

Revision: 03/18/2015 Supersedes Revision: 02/10/2014

-	HEMICAL		Supersedes Revision: 02/10/2014		
	acco	rding to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008		
	Section 1. I	dentification of the Substance/Mixture and of th	e Company/Undertaking		
.1	Product Code:	700001			
	Product Name:	DMSO Assay Reagent			
.2	Relevant identified uses of	the 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		
.4	Emergency telephone num	ber:			
	Emergency Contact:	CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887		
		Section 2. Hazards Identifica	ation		
.1	Classification of the Subst	ance or Mixture:			
.2 .2.1	Label Elements: Labeling according to Reg	ulation (EC) No 1272/2008 [CLP]:			
	GHS Signal Word:	Warning			
	GHS Hazard Phrases: H227: Combustible liquid. H315: Causes skin irritatio H319: Causes serious eye	n.			
	GHS Precaution Phrases	:			
	P210: Keep away from {he P264: Wash {hands} thoro	wes/protective clothing/eye protection/face protection at/sparks/open flames/hot surfaces} No smoking. ughly after handling. ninated clothing and wash it before reuse.	•		
	GHS Response Phrases				
	-	ash with plenty of soap and water.			
	P332+313: If skin irritation	occurs, get medical advice/attention.			
		S: Rinse cautiously with water for several minutes.	Remove contact lenses, if present and easy		
	to do. Continue rinsing.	· , , , , , , , , , , ,			
	-	persists, get medical advice/attention.			
	GHS Storage and Dispos				
	Please refer to Section 7 f	or Storage and Section 13 for Disposal information.			



1	+					Page: 2 of
aj	man		DMSC) Assay Reag		Revision: 03/18/2015 Supersedes Revision: 02/10/2014
2.3	Effects and Symptoms: C C M M M		Causes skin and serious eye irritation. DMSO has the potential to carry toxic materials or materials of unknown toxicity into the body. DMSO is readily absorbed through skin. Material may be irritating to the mucous membranes and upper respiratory tract. May be harmful by inhalation, ingestion, or skin absorption. May cause respiratory system irritation. To the best of our knowledge, the toxicological properties have not been thoroughly investigat			
		Sec	tion 3. Composition	/Information	on Ingredie	ents
CAS RTE		Hazardous Com REACH Registra	ponents (Chemical Name)/ tion No.	Concentration	EC No./ EC Index No.	GHS Classification
		Dimethyl sulfoxide, anhydrous		100.0 %	200-664-3 NA	Flam. Liq. 4: H227 Eye Damage 2A: H319 Skin Corr. 2: H315
PV62	10000					Skin Corr. 2: H315
	Descript	tion of First Aid	Section 4. Fi No data available.	rst Aid Meas	sures	Skin Corr. 2: H315
	Descript Measure		No data available.	eathing, give artifici		ve oxygen by trained personnel.
	Descript Measure In Case o	es:	No data available. Remove to fresh air. If not br Get immediate medical atten	eathing, give artifici tion. soap and plenty of v	al respiration or giv	ve oxygen by trained personnel. 5 minutes. Remove contaminate
	Descript Measure In Case o	es: of Inhalation:	No data available. Remove to fresh air. If not br Get immediate medical atten Immediately wash skin with s clothing. Get medical attentio	eathing, give artifici tion. soap and plenty of v on if symptoms occu eyes with plenty of y	al respiration or gi vater for at least 1t ur. Wash clothing b	ve oxygen by trained personnel. 5 minutes. Remove contaminate before reuse.
	Descript Measure In Case o In Case o	es: of Inhalation: of Skin Contact:	No data available. Remove to fresh air. If not br Get immediate medical atten Immediately wash skin with s clothing. Get medical attention Hold eyelids apart and flush and tested by medical person Wash out mouth with water p	eathing, give artifici tion. soap and plenty of v on if symptoms occu eyes with plenty of v nnel.	al respiration or giv vater for at least 18 ur. Wash clothing b water for at least 1 conscious. Never g	ve oxygen by trained personnel. 5 minutes. Remove contaminate pefore reuse. 5 minutes. Have eyes examined
PV62 4.1 4.2	Descript Measure In Case o In Case o In Case o	es: of Inhalation: of Skin Contact: of Eye Contact: of Ingestion:	No data available. Remove to fresh air. If not br Get immediate medical atten Immediately wash skin with s clothing. Get medical attentio Hold eyelids apart and flush and tested by medical person Wash out mouth with water p unconscious person. Get me	eathing, give artifici tion. coap and plenty of v on if symptoms occu eyes with plenty of v nnel. provided person is c dical attention. Do f	al respiration or giv vater for at least 18 ur. Wash clothing b water for at least 1 conscious. Never g NOT induce vomiti	ve oxygen by trained personnel. 5 minutes. Remove contaminate before reuse. 5 minutes. Have eyes examined live anything by mouth to an ing unless directed to do so by

5.1	Suitable Extinguishing	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
	Media:	Use water spray to cool fire-exposed containers.
	Unsuitable Extinguishing	A solid water stream may be inefficient.
	Media:	
5.2	Flammable Properties an	dCan release vapors that form explosive mixtures at temperatures at or above the flashpoint.
	Hazards:	Container explosion may occur under fire conditions.
		Emits toxic fumes under fire conditions.
		Sensitive to static discharge.
		Vapors can travel to a source of ignition and flash back.
	Flash Pt:	89.00 C Method Used: Closed Cup
	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



Multi-region format

6.2 F 5.2 F 5.3 F	Emergency Procedure Environmental Precautions: Methods and Material	 and As conditions warra and appropriate per 	sonal protection (rubber l		apparatus, or respirator		
6.2 F 5.2 F 5.3 F	Protective Equipment Emergency Procedure Environmental Precautions: Methods and Material	and As conditions warra es: and appropriate per	nt, wear a NIOSH approvision approvision of the second second second second second second second second second s		annaratus, or respirator		
6.2 F 6.3 F 6.3 F	Emergency Procedure Environmental Precautions: Methods and Material	es: and appropriate per	sonal protection (rubber l	ved self-contained breathing	apparatus or respirator		
5.2 I I 5.3 I	Environmental Precautions: Methods and Material				apparatus, or respirator		
6.3 I	Precautions: Methods and Material	Take steps to avoid		boots, safety goggles, and h	eavy rubber gloves).		
6.3 I	Methods and Material		Environmental Take steps to avoid release into the environment, if safe to do so.				
(Precautions:				
	Containment and Class	For Contain spill and co	llect, as appropriate.				
ا ا	Containment and Clea	aningTransfer to a chemi	cal waste container for di	isposal in accordance with lo	ocal regulations.		
	Up:						
		Section 7	. Handling and	Storage			
7.1 F	Precautions To Be Ta	ken Avoid breathing dus	t/fume/gas/mist/vapours/s	spray.			
i	in Handling:	Avoid prolonged or r	repeated exposure.				
		Keep away from sou	-				
			measures against static o	discharge.			
		ken Keep away from hea					
i	in Storing:	Keep container tight	-				
			with information listed or	n me product insert.			
	Other Precautions:	Hygroscopic.					
	S	ection 8. Exposi	ure Controls/Per	sonal Protection			
3.1 E	Exposure Parameters:	:					
CAS #	Partial Chem	ical Name	Britain EH40	France VL	Europe		
67-6	68-5 Dimethyl sulfo	oxide, anhydrous	No data.	No data.	No data.		
CAS #	Partial Chem	ical Name	OSHA TWA	ACGIH TWA	Other Limits		
67-6	68-5 Dimethyl sulfo	oxide, anhydrous	No data.	No data.	No data.		
3.2 E	Exposure Controls:						
8.2.1 E	Engineering Controls	Use process enclose	ures, local exhaust ventila	ation, or other engineering c	ontrols to control airborn		
	(Ventilation etc.):		nended exposure limits.				
8.2.2 I	Personal protection e	equipment:					
F	Eye Protection:	Safety glasses					
F	Protective Gloves:	Compatible chemica	al-resistant gloves				
(Other Protective Cloth	hing:Lab coat					
F	Respiratory Equipment	nt NIOSH approved res	spirator, as conditions wa	arrant.			
((Specify Type):						
	Work/Hygienic/Mainte	enan Do not take internall					
1	ce Practices:	-	utilizing this material shou	uld be equipped with an eye	wash facility and a safety		
	ce Flactices.						
	ce Flactices.	shower.	and the second Rest as				
		shower. Wash thoroughly aft No data available.	er handling.				



Physical States: []Gas [X]Liquid []Solid Appearance and Odor: Solution Melting Point: No data. Boiling Point: No data. Flash Pt: 89.00 C Method Used: Closed Cup Evaporation Rate: No data. Explosive Limits: LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C Vapor Pressure (vs. Air or mm 0.37 MM_HG at 20.0 C Hg): Vapor Density (vs. Air = 1): No data. Solubility in Water: No data. Solubility in Water: No data. Autoignition Pt: 215.00 C 22 Other Information Percent Volatile: No data. 10.1 Reactivity: No data available. 10.2 Stability No data available. 10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert. Polymerization: Will occur [] Will not occur [X] 10.4 Conditions To Avoid: heat, flames and sparks 10.5 Incompatibility - Materials acid chlorides To Avoid: To Avoid: phospho			
Physical States: []Gas [X]Liquid []Solid Appearance and Odor: Solution Metting Point: No data. Boiling Point: No data. Flash Pt: 80.00 C Explosive Limits: LEL: Lipo Pressure (vs. Air or mm 0.37 ML_HG at 20.0 C Hg: Vapor Pressure (vs. Air or mm Vapor Density (vs. Air = 1): No data. Specific Gravity (Water = 1): No data. Solubility in Water: No data. Solubility in Water: No data. Autoignition Pt: 215.00 C 9.2 Other Information Percent Volatile: No data. Value: No data available. 10.2 Stability: Unstable [] Stability Note(s): Stabile if stored in accordance with information listed on the product insert. Polymerization: Will occur [] Will not occur [X] 10.4 Conditions To Avoid: heat, flames and sparks 10.5 Incompatibility - Materials acid thlorides storog acids alkali metals storog acids			Section 9. Physical and Chemical Properties
Appearance and Odor: Solution Melting Point: No data. Boiling Point: No data. Flash Pt: 89.00 C Exporation Rate: No data. Explosive Limits: LEL: 3.5% at 25.0 C Vapor Pressure (vs. Air or mm 0.37 MM_HG at 20.0 C Hg): Vapor Density (vs. Air = 1): Vapor Density (vs. Air = 1): No data. Specific Gravity (Water = 1): No data. Solubility in Water: No data. Autoignition Pt: 215.00 C 9.2 Other Information Percent Volatile: No data. Stability: Unstable[] 10.1 Reactivity: No data available. Stability: 10.2 Stability: Unstable[] 10.3 Stability: Unstable[] 10.4 Conditions To Avoid: heat, flames and sparks 10.5 Incompatibility - Materials acid choirdes To Avoid: phosphorus halides strong acids alkali metals strong acids alkali metals strong reducing agents strong reducing agents strong reducing agents strong reducing agents	9.1	Information on Basic Ph	ysical and Chemical Properties
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Boiling Point: No data. Flash Pt: 89.00 C Method Used: Closed Cup Evaporation Rate: No data. Explosive Limits: LEL: 3.5% at 25.0 C UEL: 42.0% at 25.0 C Vapor Pressure (vs. Air or mm 0.37 MM_HG at 20.0 C Hg): Vapor Density (vs. Air = 1): Vapor Density (vs. Air = 1): No data. Specific Gravity (Water = 1): No data. Solubility in Water: No data. Autoignition Pt: 215.00 C 9.2 Other Information Percent Volatile: No data. Stability Note(s): Stable I stored in accordance with information listed on the product insert. Polymerization: Will not occur [X] 10.4 Conditions To Avoid: heat, flames and sparks 10.5 Incompatibility - Materials acid chlorides strong acids alkali metals strong noticide <td></td> <td>Appearance and Odor:</td> <td>Solution</td>		Appearance and Odor:	Solution
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Polymerization: Will occur [] Will not occur [X] 10.4 Conditions To Avoid: heat, flames and sparks 10.5 Incompatibility - Materials acid chlorides To Avoid: phosphorus halides strong acids alkali metals alkali metals strong oxidizing agents strong reducing agents oxidon monoxide Decomposition Or carbon dioxide	10.2	Stability:	Unstable [] Stable [X]
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To Avoid: phosphorus halides strong acids alkali metals alkali metals strong oxidizing agents strong reducing agents strong reducing agents Decomposition Or carbon dioxide	10.4	Conditions To Avoid:	heat, flames and sparks
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strong oxidizing agents strong reducing agents 10.6 Hazardous carbon monoxide Decomposition Or carbon dioxide			strong acids
strong reducing agents 10.6 Hazardous carbon monoxide Decomposition Or carbon dioxide			alkali metals
10.6 Hazardous carbon monoxide Decomposition Or carbon dioxide			
Decomposition Or carbon dioxide			
	10.6		
Byproducts: Sulfur oxides		-	
		Byproducts:	sulfur oxides



	MICAL					5	upersedes Revis	ion: 02/10/201
			Sectio	n 11. Toxicologica	l Informa	ation		
T C	Information on Toxicological Effects: Chronic Toxicological Effects:		DMSO - Tox (mouse): 7,9 Inhalation L0 DMSO - Irrita DMSO - Inve Only select H See actual e	gical effects of this product h icity Data: Oral LD50 (rat): 1- 20 mg/kg; Skin LD50 (mouse C50 (rat): >1,600 mg/m3 (4h) ation Data: Eyes (rabbit): 100 estigated as a mutagen, repre Registry of Toxic Effects of C entry in RTECS for complete CS Number: PV6210000	4,500 mg/kg; e): 50,000 m ;) mg mild; Sk oductive effe hemical Sub	; Skin LD50 (ra g/kg; Skin TDI kin (rabbit): 50 ctor, and tumo	at): 40,000 mg, _O (woman): 1 0 mg (24h) mil prigen.	,800 mg/kg; d;
Carcinog	genicity:		NTP? No	IARC Monographs? No	OSHA Re	gulated? No		
CAS #	F	lazardous Com	ponents (Ch	emical Name)	NTP	IARC	ACGIH	OSHA
67-68	8-5 C	Dimethyl sulfoxide	e, anhydrous		n.a.	n.a.	n.a.	n.a.
			Secti	on 12. Ecological I	Informati	ion		
12.1 T	oxicity:		Avoid releas	e into the environment.				
	-		Runoff from	fire control or dilution water r	nay cause po	ollution.		
	Persistenc Degradabi		No data ava	ilable.				
	Bioaccum Potential:	ulative	No data available.					
12.4 M	lobility in	Soil:	No data available.					
12.5 R	lesults of	PBT and vPvB	3 No data available.					
	ssessme							
12.6 O	Other advo	erse effects:	No data available.					
			Sectio	n 13. Disposal Co	nsiderati	ions		
13.1 W	Vaste Dis	posal Method:	Dispose in a	ccordance with local, state, a	and federal re	egulations.		
			Sect	tion 14. Transport	Informat	ion		
14.1 L	AND TR	ANSPORT (US E	DOT):					
DOT	Γ Proper \$ Γ Hazard (NA Numb		Not dan	gerous goods.				
14.1 L		ANSPORT (Euro	opean ADR/R	RID):				
UNI	R/RID Shi _l Number: ard Class	pping Name: ::	Not dan	gerous goods.				
14.3 A	AIR TRAN	ISPORT (ICAO/I	ATA):					
ICAG	O/IATA S	hipping Name:	Not dan	gerous goods.				
Additior Informat	nal Trans tion:	port	Transport in	accordance with local, state	, and federal	regulations.		



Revision: 03/18/2015 Supersedes Revision: 02/10/2014

	unerfund Amondr	nents and Reauthorization Act	of 1986) Liete		
CAS #	- i	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
67-68-5	Dimethyl sulfoxid	· · · ·	No	No	No
CAS #	Hazardous Components (Chemical Name)		Other US EPA o	r Stato Lists	
67-68-5	Dimethyl sulfoxid	· · · · ·		No; CWA NPDES:	No. TSCA: Yes -
			Inventory; CA P	ROP.65: No	
Regulatory In	formation	This SDS was prepared in acc	ordance with 29 CFF	R 1910.1200 and R	egulation (EC)
Statement:		No.1272/2008.			
		Section 16. Ot	her Information	on	
Revision Date	:	03/18/2015			
Additional Info	ormation About	No data available.			
This Product:					
Company Poli	icy or Disclaimer:	DISCLAIMER: This information	n is believed to be ac	curate and represe	nts the best information
		currently available to us. Howe	ever, we make no wa	rranty of merchanta	ability or any other warrant
		express or implied, with respec	ct to such information	n, and we assume r	o liability resulting from its
		use. Users should make their	own investigations to	determine the suit	ability of the information for
		their particular purposes.			



SAFETY DATA SHEET

Cay	man	Xanthine Oxidase Assay Buf	ffer (10X) Revision: 04/19/2019 Supersedes Revision: 07/07/2010
	accord	ding 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: Product Name:	10010972 Xanthine Oxidase Assay Buffer (10X)	
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 vetering	nary use.
1.3	Details of the Supplier of the	e Safety Data Sheet:	
	Company Name:	Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	
	Web site address:	www.caymanchem.com	
	Information:	Cayman Chemical Company	+1 (734)971-3335
1.4	Emergency telephone numb	per:	
	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
2.2.1	Labeling according to Regu	Ilation (EC) No 1272/2008 [CLP]:	
	GHS Signal Word:	Warning	
	GHS Hazard Phrases: H315: Causes skin irritation	-	
	H319: Causes serious eye i	rritation.	
	GHS Precaution Phrases:	all har a fit and have all a se	
	P264: Wash {hands} thorou	gnly after nandling. es/protective clothing/eye protection/face protecti	ion
	GHS Response Phrases:	es/protective clothing/eye protection/nace protecti	ony.
	P302+352: IF ON SKIN: Wa	ash with plenty of soap and water. S: Rinse cautiously with water for several minutes.	. Remove contact lenses, if present and easv
	to do. Continue rinsing.		
	P332+313: If skin irritation c	occurs, get medical advice/attention.	
		ersists, get medical advice/attention.	
		inated clothing and wash it before reuse.	
	GHS Storage and Disposa		
	Please refer to Section 7 for	Storage and Section 13 for Disposal information.	



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Caj	man		Aantinne Oxio	uase Assay D	· · · ·	Revision: 04/19/2015 Supersedes Revision: 07/07/2010
2.3		se Human Health s and Symptoms:	Causes skin and serious eye Material may be irritating to t May be harmful by inhalation May cause respiratory syste To the best of our knowledge	he mucous membra n, ingestion, or skin m irritation.	absorption.	spiratory tract. t been thoroughly investigated.
		Sec	tion 3. Composition	/Information	on Ingredie	nts
CAS RTE	;#/ CS#	Hazardous Com REACH Registra	ponents (Chemical Name)/ tion No.	Concentration	EC No./ EC Index No.	GHS Classification
NA NA		Xanthine Oxidase A	ssay Buffer (10X)	100.0 %	NA NA	Skin Corr. 2: H315 Eye Damage 2: H319
			Section 4. Fi	rst Aid Meas	ures	
4.1	Descri Measu	ption of First Aid res:	No data available.			
	In Cas	e of Inhalation:	Remove to fresh air. If not br Get immediate medical atten		al respiration or gi	ve oxygen by trained personnel.
	In Cas	e of Skin Contact:	Immediately wash skin with s clothing. Get medical attention			5 minutes. Remove contaminated before reuse.
	In Cas	e of Eye Contact:	Hold eyelids apart and flush and tested by medical person		water for at least 1	5 minutes. Have eyes examined
	In Cas	e of Ingestion:	Wash out mouth with water p unconscious person. Get me medical personnel.	-	-	ive anything by mouth to an ng unless directed to do so by
4.2	•	s, Both Acute and	d Prolonged or repeated skin o	ontact may cause c	lermatitis.	
			Section 5. Fire	Fighting Me	asures	
5.1	Media	able Extinguishing	Use alcohol-resistant foam, Use water spray to cool fire- A solid water stream may be	exposed containers		l spray.
5.2		-	dNo data available.			
	Hazaro Flash		No data.			
		sive Limits:	LEL: No data.	UEL: No c	lata.	
	Autoig	nition Pt:	No data.			
5.3	Fire Fi	ghting Instructions	s: As in any fire, wear self-cont equivalent), and full protectiv		-	



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			Section 6. Ac						
5.1		ve Precautions,	• •	ors and provide adequate					
	Protecti	ve Equipment and			red self-contained breathing				
	Emerge	ncy Procedures:	and appropriate pers	sonal protection (rubber b	poots, safety goggles, and I	neavy rubber gloves).			
6.2	Environmental Take steps to avoid release into the environment, if safe to do so.								
	Precaut								
5.3		ethods and Material For Contain spill and collect, as appropriate. ontainment and CleaningTransfer to a chemical waste container for disposal in accordance with local regulations.							
		ment and Cleanin	g I ransfer to a chemic	cal waste container for dis	sposal in accordance with l	ocal regulations.			
	Up:								
			Section 7	. Handling and	Storage				
7.1	Precaut	ions To Be Taken	-	/fume/gas/mist/vapours/s	spray.				
	in Hand	ling:	Avoid prolonged or re	epeated exposure.					
7.2	Precaut	ions To Be Taken	Keep container tightl	y closed.					
	in Stori	ng:	Store in accordance	with information listed on	the product insert.				
		Sect	tion 8. Exposu	re Controls/Per	sonal Protection				
8.1	Exposur	e Parameters:							
			Nomo	Britain EH40	France VL	Europe			
CAS	#	Partial Chemical	Name	2					
CAS	# NA		Assay Buffer (10X)	No data.	No data.	No data.			
	NA		Assay Buffer (10X)		No data. ACGIH TWA	No data. Other Limits			
	NA	Xanthine Oxidase Partial Chemical	Assay Buffer (10X)	No data.					
CAS CAS 8.2	NA # NA	Xanthine Oxidase Partial Chemical	Assay Buffer (10X) Name	No data. OSHA TWA	ACGIH TWA	Other Limits			
CAS 8.2	NA # NA Exposu	Xanthine Oxidase Partial Chemical Xanthine Oxidase	Assay Buffer (10X) Name Assay Buffer (10X)	No data. OSHA TWA No data.	ACGIH TWA	Other Limits No data.			
CAS 8.2	NA # NA Exposur Enginee	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls:	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu	No data. OSHA TWA No data.	ACGIH TWA No data.	Other Limits No data.			
CAS 8.2 8.2.1	NA # NA Exposur Enginee (Ventila	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm	No data. OSHA TWA No data. Irres, local exhaust ventila	ACGIH TWA No data.	Other Limits No data.			
CAS 8.2 8.2.1	NA # NA Exposur Enginee (Ventila Persona	Xanthine Oxidase Partial Chemical Xanthine Oxidase re Controls: ering Controls tion etc.):	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm	No data. OSHA TWA No data. Irres, local exhaust ventila	ACGIH TWA No data.	Other Limits No data.			
CAS	NA # Exposur Enginee (Ventila Persona Eye Pro	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls tion etc.):	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment:	No data. OSHA TWA No data. Irres, local exhaust ventila nended exposure limits.	ACGIH TWA No data.	Other Limits No data.			
CAS 8.2 8.2.1	NA # Exposur Enginee (Ventila Persona Eye Pro Protecti	Xanthine Oxidase Partial Chemical Xanthine Oxidase re Controls: ering Controls tion etc.): al protection equi tection:	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical	No data. OSHA TWA No data. Irres, local exhaust ventila nended exposure limits.	ACGIH TWA No data.	Other Limits No data.			
CAS 8.2 8.2.1	NA # Exposur Enginee (Ventila Persona Eye Pro Protecti Other P	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls tion etc.): al protection equi tection: ve Gloves:	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical g:Lab coat	No data. OSHA TWA No data. Irres, local exhaust ventila nended exposure limits.	ACGIH TWA No data.	Other Limits No data.			
CAS 3.2 3.2.1	NA # Exposur Enginee (Ventila Persona Eye Pro Protecti Other P	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls tion etc.): al protection equi tection: ve Gloves: rotective Clothing tory Equipment	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical g:Lab coat	No data. OSHA TWA No data. Irres, local exhaust ventila nended exposure limits. I-resistant gloves	ACGIH TWA No data.	Other Limits No data.			
CAS 8.2 8.2.1	NA # Exposur Enginee (Ventila Persona Eye Pro Protecti Other P Respira (Specify	Xanthine Oxidase Partial Chemical Xanthine Oxidase re Controls: ering Controls tion etc.): al protection equi- tection: ve Gloves: rotective Clothing tory Equipment v Type):	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical g:Lab coat	No data. OSHA TWA No data. Ires, local exhaust ventila nended exposure limits. I-resistant gloves spirator, as conditions wa	ACGIH TWA No data.	Other Limits No data.			
CAS 8.2 8.2.1	NA # Exposur Enginee (Ventila Persona Eye Pro Protecti Other P Respira (Specify	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls tion etc.): al protection equi tection: ve Gloves: rotective Clothing tory Equipment v Type): ygienic/Maintenar	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical g:Lab coat NIOSH approved res Do not take internally	No data. OSHA TWA No data. Ires, local exhaust ventila nended exposure limits. I-resistant gloves spirator, as conditions wa	ACGIH TWA No data.	Other Limits No data. controls to control airbor			
CAS 8.2 8.2.1	NA # NA Exposur Enginee (Ventila Persona Eye Pro Protecti Other P Respira (Specify Work/H	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls tion etc.): al protection equi tection: ve Gloves: rotective Clothing tory Equipment v Type): ygienic/Maintenar	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical g:Lab coat NIOSH approved res Do not take internally Facilities storing or u shower.	No data. OSHA TWA No data. Irres, local exhaust ventilation nended exposure limits. I-resistant gloves spirator, as conditions wat /. tilizing this material shou	ACGIH TWA No data.	Other Limits No data. controls to control airbor			
CAS 8.2 8.2.1	NA # NA Exposur Enginee (Ventila Persona Eye Pro Protecti Other P Respira (Specify Work/H	Xanthine Oxidase Partial Chemical Xanthine Oxidase e Controls: ering Controls tion etc.): al protection equi tection: ve Gloves: rotective Clothing tory Equipment v Type): ygienic/Maintenar	Assay Buffer (10X) Name Assay Buffer (10X) Use process enclosu levels below recomm pment: Safety glasses Compatible chemical g:Lab coat NIOSH approved res Do not take internally Facilities storing or u	No data. OSHA TWA No data. Irres, local exhaust ventilation nended exposure limits. I-resistant gloves spirator, as conditions wat /. tilizing this material shou	ACGIH TWA No data.	Other Limits No data. controls to control airbor			



		Supersedes Revision: 07/07/2010
	Sec	ction 9. Physical and Chemical Properties
).1	Information on Basic Physic	
	Physical States:	[]Gas [X]Liquid []Solid
	Appearance and Odor:	Solution
	pH:	7.5
	Melting Point:	No data.
	Boiling Point:	No data.
	Flash Pt:	No data.
	Evaporation Rate:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Vapor Pressure (vs. Air or n Hg):	nm No data.
	Vapor Density (vs. Air = 1):	No data.
	Specific Gravity (Water = 1):	
	Solubility in Water:	No data.
	Autoignition Pt:	No data.
	-	No data.
9.2	Other Information	
	Percent Volatile:	No data.
		Section 10. Stability and Reactivity
0.1	Reactivity: N	lo data available.
0.2	Stability: U	Instable [] Stable [X]
0.3	Stability Note(s): S	table if stored in accordance with information listed on the product insert.
	Polymerization: W	Vill occur [] Will not occur [X]
10.4	Conditions To Avoid: N	lo data available.
10.5	Incompatibility - Materials a	luminum
	To Avoid: b	rass
		opper
	0	xidizing agents
10.6		arbon dioxide
	2000	arbon monoxide
	Byproducts: n	itrogen oxides



Multi-region format

			Sectio	n 11. Toxico	ological	Informa	ation		
11.1 Information on The toxicological effects of this product have not been thoroughly studied.									
	Toxicolo	ogical Effects:							
Carci	nogenicity	y:	NTP? No	IARC Monogra	phs? No	ns? No OSHA Regulated?		d? No	
CAS	CAS # Hazardous Com		ponents (Ch	emical Name)		NTP	IARC	ACGIH	OSHA
	NA	Xanthine Oxidase	e Assay Buffe	r (10X)		n.a.	n.a.	n.a.	n.a.
			Secti	on 12. Ecol	ogical Ir	format	ion		
12.1	Toxicity	:	Avoid release into the environment.						
			Runoff from	fire control or dilut	tion water ma	ay cause p	ollution.		
12.2		ence and	No data ava	ilable.					
	Degrada	-							
12.3	Potentia	mulative	No data ava	liadie.					
12.4	Mobility		No data ava	ilable.					
12.5	-	of PBT and vPvB							
	assessn	nent:							
12.6	Other ac	dverse effects:	No data ava	ilable.					
			Sectio	on 13. Dispo	sal Con	siderat	ions		
13.1	Waste D	isposal Method:	Dispose in a	ccordance with lo	cal, state, an	d federal r	egulations.		
			Sect	tion 14. Trai	nsport Ir	format	ion		
14.1	LAND T	RANSPORT (US I	DOT):						
D	OT Prope	r Shipping Name	Not dan	gerous goods.					
D	OT Hazar	d Class:							
U	N/NA Nur	nber:							
14.1	LAND T	RANSPORT (Euro	opean ADR/R	RID):					
		hipping Name:	Not dan	gerous goods.					
_	N Numbe								
п 14.3		ISS: ANSPORT (ICAO/I	ATA).						
		Shipping Name:	-	gerous goods.					
	tional Tra			accordance with	local, state, a	and federa	l regulations.		
	mation:						rogulationo.		
			Secti	on 15. Regi	ulatory Ir	nforma	tion		
EPA	SARA (Su	perfund Amendm	ents and Re	authorization Ac	t of 1986) Li	sts			
CAS	#	Hazardous Com	ponents (Ch	emical Name)	S. 302 (EHS)	S. 304 RQ	S. 31	B (TRI)
	NA	Xanthine Oxidase	e Assay Buffe	r (10X)	No		No	No	
CAS	#	Hazardous Com	ponents (Ch	emical Name)	Other US	S EPA or S	State Lists		
	NA	Xanthine Oxidase	e Assay Buffe	r (10X)	CAA HA PROP.6		o; CWA NPDE	S: No; TSCA	No; CA
		•							
1									



J		Revision:	04/19/2015
	Supersedes	Revision:	07/07/2010

Regulatory Information	This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC)					
Statement:						
Section 16. Other Information						
Revision Date:	04/19/2015					
Additional Information About	No data available.					
This Product:						
	No data available. 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.					



1.1

1.2

1.3

1.4

2.1

2.2

SAFETY DATA SHEET Xanthine Oxidase Sample Buffer (10X)

Revision: 04/19/2015 Supersedes Revision: 07/07/2010 according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008 Section 1. Identification of the Substance/Mixture and of the Company/Undertaking **Product Code:** 10010973 Product Name: Xanthine Oxidase Sample Buffer (10X) Relevant identified uses of the substance or mixture and uses advised against: **Relevant identified uses:** For research use only, not for human or veterinary use. 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 Emergency telephone number: **Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300 CHEMTREC Outside USA and Canada: +1 (703)527-3887 Section 2. Hazards Identification **Classification of the Substance or Mixture:** 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]: Skin Corrosion/Irritation, Category 2 Serious Eye Damage/Eye Irritation, Category 2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]: **GHS Signal Word:** Warning **GHS Hazard Phrases:** H315: Causes skin irritation. H319: Causes serious eye irritation. **GHS Precaution Phrases:** P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye protection/face protection}. **GHS Response Phrases:** P302+352: IF ON SKIN: Wash with plenty of soap and water. P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+313: If skin irritation occurs, get medical advice/attention. P337+313: If eye irritation persists, get medical advice/attention. P362+364: Take off contaminated clothing and wash it before reuse. **GHS Storage and Disposal Phrases:** Please refer to Section 7 for Storage and Section 13 for Disposal information.



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Supersedes Revision: 07/07/2010 Adverse Human Health 2.3 Causes skin and serious eye irritation. Material may be irritating to the mucous membranes and upper respiratory tract. Effects and Symptoms: May be harmful by inhalation, ingestion, or skin absorption. May cause respiratory system irritation. To the best of our knowledge, the toxicological properties have not been thoroughly investigated. Section 3. Composition/Information on Ingredients CAS#/ Hazardous Components (Chemical Name)/ EC No./ **GHS Classification** Concentration **RTECS # REACH Registration No.** EC Index No. 77-86-1 Trizma base 12.1 % 201-064-4 Skin Corr. 2: H315 TY2900000 Eye Damage 2: H319 NA STOT (SE) 3: H335 H336 7732-18-5 Water 87.9 % 231-791-2 No data available. ZC0110000 NA Section 4. First Aid Measures 4.1 **Description of First Aid** No data available. Measures: In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention. In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel. Wash out mouth with water provided person is conscious. Never give anything by mouth to an In Case of Ingestion: unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel. 4.2 Important Symptoms and Prolonged or repeated skin contact may cause dermatitis. Effects, Both Acute and **Delayed:** Section 5. Fire Fighting Measures 5.1 Suitable Extinguishing Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Media: Use water spray to cool fire-exposed containers. Unsuitable Extinguishing A solid water stream may be inefficient. Media: 5.2 Flammable Properties and No data available. Hazards: 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.



SAFETY DATA SHEET

Xanthine Oxidase Sample Buffer (10X)

	Section 6. Accidental Release Measures								
6.1									
	Protective Equipment and As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,								
	Emerge	ency Procedures:	and appropriate pers	onal protection (rubber boots	, safety goggles, and heavy r	ubber gloves).			
6.2	Environmental Take steps to avoid release into the environment, if safe to do so.								
	Precaut	ions:							
6.3			r Contain spill and coll						
		ment and Cleanir	gTransfer to a chemic	al waste container for disposa	al in accordance with local reg	gulations.			
	Up:								
			Section 7.	Handling and Sto	rage				
7.1	Precaut	ions To Be Taken	Avoid breathing dust/	fume/gas/mist/vapours/spray.					
	in Hand	lling:	Avoid prolonged or re	epeated exposure.					
7.2			Keep container tightly						
	in Stori	ng:	Store in accordance v	with information listed on the p	product insert.				
		Sec	tion 8. Exposu	re Controls/Person	al Protection				
8.1	Exposu	e Parameters:							
CAS	#	Partial Chemical	Name	Britain EH40	France VL	Europe			
77	-86-1	Trizma base		No data.	No data.	No data.			
773	2-18-5	Water		No data.	No data.	No data.			
CAS	#	Partial Chemical	Name	OSHA TWA	ACGIH TWA	Other Limits			
77	-86-1	Trizma base		No data.	No data.	No data.			
773	2-18-5	Water		No data.	No data.	No data.			
8.2	Exposu	re Controls:							
8.2.1	-	ering Controls	-	res, local exhaust ventilation,	or other engineering controls	to control airborne			
	•	tion etc.):		ended exposure limits.					
8.2.2		al protection equi	-						
	-	etection:	Safety glasses						
		ive Gloves:	Compatible chemical-	-resistant gloves					
		rotective Clothing	-						
	(Specify	tory Equipment	NIOSH approved respirator, as conditions warrant.						
			In 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.						



		Supersedes Revision: 07/07/2010
	Se	ection 9. Physical and Chemical Properties
).1	Information on Basic Physi	ical and Chemical Properties
	Physical States:	[]Gas [X]Liquid []Solid
	Appearance and Odor:	Solution
	pH:	7.5
	Melting Point:	No data.
	Boiling Point:	No data.
	Flash Pt:	No data.
	Evaporation Rate:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Vapor Pressure (vs. Air or	mm No data.
	Hg):	
	Vapor Density (vs. Air = 1):	
	Specific Gravity (Water = 1	·
	Solubility in Water:	No data.
	Autoignition Pt:	No data.
9.2	Other Information	
	Percent Volatile:	No data.
		Section 10. Stability and Reactivity
0.1	Reactivity:	No data available.
0.2	•	Unstable [] Stable [X]
0.3	-	Stable if stored in accordance with information listed on the product insert.
		Will occur [] Will not occur [X]
10.4	-	No data available.
10.4	Incompatibility - Materials	
10.5		brass
		copper
		oxidizing agents
10.6		carbon dioxide
		carbon monoxide
		nitrogen oxides
	_)	



SAFETY DATA SHEET Xanthine Oxidase Sample Buffer (10X)

			Sectio	n 11. Toxic	ological	Inform	ation		
11.1 Information on		The toxicological effects of this product have not been thoroughly studied.							
Toxicological Effects:									
Carcinogenicity:		NTP? No IARC Monographs? No		phs? No	OSHA Regulated? No				
CAS # Hazardous Com		nponents (Chemical Name)			NTP	IARC	ACGIH	OSHA	
77-8	36-1	Trizma base				n.a.	n.a.	n.a.	n.a.
7732-	-18-5	Water				n.a.	n.a.	n.a.	n.a.
			Sect	on 12. Eco	logical In	forma	tion		·
12.1	Toxicity	/:	Avoid releas	e into the environ	ment.				
			Runoff from	fire control or dilu	tion water ma	ay cause p	ollution.		
12.2 F	Persiste	ence and	No data ava	ilable.					
[Degrada	ability:							
12.3 E	Віоассι	umulative	No data ava	ilable.					
F	Potentia	al:							
12.4 I	Mobility	in Soil:	No data ava	ilable.					
12.5 F	Results	of PBT and vPvB	No data ava	ilable.					
a	assessr	ment:							
12.6 (Other a	dverse effects:	No data ava	ilable.					
			Sectio	on 13. Dispo	osal Con	siderat	tions		
13.1 \	Waste D	Disposal Method:	Dispose in a	ccordance with Ic	ocal, state, an	d federal	regulations.		
			Sec	tion 14. Tra	nsport In	forma	tion		
14.1	LAND 1	RANSPORT (US	DOT):		-				
DO	T Prope	er Shipping Name	: Not dan	gerous goods.					
DO	T Hazar	rd Class:							
UN/	/NA Nui	mber:							
14.1	LAND 1	RANSPORT (Euro	opean ADR/F	RID):					
AD	R/RID S	hipping Name:	Not dan	gerous goods.					
UN	Numbe	er:							
Haz	zard Cla	ISS:							
14.3	AIR TR	ANSPORT (ICAO/	IATA):						
ICA	O/IATA	Shipping Name:	Not dan	gerous goods.					
Additio	onal Tra	nsport	Transport in	accordance with	local, state, a	and federa	I regulations.		
Informa	ation:								
			Secti	on 15. Reg	ulatory Ir	nforma	tion		
EPA SA	ARA (Sı	uperfund Amendm	nents and Re	authorization Ac	t of 1986) Li	sts			
CAS #		Hazardous Com	ponents (Ch	emical Name)	S. 302 (E	EHS)	S. 304 RQ		3 (TRI)
77-8	86-1	Trizma base			No		No	Yes-C	at. N106
7732-	-18-5	Water			No		No	No	
CAS #		Hazardous Com	ponents (Ch	emical Name)	Other US	EPA or	State Lists		
77-8	86-1	Trizma base					AP; CWA NPD OP.65: No	ES: No; TSC	A: Yes -
7732-	-18-5	Water			CAA HA	P,ODC: N	o; CWA NPDE	S: No; TSCA	: Yes -
								r	Aulti-region form



SAFETY DATA SHEET Xa

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anthine Oxidase S	Sample Buffer	(10X)
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	Inventory; CA PROP.65: No				
Regulatory Information Statement:	This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.				
	Section 16. Other Information				
Revision Date: 04/19/2015					
Additional Information About This Product:	No data available.				
Company Policy or Disclaimer:	DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.				



Revision: 04/19/2015 Supersedes Revision: 07/07/2010 according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008 Section 1. Identification of the Substance/Mixture and of the Company/Undertaking 1.1 **Product Code:** 10010974 Product Name: Xanthine Oxidase Standard 1.2 Relevant identified uses of the substance or mixture and uses advised against: Relevant identified uses: For research use only, not for human or veterinary use. 1.3 Details of the Supplier of the Safety Data Sheet: **Company Name:** Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 Web site address: www.caymanchem.com Information: Cayman Chemical Company +1 (734)971-3335 1.4 Emergency telephone number: **Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300 CHEMTREC Outside USA and Canada: +1 (703)527-3887 Section 2. Hazards Identification 2.1 **Classification of the Substance or Mixture:** 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]: 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]: **GHS Signal Word:** None **GHS Hazard Phrases:** Based on evaluation of currently available data this substance or mixture is not classifiable according to GHS. **GHS Precaution Phrases:** No phrases apply. **GHS Response Phrases:** No phrases apply. **GHS Storage and Disposal Phrases:** Please refer to Section 7 for Storage and Section 13 for Disposal information. 2.3 Adverse Human Health Material may be irritating to the mucous membranes and upper respiratory tract. Effects and Symptoms: May be harmful by inhalation, ingestion, or skin absorption. May cause eye, skin, or respiratory system irritation. To the best of our knowledge, the toxicological properties have not been thoroughly investigated. Section 3. Composition/Information on Ingredients CAS#/ Hazardous Components (Chemical Name)/ Concentration EC No./ **GHS Classification RTECS # REACH Registration No.** EC Index No. 9002-17-9 Xanthine Oxidase 0.3 % 232-657-6 No data available. RQ8455000 NA 10049-21-5 Sodium phosphate monobasic, monohydrate 0.138 % NA Skin Corr. 2: H315 WA1900000 NA Eye Damage 2A: H319 STOT (SE) 3: H335 H336 60-00-4 Ethylenediamine Tetraacetic Acid 0.029 % 200-449-4 Acute Tox.(O) 5: H303 AH4025000 607-429-00-8 Eye Damage 2A: H319 Aquatic (A) 3: H402



SAFETY DATA SHEET Xanthine Oxidase Standard

Revision: 04/19/2015

						Supersedes Revision: 07/07/2010		
7783-20-2 Ammonium sulfate BS4500000 7732-18-5 Water ZC0110000		Ammonium sulfate		32.37 %	231-984-1 NA	No data available.		
		Water		67.163 %	231-791-2 NA	No data available.		
		-			•			
			Section 4. Fi	ret Aid Maasu	ILOS			
4.1	Deceri	ntion of First Aid	No data available.		1163			
+. 1	Measu	ption of First Aid res:	No dala avallable.					
		e of Inhalation:	Remove to fresh air. If not brock of the second sec		l respiration or g	give oxygen by trained personnel.		
	In Case	e of Skin Contact:	Immediately wash skin with s clothing. Get medical attentio			15 minutes. Remove contaminate before reuse.		
	In Case	e of Eye Contact:	Hold eyelids apart and flush and tested by medical persor		ater for at least	15 minutes. Have eyes examined		
	In Case	e 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 Mea	asures			
5.1	Suitabl Media:	le Extinguishing	Use alcohol-resistant foam, o Use water spray to cool fire-o		r, or dry chemic	al spray.		
		able Extinguishing	A solid water stream may be	-				
5.2		able Properties an	d No data available.					
	Flash F	Pt:	No data.					
	Explos	sive Limits:	LEL: No data.	UEL: No da	ata.			
	Autoig	nition Pt:	No data.					
5.3	Fire Fig	ghting Instructions	s: As in any fire, wear self-cont equivalent), and full protectiv	• • • •	•	demand (NIOSH approved or and eyes.		
			Section 6. Accider	ntal Release M	Measures			
6.1 6.2	 Protective Precautions, Avoid breathing vapors and provide adequate ventilation. Protective Equipment and As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirate the personal protection (rubber boots, safety goggles, and heavy rubber gloves). 				es, and heavy rubber gloves).			
6.3	Precau Method		r Contain spill and collect, as	appropriate.				
			ngTransfer to a chemical wast		sal in accordanc	ce with local regulations.		
			Section 7. Har	ndling and Sto	orade			
 7.1	Precau	itions To Be Taker	Keep container tightly closed	•				
	in Han		Store in accordance with info		e product insert.			
7.2	Precau in Stor		Avoid breathing dust/fume/ga Avoid prolonged or repeated		ıy.			
						Multi-region form		



3.1	Expose	re Parameters:	<u></u>		ersonal Protection	
	•	· ·			Energy VI	F
		Partial Chemical Na	me	Britain EH40	France VL	Europe
	2-17-9	Xanthine Oxidase		No data.	No data.	No data.
1004	9-21-5	Sodium phosphate n monohydrate	ionobasic,	No data.	No data.	No data.
60-00-4		Ethylenediamine Tetraacetic Acid		No data.	No data.	No data.
7783	3-20-2	Ammonium sulfate		No data.	No data.	No data.
7732	2-18-5	Water		No data.	No data.	No data.
CAS #	ŧ	Partial Chemical Na	me	OSHA TWA	ACGIH TWA	Other Limits
9002	2-17-9	Xanthine Oxidase		No data.	No data.	No data.
1004	9-21-5	Sodium phosphate n monohydrate	ionobasic,	No data.	No data.	No data.
60-	-00-4	Ethylenediamine Tet	raacetic Acid	No data.	No data.	No data.
7783	3-20-2	Ammonium sulfate		No data.	No data.	No data.
7732	2-18-5	Water		No data.	No data.	No data.
3.2	Exposu	Ire Controls:		- 1		
	Other F Respira (Specif	Protective Clothing:La atory Equipment N Ty Type): Hygienic/Maintenan D ctices: F si N N	ab coat IOSH approved r o not take interna acilities storing of nower. 'ash thoroughly a o data available.	r utilizing this material sh Ifter handling.	warrant. hould be equipped with an eyev nical Properties	vash facility and a saf
.1	Informa	tion on Basic Physic	al and Chemical	Properties	·	
	Physic	al States:	[]Gas	[X] Liquid [] Soli	d	
	Appear	rance and Odor:	Solution			
	pH:		7.8			
	-	g Point:	No data.			
	Boiling		No data.			
	Flash F		No data.			
	_	ation Rate	No data.			
	Evapor					
	Explos	ive Limits: Pressure (vs. Air or n	LEL: No data.	ata.	UEL: No data.	



		Gravity (Water = ⁻	1): No data.						
	-		i): No dala.						
	-	in Water:	No data.						
	Autoignit	ion Pt:	No data.						
9.2	Other Info	ormation							
	Percent V	/olatile:	No data.						
	Section 10. Stability and Reactivity								
10.1	Reactivity	ity: No data available.							
10.2	Stability:			table [X]					
10.3	Stability I		Stable if stored in a		ormation listed o	on the product	insert.		
	Polymeria		Will occur []	Vill not occur [X]					
10.4		ns To Avoid:	No data available.						
10.5	=	tibility - Materials	-						
	To Avoid		strong oxidizing ag	ents					
10.6	Hazardou		ammonia nitrogen oxides						
	Decompo Byproduo		sulfur oxides						
	Byproduc			<u> </u>					
				. Toxicologio					
11.1	Informati		The toxicological ef	fects of this produc	t have not been	thoroughly st	udied.		
0 !	-	gical Effects:							
	nogenicity	:		C Monographs? No		gulated? No			
CAS #	nogenicity: #	Hazardous Com	oonents (Chemical		OSHA Re	gulated? No	ACGIH	OSHA	
CAS # 9002	nogenicity : # 2-17-9	Hazardous Com	oonents (Chemical	Name)		-	ACGIH n.a.	OSHA n.a.	
CAS # 9002 1004	* 2-17-9 19-21-5	Hazardous Com Xanthine Oxidase Sodium phosphat	oonents (Chemical e monobasic, mono	Name)	NTP	IARC		_	
CAS # 9002 1004 60-	* 2-17-9 49-21-5 -00-4	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine	oonents (Chemical e monobasic, mono Tetraacetic Acid	Name)	NTP n.a.	IARC n.a.	n.a.	n.a.	
CAS # 9002 1004 60- 778:	* 2-17-9 19-21-5 -00-4 3-20-2	Hazardous Com Xanthine Oxidase Sodium phosphat Ethylenediamine	oonents (Chemical e monobasic, mono Tetraacetic Acid	Name)	NTP n.a. n.a.	n.a.	n.a.	n.a.	
CAS # 9002 1004 60- 778:	* 2-17-9 19-21-5 -00-4 3-20-2	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine	oonents (Chemical e monobasic, mono Tetraacetic Acid	Name)	NTP n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a.	n.a. n.a. n.a.	n.a. n.a. n.a.	
CAS # 9002 1004 60- 778:	* 2-17-9 19-21-5 -00-4 3-20-2	Hazardous Com Xanthine Oxidase Sodium phosphat Ethylenediamine	oonents (Chemical e monobasic, mono Tetraacetic Acid e	Name)	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 778:	* 2-17-9 19-21-5 -00-4 3-20-2	Hazardous Com Xanthine Oxidase Sodium phosphat Ethylenediamine	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 778: 7732 12.1	mogenicity: # 2-17-9 I9-21-5 -00-4 3-20-2 2-18-5	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine Ammonium sulfat Water	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t Runoff from fire cor	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 7783 7732	mogenicity: # 2-17-9 19-21-5 -00-4 3-20-2 2-18-5 Toxicity: Persisten	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine Ammonium sulfat Water	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 778: 7732 12.1 12.2	mogenicity: # 2-17-9 I9-21-5 -00-4 3-20-2 2-18-5 Toxicity: Persisten Degradat	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine Ammonium sulfat Water	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t Runoff from fire cor No data available.	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 778: 7732 12.1	Anogenicity: # 2-17-9 49-21-5 -00-4 3-20-2 2-18-5 Toxicity: Persisten Degradat Bioaccun	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine Ammonium sulfat Water Water	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t Runoff from fire cor	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 778: 7732 12.1 12.2 12.3	Anogenicity: # 2-17-9 49-21-5 -00-4 3-20-2 2-18-5 Toxicity: Persisten Degradat Bioaccun Potential	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine Ammonium sulfat Water Mater	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t Runoff from fire cor No data available. No data available.	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 7783 7732 12.1 12.2 12.3 12.4	 Anogenicity: # 2-17-9 49-21-5 -00-4 3-20-2 2-18-5 Toxicity: Persisten Degradat Bioaccun Potential: Mobility i 	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine ⁻ Ammonium sulfat Water Water nulative : n Soil:	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t Runoff from fire cor No data available. No data available.	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	
CAS # 9002 1004 60- 778: 7732 12.1 12.2 12.3	 Anogenicity: # 2-17-9 49-21-5 -00-4 3-20-2 2-18-5 Toxicity: Persisten Degradat Bioaccun Potential: Mobility i 	Hazardous Comp Xanthine Oxidase Sodium phosphat Ethylenediamine Ammonium sulfat Water Mater nulative : n Soil: of PBT and vPvB	e monobasic, mono Tetraacetic Acid e Section 1 Avoid release into t Runoff from fire cor No data available. No data available.	Name) hydrate 2. Ecologica he environment.	NTP n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a. n.a.	IARC n.a. n.a. n.a. n.a. n.a. n.a. ON	n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a.	



Supersedes Revision: 07/07/2010 Section 13. Disposal Considerations Waste Disposal Method: Dispose in accordance with local, state, and federal regulations. 13.1 Section 14. Transport Information 14.1 LAND TRANSPORT (US DOT): DOT Proper Shipping Name: Not dangerous goods. **DOT Hazard Class:** UN/NA Number: LAND TRANSPORT (European ADR/RID): 14.1 ADR/RID Shipping Name: Not dangerous goods. **UN Number:** Hazard Class: 14.3 AIR TRANSPORT (ICAO/IATA): ICAO/IATA Shipping Name: Not dangerous goods. Additional Transport Transport in accordance with local, state, and federal regulations. Information: Section 15. Regulatory Information EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists Hazardous Components (Chemical Name) CAS # S. 302 (EHS) S. 304 RQ S. 313 (TRI) 9002-17-9 Xanthine Oxidase No No No 10049-21-5 Sodium phosphate monobasic, monohydrate No No No 60-00-4 Ethylenediamine Tetraacetic Acid Yes 5000 LB No No 7783-20-2 Ammonium sulfate No No No 7732-18-5 Water No No No Other US EPA or State Lists CAS # Hazardous Components (Chemical Name) CAA HAP, ODC: No; CWA NPDES: No; TSCA: Yes -9002-17-9 Xanthine Oxidase Inventory; CA PROP.65: No 10049-21-5 Sodium phosphate monobasic, monohydrate CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No 60-00-4 Ethylenediamine Tetraacetic Acid CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes -Inventory; CA PROP.65: No 7783-20-2 Ammonium sulfate CAA HAP, ODC: No; CWA NPDES: No; TSCA: Yes -Inventory; CA PROP.65: No 7732-18-5 Water CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes -Inventory; CA PROP.65: No

Regulatory Information Statement:

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

Page: 5 of 6



Page: 6 of 6

Section 16. Other Information				
Revision Date:	04/19/2015			
Additional Information About	No data available.			
This Product:				
Company Policy or Disclaimer:	DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.			



SAFETY DATA SHEET Xanthine Oxidase Detector

Multi-region format

	acc	ording to Regulation (EC) No. 1907/2006 as amended by ((EC) No. 1272/2008				
		Identification of the Substance/Mixture and of th					
.1	Product Code:						
.1	Product Code: Product Name:	10010975 Xanthine Oxidase Detector					
•							
.2		f the substance or mixture and uses advised aga					
	Relevant identified uses	· · · · · · · · · · · · · · · · · · ·	hary 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				
.4	Emergency telephone nur	nber:					
	Emergency Contact:	CHEMTREC Within USA and Canada:	+1 (800)424-9300				
		CHEMTREC Outside USA and Canada:	+1 (703)527-3887				
		Section 2. Hazards Identification	ation				
2.1	Classification of the Subs	tance or Mixture:					
2.1.1	Classification according	to Regulation (EC) No 1272/2008 [CLP]:					
	Acute Toxicity: Oral, Ca	tegory 4					
.2	Label Elements:						
	\mathbf{V}						
	GHS Signal Word:	Warning					
	GHS Hazard Phrases:						
	H302: Harmful if swallowe	ed.					
	GHS Precaution Phrases:						
	P264: Wash {hands} thor	bughly after handling.					
	GHS Response Phrases						
	P301+312: IF SWALLOW P330: Rinse mouth.	ED: Call a POISON CENTER or doctor/physician if	you feel unwell.				
	GHS Storage and Dispo	sal Phrases:					
	Please refer to Section 7	for Storage and Section 13 for Disposal information.					
2.3	Adverse Human Health	Harmful if swallowed.					
	Effects and Symptoms:	Material may be irritating to the mucous membrane	es and upper respiratory tract.				
		May be harmful by inhalation or skin absorption.					
		May cause eye, skin, or respiratory system irritatio					
		To the best of our knowledge, the toxicological pro	perties have not been thoroughly investigated				



SAFETY DATA SHEET Xanthine Oxidase Detector

		Sect	ion 3. Composition	/Information	on Ingredie	nts			
CAS # / RTECS #		Hazardous Comp REACH Registrat	onents (Chemical Name)/ ion No.	Concentration	EC No./ EC Index No.	GHS Classification			
1191 NA	71-73-2	10-Acetyl-3,7-dihydro	oxyphenoxazine (ADHP)	100.0 %	NA NA	Acute Tox.(O) 4: H302			
		•		•	•	•			
			Section 4. Fi	rst Aid Measu	ires				
4.1	Descrip	otion of First Aid	No data available.						
	Measur	es:							
	In Case	of Inhalation:	Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel						
			Get immediate medical attent	tion.					
	In Case	of Skin Contact:	Immediately wash skin with s	oap and plenty of wa	ater for at least 15	5 minutes. Remove contaminated			
			clothing. Get medical attentio	n if symptoms occur	. Wash clothing b	efore reuse.			
	In Case	of Eye Contact:	Hold eyelids apart and flush e	eyes with plenty of w	ater for at least 1	5 minutes. Have eyes examined			
			and tested by medical person	nnel.					
	In Case	of Ingestion:	Wash out mouth with water p	-	-				
			unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by						
			medical personnel.						
			Section 5. Fire	Fighting Mea	asures				
5.1	Suitable	e Extinguishing	Use alcohol-resistant foam, o	arbon dioxide, wate	r, or dry chemical	spray.			
	Media:		Use water spray to cool fire-e	exposed containers.					
	Unsuita Media:	able Extinguishing	A solid water stream may be	inefficient.					
5.2		able Properties and	d No data available						
	Hazard								
	Flash P		No data.						
		ive Limits:	LEL: No data.	UEL: No da	ata				
	-	nition Pt:	No data.						
5.3	-			ained breathing ann	aratus pressure-d	emand (NIOSH approved or			
0.0	Therig		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. Accider	ntal Release N	Measures				
6.1		ive Precautions,	Avoid breathing vapors and						
	Protect	ive Equipment and				eathing apparatus, or respirator,			
	Emerge	ency Procedures:	and appropriate personal pro	otection (rubber boot	s, safety goggles	, and heavy rubber gloves).			
6.2	Enviror	nmental	Take steps to avoid release	e into the environment, if safe to do so.					
	Precaut	tions:							
6.3			Contain spill and collect, as						
	Contair	ment and Cleanin	gTransfer to a chemical waste	e container for dispo	sal in accordance	with local regulations.			
	Up:								



SAFETY DATA SHEET **Xanthine Oxidase Detector**

			Section 7	Hand	ling and Sto	Apero				
						•				
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 Storir	ng:	Store in accordance	with inform	ation listed on the	e product insert.				
	Section 8. Exposure Controls/Personal Protection									
8.1	3.1 Exposure Parameters:									
CAS	#	Partial Chemical I	Name	Britain E	H40	France VL	Europe			
1191	71-73-2	10-Acetyl-3,7-dihyd (ADHP)	droxyphenoxazine	No data.		No data.	No data.			
CAS	#	Partial Chemical I	Name	OSHA T	WA	ACGIH TWA	Other Limits			
1191	71-73-2	10-Acetyl-3,7-dihyd (ADHP)	droxyphenoxazine	No data.		No data.	No data.			
8.2	Exposur	e Controls:		•		•	+			
8.2.1	Enginee	ring Controls	Use process enclosu	res, local e	xhaust ventilatior	n, or other engineering o	controls to control airborne			
	(Ventilat	tion etc.):	levels below recomm	ended exp	osure limits.					
8.2.2	Persona	al protection equip	ment:							
	Eye Pro	tection:	Safety glasses							
	Protecti	ve Gloves:	Compatible chemical	-resistant g	loves					
	Other P	rotective Clothing:	Lab coat							
	Respira	tory Equipment	NIOSH approved res	pirator, as	conditions warrar	nt.				
	(Specify	^y Type):								
	Work/Hy	/gienic/Maintenan	Do not take internally							
	ce Pract	ices:	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. Phys	ical an	d Chemical	Properties				
9.1	Informat	ion on Basic Phys	ical and Chemical P	operties						
	Physica	l States:	[] Gas [] Liquid	[X] Solid					
	Appeara	ance and Odor:	Powder							
	Melting	Point:	No data.							
	Boiling	Point:	No data.							
	Flash Pt	:	No data.							
	Evapora	tion Rate:	No data.							
	Explosiv	ve Limits:	LEL: No data		UEL	: No data.				
	Vapor P	ressure (vs. Air or	mm No data.							
	Hg):									
	Vapor D	ensity (vs. Air = 1)	No data.							
	Specific	Gravity (Water = 1	I): No data.	No data.						



SAFETY DATA SHEET Xanthine Oxidase Detector

	Revision:	04/19/2015
Supersedes	Revision:	12/01/2010

	Autoigni	ition Pt:	No data.				
9.2	Other Inf	ormation					
	Percent	Volatile:	No data.				
			Section 10. Stability	and Reactiv	/ity		
10.1	Reactivi	ty:	No data available.				
10.2	Stability	:	Unstable [] Stable [X]				
10.3	Stability	Note(s):	Stable if stored in accordance with	information listed o	n the product	insert.	
	Polymer	ization:	Will occur [] Will not occur [>	(]			
10.4	Conditio	ons To Avoid:	No data available.				
10.5	Incompa	atibility - Materials	strong oxidizing agents				
	To Avoid	d:					
10.6	Hazardo	us	carbon dioxide				
	Decomp	osition Or	carbon monoxide				
	Byprodu	icts:	nitrogen oxides				
			Section 11. Toxicolog	gical Informa	tion		
11.1	Informat	tion on	The toxicological effects of this pro-	duct have not been	thoroughly st	udied.	
	Toxicolo	ogical Effects:					
CAS	#	Hazardous Com	ponents (Chemical Name)	NTP	IARC	ACGIH	OSHA
1191	71-73-2	10-Acetyl-3,7-dih	ydroxyphenoxazine (ADHP)	n.a.	n.a.	n.a.	n.a.
		ļ	Section 12. Ecologi	cal Informati	on	Į	
12.1	Toxicity		Avoid release into the environment		011		
12.1	TOXICITY	•	Runoff from fire control or dilution v		ollution.		
12.2	Persiste	nce and	No data available.				
	Degrada						
12.3	-	mulative	No data available.				
12.0	Potentia						
12.4	Mobility		No data available.				
12.5	-		No data available.				
12.5	assessn						
12.6		lverse effects:	No data available.				
12.0	Other ac			<u> </u>			
			Section 13. Disposal				
13.1	Waste D	isposal Method:	Dispose in accordance with local, s		-		
			Section 14. Transp	ort Informati	on		
14.1	LAND T	RANSPORT (US I	DOT):				
	OT Prope	r Shipping Name:	Not dangerous goods.				
	OT Hazar	d Class:					
U	IN/NA Nun	nber:					
14.1	LAND T	RANSPORT (Euro	opean ADR/RID):				
A	DR/RID S	hipping Name:	Not dangerous goods.				
U	IN Numbe	r:					
н	lazard Cla	SS:					
						-	
						N	Aulti-region forma



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14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name:

Not dangerous goods.

Additional Transport

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

Information:

Section 15. Regulatory Information

CAS #	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)		
119171-73-2	10-Acetyl-3,7-dih	ydroxyphenoxazine (ADHP)	No	No	No		
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA or	State Lists	•		
119171-73-2	10-Acetyl-3,7-dih	ydroxyphenoxazine (ADHP)	CAA HAP,ODC: PROP.65: No	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No			
Regulatory Info Statement:	ormation	This SDS was prepared in acc No.1272/2008.	cordance with 29 CFF	1910.1200 and Re	egulation (EC)		
		Section 16. Of	ther Informatio	n			
Revision Date:		04/19/2015					
Additional Info	rmation About	No data available.					
This Product:							
This Product: Company Policy or Disclaimer:		DISCLAIMER: This information currently available to us. Howe express or implied, with respec- use. Users should make their their particular purposes.	ever, we make no war ct to such information	ranty of merchanta , and we assume n	bility or any other warranty o liability resulting from its		



SAFETY DATA SHEET Xanthine Oxidase Horseradish Peroxidase

Revision: 04/19/2015 Supersedes Revision: 07/07/2010 according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008 Section 1. Identification of the Substance/Mixture and of the Company/Undertaking 1.1 **Product Code:** 10010976 Product Name: Xanthine Oxidase Horseradish Peroxidase 1.2 Relevant identified uses of the substance or mixture and uses advised against: Relevant identified uses: For research use only, not for human or veterinary use. 1.3 Details of the Supplier of the Safety Data Sheet: **Company Name:** Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 Web site address: www.caymanchem.com Information: Cayman Chemical Company +1 (734)971-3335 1.4 Emergency telephone number: **Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300 CHEMTREC Outside USA and Canada: +1 (703)527-3887 Section 2. Hazards Identification 2.1 **Classification of the Substance or Mixture:** 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]: Skin Corrosion/Irritation, Category 2 Serious Eye Damage/Eye Irritation, Category 2 **Respiratory Sensitization, Category 1** Specific Target Organ Toxicity (single exposure), Category 3 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]: **GHS Signal Word:** Danger **GHS Hazard Phrases:** H315: Causes skin irritation. H319: Causes serious eye irritation. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335: May cause respiratory irritation. **GHS Precaution Phrases:** P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}. P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye protection/face protection}. P285: In case of inadequate ventilation wear respiratory protection. **GHS Response Phrases:** P302+352: IF ON SKIN: Wash with plenty of soap and water. P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

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	P332+	313: If skin irritation	n occurs, get medical advice/a	ttention.					
	P337+	313: If eye irritatior	n persists, get medical advice/	attention.					
		-	g respiratory symptoms call a		or doctor/physicia	n.			
		-	aminated clothing and wash it						
		Storage and Dispo							
			for Storage and Section 13 for	-	on.				
2.3	Advers	e Human Health	Causes skin and serious eye						
	Effects	and Symptoms:	Material may be irritating to t	he mucous membra	anes and upper re	spiratory tract.			
			May be harmful by inhalation	, ingestion, or skin	absorption.				
			May cause allergy or asthma	a symptoms or breat	thing difficulties if	inhaled.			
			May cause respiratory syste	m irritation.					
			To the best of our knowledge	e, the toxicological p	properties have no	t been thoroughly investigated.			
		Soot	tion 2 Composition	Information	on Ingradia	ata			
		Seci	tion 3. Composition	momation	on ingreate	ins .			
CAS	#/	Hazardous Com	oonents (Chemical Name)/	Concentration	EC No./	GHS Classification			
RTEC	S #	REACH Registra	tion No.		EC Index No.				
9003	3-99-0	Horseradish peroxid	ase Type IV	1.0 -15.0 %	232-668-6	Resp. Sens. 1: H334			
NA					NA				
77-	86-1	Trizma base		85.0 -99.0 %	201-064-4	Skin Corr. 2: H315			
TY290					NA	Eye Damage 2: H319			
						STOT (SE) 3: H335 H336			
<u> </u>					_				
			Section 4. Fi	rst Aid Meas	ures				
					uico				
4.1	-	otion of First Aid	No data available.						
	Measur	es:							
	In Case	of Inhalation:	Remove to fresh air. If not br	eathing, give artifici	al respiration or gi	ve oxygen by trained personnel.			
			Get immediate medical atten	tion.					
	In Case	of Skin Contact:	Immediately wash skin with s	oap and plenty of w	vater for at least 1	5 minutes. Remove contaminated			
			clothing. Get medical attention	n if symptoms occu	r. Wash clothing b	pefore reuse.			
	In Case	of Eve Contact:	-		-				
	in ouse		Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.						
	I. 0								
	In Case	of Ingestion:	Wash out mouth with water provided person is conscious. Never give anything by mouth to an						
				person. Get medical attention. Do NOT induce vomiting unless directed to do so by					
			medical personnel.						
			Section 5. Fire	Fiahtina Me	asures				
	Quitable	- Futin autobin a		<u> </u>					
5.1		e Extinguishing	Use alcohol-resistant foam,		-	i spray.			
	Media:		Use water spray to cool fire-						
	Unsuita	able Extinguishing	A solid water stream may be	inefficient.					
	Media:								
5.2	Flamma	able Properties an	d No data available.						
	Hazard	s:							
	Flash P	·+-	No data.						
					lata				
	-	ive Limits:	LEL: No data.	UEL: No c	iala.				
	Autoigr	nition Pt:	No data.						
5.3	Fire Fig	hting Instructions	s: As in any fire, wear self-cont	ained breathing app	paratus pressure-o	demand (NIOSH approved or			
			equivalent), and full protective	e gear to prevent c	ontact with skin ar	nd eyes.			
						Multi-region format			
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Xanthine Oxidase Horseradish Peroxidase

.1 P								
 B.1 Protective Precautions, Avoid breathing vapors and provide adequate ventilation. Protective Equipment and As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or res 								
	Protective Equipment and As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or Emergency Procedures: and appropriate personal protection (rubber boots, safety goggles, and heavy rubber g							
E	Emergency Procedures	: and appropriate pers	sonal protection (rubber	boots, safety goggles, and h	neavy rubber gloves).			
5.2 E	2 Environmental Take steps to avoid release into the environment, if safe to do so.							
P	Precautions:							
 Methods and Material For Contain spill and collect, as appropriate. Containment and CleaningTransfer to a chemical waste container for disposal in accordance with local 								
C	Containment and Clean	ingTransfer to a chemic	cal waste container for c	disposal in accordance with lo	ocal regulations.			
U	Jp:							
		Section 7	. Handling and	Storage				
7.1 P	Precautions To Be Take	n Avoid breathing dust	/fume/gas/mist/vapours/	/spray.				
ir	n Handling:	Avoid prolonged or re	epeated exposure.					
7.2 P	Precautions To Be Take	n Keep container tightl	y closed.					
ir	n Storing:	Store in accordance	with information listed o	on the product insert.				
	So	ction 8 Expos	Ire Controls/Pe	rsonal Protection				
3.1 Ex	Exposure Parameters:							
CAS #	Partial Chemica	al Name	Britain EH40	France VL	Europe			
9003-9	99-0 Horseradish per	oxidase Type IV	No data.	No data.	No data.			
77-86			No data.	No data.	No data.			
		al Name	OSHA TWA	ACGIH TWA	Other Limits			
CAS #	Partial Chemica		OSHA TWA No data.	ACGIH TWA No data.	Other Limits			
CAS # 9003-9	99-0 Horseradish per							
CAS # 9003-9 77-86	Partial Chemica 99-0 Horseradish per 6-1 Trizma base		No data.	No data.	No data.			
CAS # 9003-9 77-86 3.2 E	Partial Chemica 99-0 Horseradish per 6-1 Trizma base Exposure Controls:	oxidase Type IV	No data. No data.	No data. No data.	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E	Partial Chemica 99-0 Horseradish per 6-1 Trizma base Exposure Controls: Engineering Controls	oxidase Type IV Use process enclosu	No data. No data.	No data.	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E	Partial Chemica 99-0 Horseradish per 6-1 Trizma base Exposure Controls: Engineering Controls Ventilation etc.):	oxidase Type IV Use process enclosu levels below recomm	No data. No data. ures, local exhaust venti	No data. No data.	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E (1) 3.2.2 P	Partial Chemica 99-0 Horseradish per 6-1 Trizma base Exposure Controls: Engineering Controls Ventilation etc.): Personal protection equilibrium	oxidase Type IV Use process enclosu levels below recomm	No data. No data. ures, local exhaust venti	No data. No data.	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E (1) 3.2.2 P 5.2.2 P	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:	oxidase Type IV Use process enclosu levels below recomm uipment: Safety glasses	No data. No data. ures, local exhaust venti nended exposure limits.	No data. No data.	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E ((3.2.2 F 8.2.2 F E P	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:	oxidase Type IV Use process enclosu levels below recomm Jipment: Safety glasses Compatible chemical	No data. No data. ures, local exhaust venti nended exposure limits.	No data. No data.	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E ((3.2.2 P 5.2.2 P E P C	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:Other Protective Clothir	oxidase Type IV Use process enclosu levels below recomm uipment: Safety glasses Compatible chemica ng: Lab coat	No data. No data. ures, local exhaust venti nended exposure limits. I-resistant gloves	No data. No data. lation, or other engineering c	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E ((3.2.2 F 8.2.2 F C P C C R	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:Other Protective ClothirRespiratory Equipment	oxidase Type IV Use process enclosu levels below recomm uipment: Safety glasses Compatible chemica ng: Lab coat	No data. No data. ures, local exhaust venti nended exposure limits.	No data. No data. lation, or other engineering c	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E (1) 3.2.2 P 8.2.2 P C C C R (1)	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:Other Protective ClothirRespiratory EquipmentSpecify Type):	oxidase Type IV Use process enclosu levels below recomm Jipment: Safety glasses Compatible chemical ng: Lab coat NIOSH approved res	No data. No data. ures, local exhaust ventinended exposure limits. I-resistant gloves spirator, as conditions w	No data. No data. lation, or other engineering c	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E ((3.2.2 F 8.2.2 F C 8.2.2 F C R ((V	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:Other Protective ClothirRespiratory EquipmentSpecify Type):Work/Hygienic/Maintena	oxidase Type IV Use process enclosu levels below recomm Jipment: Safety glasses Compatible chemical ng:Lab coat NIOSH approved res	No data. No data. ures, local exhaust venti nended exposure limits. I-resistant gloves spirator, as conditions w	No data. No data. lation, or other engineering c	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E ((3.2.2 F 8.2.2 F C 8.2.2 F C R ((V	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:Other Protective ClothirRespiratory EquipmentSpecify Type):	oxidase Type IV Use process enclosu levels below recomm Jipment: Safety glasses Compatible chemical ng:Lab coat NIOSH approved res	No data. No data. ures, local exhaust venti nended exposure limits. I-resistant gloves spirator, as conditions w	No data. No data. lation, or other engineering c	No data. No data.			
CAS # 9003-9 77-86 3.2 E 3.2.1 E ((3.2.2 F 8.2.2 F C 8.2.2 F C R ((V	Partial Chemica99-0Horseradish per6-1Trizma baseExposure Controls:Engineering ControlsVentilation etc.):Personal protection equEye Protection:Protective Gloves:Other Protective ClothirRespiratory EquipmentSpecify Type):Work/Hygienic/Maintena	oxidase Type IV Use process enclosu levels below recomm Jipment: Safety glasses Compatible chemical ng: Lab coat NIOSH approved res an Do not take internally Facilities storing or u	No data. No data. ures, local exhaust ventinended exposure limits. I-resistant gloves spirator, as conditions w y. tilizing this material sho	No data. No data. lation, or other engineering c	No data. No data.			



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	In fam. d							roperties		
.1	Information on Basic Physical and Chemical Properties						-1			
	Physical States: Appearance and Odor: Melting Point: Boiling Point: Flash Pt:				[] Liquid	[X] Soli	d			
				A lyophilized No data.	powaer					
				No data.						
				No data.						
		isn Pt: aporation Rate: plosive Limits:		No data.						
	=			LEL: No dat	2		UEL: No	n data		
	-	ssure (vs. Air or	r mm	No data.	а.		OLL. N	Juala.		
	Hg):			No data.						
		sity (vs. Air = 1)):	No data.						
	Specific G	ravity (Water =	1):	No data.						
	Solubility	in Water:		No data.						
	Autoignitio	on Pt:		No data.						
9.2	Other Infor	mation								
	Percent Vo			No data.						
			S	ection 10) Stahi	ility and	Reacti	vitv		
0.1	Reactivity			a available.	7. Otabi	inty and	ποαυι	vity		
10.2	Stability:	•			able [X]					
0.3	Stability N	ote(s).				with informa	tion listed (on the product	insert	
0.0	Polymeriza				/ill not occi					
0.4	-	s To Avoid:		a available.		սլչյ				
10.4		bility - Materials								
10.5	To Avoid:	billty - Materials	no uai	a avaliable.						
10.6	Hazardous		No dat	a available.						
10.0	Decompos		NU UAI	a avaliable.						
	Byproduct									
	Byproduct		<u> </u>	ation 11	Tavia		l o fo roo	otion		
				ction 11.						
11.1	Informatio			-		-		n thoroughly st		· 2 000 ma/k
	Ioxicologi	ical Effects:	Trizma base - Toxicity Data: Oral LDLO (rabbit): 1,000 mg/kg; Oral TDLO (mouse): 3,000 mg/kg; Oral LD50 (rat) >3,000 mg/kg; Oral LD50 (mouse): 5,500 mg/kg; Oral TDLO (rat): 3,000 mg/kg;							
	Chronic T	oxicological		Trizma base - Investigated as a reproductive effector.						
	Effects:	oxicological			•	-			CS) data is pre	sented here
				ctual entry in F						
				base RTECS		-				
CAS	# F	lazardous Com	ponent	s (Chemical	Name)		NTP	IARC	ACGIH	OSHA
9003-99-0		lorseradish perox	xidase ⁻	Type IV			n.a.	n.a.	n.a.	n.a.
900	-86-1 Trizma base			n.a.	na		n.a.	n.a.		



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Section 12. Ecological Information											
12.1	-										
		Runoff from fire control or dilution water may cause pollution.									
12.2	Persiste	sistence and No data available.									
	Degrada	Degradability:									
12.3		ccumulative No data available.									
	Potentia										
12.4	-	y in Soil: No data available.									
12.5	Results assessr		f PBT and vPvB No data available. ent:								
12.6	Other ad	dverse effects:	No data available.								
			Section 13. Dispo	sal Considera	ations						
13.1	Waste D	Disposal Method:	Dispose in accordance with loo	cal, state, and federa	l regulations.						
			Section 14. Trar	nsport Informa	ation						
14.1	LAND T	RANSPORT (US I	DOT):								
D	OT Prope	er Shipping Name:	Not dangerous goods.								
D	OT Hazar	d Class:									
U	N/NA Nur	mber:									
14.1		RANSPORT (Euro									
		hipping Name:	Not dangerous goods.								
_	N Numbe										
п 14.3	lazard Cla		ATA).								
		ANSPORT (ICAO/I Shipping Name:	Not dangerous goods.								
	tional Tra		Transport in accordance with I	local state and fede	ral regulations						
	mation:	nsport			rai regulatione.						
			Section 15. Regu	ulatory Inform	ation						
EPA	SARA (Si	perfund Amendm	ents and Reauthorization Act	•							
CAS	#	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)					
900)3-99-0	Horseradish pero	xidase Type IV	No	No	No					
77	'-86-1	Trizma base		No	No	Yes-Cat. N106					
CAS	#	Hazardous Com	ponents (Chemical Name)	Other US EPA o	r State Lists						
900)3-99-0	Horseradish pero	xidase Type IV	CAA HAP,ODC: Inventory; CA P	No; CWA NPDES: ROP.65: No	No; TSCA: Yes -					
77	'-86-1	Trizma base		CAA HAP,ODC: Inventory; CA P		S: No; TSCA: Yes -					



SAFETY DATA SHEET Xanthine Oxidase Horseradish Peroxidase

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Supersedes Revision: 07/07/2010 Regulatory Information This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) Statement: No.1272/2008. Section 16. Other Information Revision Date: 04/19/2015 Additional Information About No data available. This Product: Company Policy or Disclaimer: DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.