nition Pt: nposition Tempera sity: nformation nt Volatile: vity: ty: ty Note(s): erization: tions To Avoid: patibility - Material pid:	No data. No data. No data. No data. No data. No data. No data. No data. No data. No data. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available.			insert.							
Octand Coeffic Autoig Decom Viscos 9.2 Other In Percen 10.1 Reactin 10.2 Stabilit 10.3 Stabilit Polymo 10.4 Condit 10.5 Incom To Avo 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	ol/Water Partition cient: position Pt: position Tempera sity: nformation nt Volatile: vity: ty: ty: ty Note(s): erization: cions To Avoid: patibility - Material oid: dous	No data. No data. Section 10. Stability and No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
Coeffic Autoig Decom Viscos 2.2 Other In Percen 0.1 Reactin 0.2 Stabilit 0.3 Stabilit Polyme 0.4 Condit 0.5 Incom To Avc 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	cient: Inition Pt: Inposition Tempera Sity: Information Int Volatile: Vity: ty Note(s): erization: tions To Avoid: patibility - Material poid:	No data. No data. No data. No data. No data. No data. Section 10. Stability and No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
Autoig Decom Viscos .2 Other li Percen 0.1 Reactiv 0.2 Stabilit 0.3 Stabilit 0.3 Stabilit 0.4 Condit 0.5 Incom To Avc 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects CAS # 584-08-7 7732-18-5 2.1 Toxicit	nition Pt: nposition Tempera sity: nformation nt Volatile: vity: ty: ty Note(s): erization: tions To Avoid: patibility - Material pid:	nture: No data. No data. No data. No data. No data. No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
Decom Viscos 0.2 Other In Percen 0.1 Reactive 0.2 Stability 0.3 Stability 0.3 Stability 0.4 Condit 0.5 Incomp To Avc 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	nposition Tempera sity: nformation nt Volatile: vity: ty Note(s): erization: tions To Avoid: patibility - Material pid:	nture: No data. No data. No data. No data. No data. No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
Viscos 0.2 Other la Percent 0.1 Reactive 0.2 Stability 0.2 Stability 0.3 Stability 0.4 Condity 0.5 Incomp To Ave 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chronit Effects Carcinogenici CAS # 584-08-7 7732-18-5 12.1 Toxicity	sity: nformation nt Volatile: vity: ty: ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	No data. No data. Section 10. Stability and No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
9.2 Other In Percent 10.1 Reactin 10.2 Stability 10.3 Stability 10.4 Condit 10.5 Incomp To Avc 10.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	nformation nt Volatile: vity: ty: ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	No data. Section 10. Stability and No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
9.2 Other In Percent 10.1 Reactin 10.2 Stability 10.3 Stability 10.3 Stability 10.4 Condity 10.5 Incomp To Avc 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	nformation nt Volatile: vity: ty: ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	Section 10. Stability and No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
Percent 10.1 Reactive 10.2 Stability 10.3 Stability Polyme 10.4 Condity 10.5 Incomp To Ave 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 12.1 Toxicity	nt Volatile: vity: ty: ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	Section 10. Stability and No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
10.2 Stabilit 10.3 Stabilit Polyme 10.4 Condit 10.5 Incomp To Ave 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 12.1 Toxicit	ty: ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
 I0.2 Stability I0.3 Stability Polyme I0.4 Condity I0.5 Incomposition I0.6 Hazard Decomposition Byprode I1.1 Inform Toxico Chronity Effects Carcinogenicity CAS # 584-08-7 7732-18-5 I2.1 Toxicity 	ty: ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	No data available. Unstable [] Stable [X] Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide			insert.							
0.3 Stability Polyme 0.4 Condit 0.5 Incomp To Ave 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	ty Note(s): erization: tions To Avoid: patibility - Material bid: dous	Stable if stored in accordance with inform Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide	nation listed o	on the product	insert.							
Polyme 0.4 Condit 0.5 Incomp To Ave 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 2.1 Toxicit	erization: tions To Avoid: patibility - Material pid: dous	Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide	nation listed o	on the product	insert.							
0.4 Condit 0.5 Incomp To Ave 0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenic CAS # 584-08-7 7732-18-5 2.1 Toxicit	tions To Avoid: patibility - Material bid: dous	Will occur [] Will not occur [X] No data available. Is acids strong oxidizing agents carbon dioxide										
10.4 Condit 10.5 Incomp To Ave 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenic CAS # 584-08-7 7732-18-5 12.1 Toxicit	tions To Avoid: patibility - Material bid: dous	No data available. Is acids strong oxidizing agents carbon dioxide										
0.5 Incomp To Ave Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	patibility - Material bid: lous	Is acids strong oxidizing agents carbon dioxide										
To Ave 10.6 Hazard Decom Byprod 11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 12.1 Toxicit	bid: dous	strong oxidizing agents carbon dioxide										
0.6 Hazard Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	lous	carbon dioxide										
Decom Byprod 1.1 Inform Toxico Chroni Effects Carcinogenic CAS # 584-08-7 7732-18-5 2.1 Toxicit												
Byprod 1.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 2.1 Toxicit	unosition or											
11.1 Inform Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5	-	potassium oxides										
Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 2.1 Toxicit		-		- <u>t</u> '								
Toxico Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 2.1 Toxicit		Section 11. Toxicologica										
Chroni Effects Carcinogenici CAS # 584-08-7 7732-18-5 2.1 Toxicit		The toxicological effects of this product h) 0.570						
Effects Carcinogenic CAS # 584-08-7 7732-18-5 2.1 Toxicit	Toxicological Effects: Potassium carbonate - Toxicity Da mg/kg; Inhalation TCLo (rat): 43 m			1,870 mg/kg;	Oral LD50 (mc	ouse): 2,570						
Effects Carcinogenic CAS # 584-08-7 7732-18-5 2.1 Toxicit												
Carcinogenici CAS # 584-08-7 7732-18-5	ic Toxicological	Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.										
CAS # 584-08-7 7732-18-5 I2.1 Toxicit	;	See actual entry in RTECS for complete information. Potassium carbonate RTECS Number: TS7750000										
CAS # 584-08-7 7732-18-5 I2.1 Toxicit	itv	NTP? No IARC Monographs? No		egulated? No								
584-08-7 7732-18-5		nponents (Chemical Name)		IARC	ACGIH	OSHA						
7732-18-5	Potassium carbo		n.a.	n.a.	n.a.	n.a.						
	Water		n.a.	n.a.	n.a.	n.a.						
		Section 12. Ecological	 Informat	ion								
		Avoid release into the environment.	mormat									
2.2 Persist	, у -		may cause n	ollution								
12.2 Persisi		Runoff from fire control or dilution water may cause pollution. No data available.										
		No data avallable.										
-	tence and	Degradability:										
	dability:	No data available.										
Potent	dability: cumulative											
2.4 Mobilit	dability: cumulative ial:											
2.5 Result	dability: cumulative	No data available.										
assess	dability: cumulative ial: ty in Soil:	No data available. 3 No data available.										
12.6 Other a	dability: cumulative ial: ty in Soil: s of PBT and vPvE											



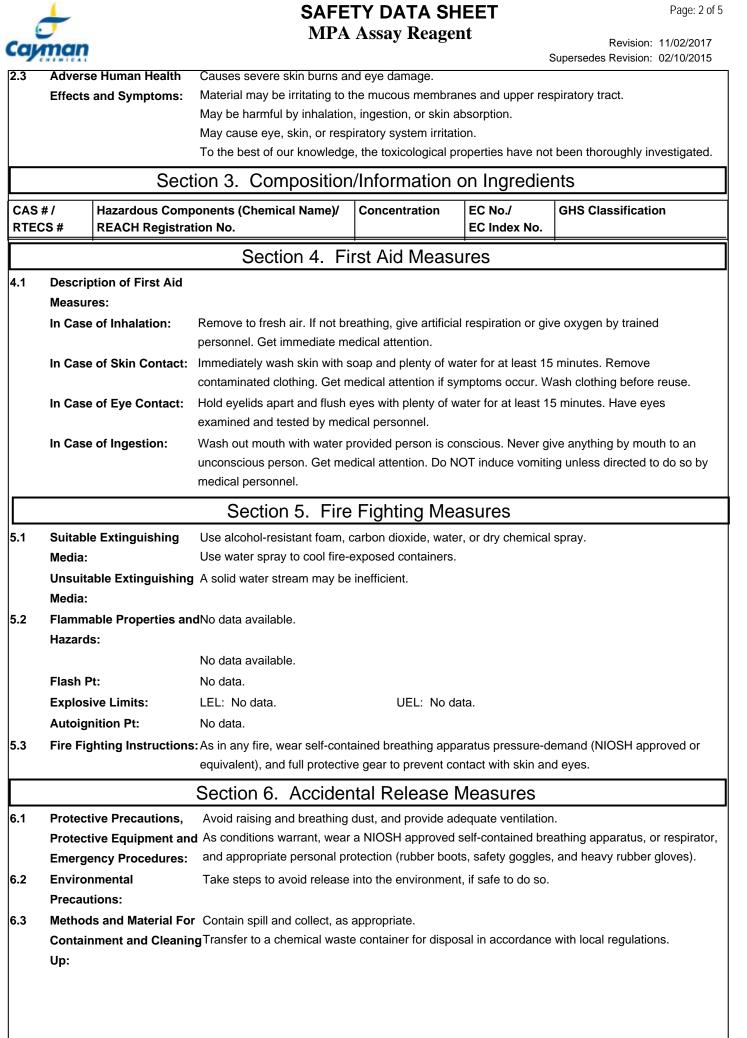
SAFETY DATA SHEET Potassium Carbonate Assay Reagent

Multi-region format

				Supe	ersedes Revision: 02/10/2015	
		Section 13. Dispo	sal Considera	ations		
3.1 Waste D)isposal Method:	Dispose in accordance with loc	al, state, and federa	I regulations.		
		Section 14. Trar	nsport Informa	ation		
14.1 LAND 1	RANSPORT (US		•			
	er Shipping Name	-				
DOT Hazar						
UN/NA Nur	nber:					
4.1 LAND 1	RANSPORT (Eur	opean ADR/RID):				
	hipping Name:	Not dangerous goods.				
UN Numbe						
Hazard Cla	ISS: ANSPORT (ICAO/	1474).				
	Shipping Name:	Not dangerous goods.				
Additional Tra		Transport in accordance with I	ocal, state, and fede	ral regulations.		
nformation:	- F		,			
		Section 15. Regu	latory Inform	ation		
FPA SARA (SI	perfund Amendm	nents and Reauthorization Act	•			
CAS #	-	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)	
584-08-7	Potassium carbo	nate	No	No	No	
7732-18-5	Water		No	No	No	
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA o	r State Lists	1	
	Potassium carbo		CAA HAP,ODC:	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No		
584-08-7	Folassium carbo		Inventory; CA P	ROP.65: NO		
584-08-7 7732-18-5	Water			No; CWA NPDES:	No; TSCA: Yes -	
7732-18-5	Water	This SDS was prepared in acc	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No		
7732-18-5 Regulatory Infe	Water	This SDS was prepared in acc No.1272/2008.	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No		
7732-18-5 Regulatory Infe	Water		CAA HAP,ODC: Inventory; CA P ordance with 29 CFF	No; CWA NPDES: ROP.65: No R 1910.1200 and R		
7732-18-5 Regulatory Info Statement:	Water	No.1272/2008.	CAA HAP,ODC: Inventory; CA P ordance with 29 CFF	No; CWA NPDES: ROP.65: No R 1910.1200 and R		
7732-18-5 Regulatory Info Statement: Revision Date:	Water	No.1272/2008.	CAA HAP,ODC: Inventory; CA P ordance with 29 CFF	No; CWA NPDES: ROP.65: No R 1910.1200 and R		
7732-18-5 Regulatory Info Statement: Revision Date:	Water	No.1272/2008. Section 16. Ot 11/02/2017	CAA HAP,ODC: Inventory; CA P ordance with 29 CFF	No; CWA NPDES: ROP.65: No R 1910.1200 and R		



ay.			Revision: 11/02/20
			Supersedes Revision: 02/10/207
	accord	ing to Regulation (EC) No. 1907/2006 as amended by (I	EC) No. 1272/2008
	Section 1. Ide	entification of the Substance/Mixture and of th	e Company/Undertaking
1	Product Code:	700518	
	Product Name:	MPA Assay Reagent	
2	Relevant identified uses of the	he substance or mixture and uses advised aga	ainst:
	Relevant identified uses:	For research use only, not for human or veterin	nary use.
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	Emergency telephone numb		.4. (000) 404 0000
	Emergency Contact:	CHEMTREC Within USA and Canada:	+1 (800)424-9300
		CHEMTREC Outside USA and Canada:	+1 (703)527-3887
		Section 2. Hazards Identifica	ation
2	Skin Corrosion/Irritation, C Label Elements:	Category 1B	
2		Category 1B	
2	Label Elements:	Category 1B Danger	
2	Label Elements: GHS Signal Word: GHS Hazard Phrases:	Danger	
2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b	Danger	
2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases:	Danger urns and eye damage.	
2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f	Danger urns and eye damage. ume/gas/mist/vapours/spray}.	
2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug	Danger urns and eye damage. ume/gas/mist/vapours/spray}.	on}.
2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling.	on}.
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases:	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protectio	on}.
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P260: Do not breathe {dust/f P260: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling.	
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P260: Do not breathe {dust/f P260: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting.	
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC P303+361+353: IF ON SKIN water/shower.	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting.	ninated clothing. Rinse skin with
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC P303+361+353: IF ON SKIN water/shower. P304+340: IF INHALED: Re	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting. I (or hair): Remove/take off immediately all contan	ninated clothing. Rinse skin with tion comfortable for breathing.
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC P303+361+353: IF ON SKIN water/shower. P304+340: IF INHALED: Re P305+351+338: IF IN EYES to do. Continue rinsing.	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting. I (or hair): Remove/take off immediately all contant move victim to fresh air and keep at rest in a positi : Rinse cautiously with water for several minutes.	ninated clothing. Rinse skin with tion comfortable for breathing.
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC P303+361+353: IF ON SKIN water/shower. P304+340: IF INHALED: Re P305+351+338: IF IN EYES to do. Continue rinsing. P310: Immediately call a PO	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting. I (or hair): Remove/take off immediately all contant move victim to fresh air and keep at rest in a posit : Rinse cautiously with water for several minutes.	ninated clothing. Rinse skin with tion comfortable for breathing.
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC P303+361+353: IF ON SKIN water/shower. P304+340: IF INHALED: Re P305+351+338: IF IN EYES to do. Continue rinsing. P310: Immediately call a PO P363: Wash contaminated c	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting. I (or hair): Remove/take off immediately all contant move victim to fresh air and keep at rest in a positi : Rinse cautiously with water for several minutes. ISON CENTER or doctor/physician. lothing before reuse.	ninated clothing. Rinse skin with tion comfortable for breathing.
2	Label Elements: GHS Signal Word: GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skin b GHS Precaution Phrases: P260: Do not breathe {dust/f P264: Wash {hands} thoroug P280: Wear {protective glove GHS Response Phrases: P301+330+331: IF SWALLC P303+361+353: IF ON SKIN water/shower. P304+340: IF INHALED: Re P305+351+338: IF IN EYES to do. Continue rinsing. P310: Immediately call a PO	Danger urns and eye damage. ume/gas/mist/vapours/spray}. ghly after handling. es/protective clothing/eye protection/face protection WED: Rinse mouth. Do NOT induce vomiting. I (or hair): Remove/take off immediately all contant move victim to fresh air and keep at rest in a positi : Rinse cautiously with water for several minutes. ISON CENTER or doctor/physician. lothing before reuse.	ninated clothing. Rinse skin with tion comfortable for breathing.





Revision: 11/02/2017 Supersedes Revision: 02/10/2015

	Section 7. Handling and Storage					
s To Be Taken Avoid	breathing dust/fume/gas/mist/vapours/spray.					
g: Avoid	prolonged or repeated exposure.					
s To Be Taken Keep	container tightly closed.					
Store	in accordance with information listed on the product insert.					
autions: Hygro	oscopic					
Section	8. Exposure Controls/Personal Protectio	n				
arameters:						
Controls:						
Engineering Controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airl						
n etc.): levels	below recommended exposure limits.					
rotection equipment	:					
tion: Safet	y glasses					
Gloves: Com	Compatible chemical-resistant gloves					
ective Clothing:Lab o	oat					
y Equipment NIOS	H approved respirator, as conditions warrant.					
/pe):						
(Specify Type): Work/Hygienic/Maintenan Do not take internally.						
	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety					
show	shower.					
Wash	Wash thoroughly after handling.					
No da	No data available.					
Sectio	on 9. Physical and Chemical Properties					
on Basic Physical a	nd Chemical Properties					
tates:	[]Gas []Liquid [X]Solid					
e and Odor:	A crystalline solid					
	No data.					
int:	No data.					
int:	No data.					
	No data.					
n Rate:	No data.					
ity (solid, gas):	No data available.					
Limits:	LEL: No data. UEL: No data.					
sure (vs. Air or mm	No data.					
sity (vs. Air = 1):	No data.					
ravity (Water = 1):	No data.					
n Water:	No data.					
	No data.					
ater Partition						
ater Partition						



	Autoignition Pt:	No data.					
	Decomposition Temperate	ure: No data.					
	Viscosity:	No data.					
9.2	Other Information						
	Percent Volatile:	No data.					
		Section 1	0. Stability and	Reactivit	у		
10.1	Reactivity:	No data available.					
10.2	Stability:	Unstable [] S	Stable [X]				
10.3	Stability Note(s):	Stable if stored in a	accordance with informa	ation listed on t	he product ins	ert.	
	Polymerization:	Will occur []	Will not occur [X]				
10.4	Conditions To Avoid:	No data available.					
10.5	Incompatibility - Materials	strong acids					
	To Avoid:	strong bases					
		strong oxidizing ag	ents				
10.6	Hazardous	phosphorus oxides	b				
	Decomposition or	sodium oxides					
	Byproducts:						
		Section 11	. Toxicological	Informatio	on		
11.1	Information on		ffects of this product ha			ed.	
	Toxicological Effects:	C C	·		0,		
CAS	-	ponents (Chemica		NTP	IARC	ACGIH	OSHA
					_		
		Section 1	2. Ecological Ir	nformation	า		
12.1	Toxicity:	Avoid release into					
		Harmful to aquatic			<i>.</i> .		
			ntrol or dilution water m	ay cause pollu	tion.		
12.2	Persistence and	No data available.					
	Degradability:						
12.3	Bioaccumulative	No data available.					
	Potential:						
12.4	Mobility in Soil:	No data available.					
12.5	Results of PBT and vPvB	No data available.					
	assessment:						
12.6	Other adverse effects:	No data available.					
		Section 13	3. Disposal Con	sideratior	าร		
13.1	Waste Disposal Method:	Dispose in accorda	ance with local, state, and	nd federal regu	lations.		
	-						
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						Mu	Ilti-region format



Revision: 11/02/2017 Supersedes Revision: 02/10/2015

		Supe	ersedes Revision: 02/10/2015
	Section 14. Trar	sport Information	
14.1 LAND TRANSPORT (US I			
DOT Proper Shipping Name:	: Corrosive solid, acidic, ino	rganic, n.o.s. (Metaphosphoric acid)	
DOT Hazard Class:	8 CORROSI	VE	
UN/NA Number:	3260	Packing Group:	III
	CORROSIVE 8		
14.1 LAND TRANSPORT (Euro	opean ADR/RID):		
ADR/RID Shipping Name:	Corrosive solid, acidic, inor	rganic, n.o.s. (Metaphosphoric acid)	
UN Number:	3260	Packing Group:	III
Hazard Class:	8 - CORROSIVE		
14.3 AIR TRANSPORT (ICAO/	-		
ICAO/IATA Shipping Name:		rganic, n.o.s. (Metaphosphoric acid)	
UN Number:	3260	Packing Group:	
Hazard Class:	8 - CORROSIVE	IATA Classification:	8
Additional Transport Information:	Transport in accordance with it	ocal, state, and federal regulations.	
	Section 15. Regu	latory Information	
EPA SARA (Superfund Amendm	•	-	
	ponents (Chemical Name)	S. 302 (EHS) S. 304 RQ	S. 313 (TRI)
CAS # Hazardous Com	ponents (Chemical Name)	Other US EPA or State Lists	
Regulatory Information Statement:		u ordance with 29 CFR 1910.1200 and R	egulation (EC)
	Section 16. Ot	her Information	
Revision Date:	11/02/2017		
Additional Information About	No data available.		
This Product:			
Company Policy or Disclaimer:	currently available to us. Howe express or implied, with respec	is believed to be accurate and represe ver, we make no warranty of merchanta t to such information, and we assume n own investigations to determine the suit	ability or any other warranty no liability resulting from its
			Multi-region form