

Caj	iman	Fluorometric Developer K	8	Revision: 02/09/2017 edes Revision: 02/10/2015
	ac	cording to Regulation (EC) No. 1907/2006 as amended by (	(EC) No. 1272/2008	
	Section 1.	Identification of the Substance/Mixture and of th	ne Company/Underta	aking
1.1	Product Code: Product Name:	700004 Fluorometric Developer Reagent		
1.2	Relevant identified uses	of the substance or mixture and uses advised ag	ainst:	
	Relevant identified uses	•		
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 nu	mber:		
	Emergency Contact:	CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424- +1 (703)527-	
		Section 2. Hazards Identification	ation	
2.1	Classification of the Sub	stance or Mixture:		
2.2		ye Irritation, Category 2A Foxicity (single exposure), Category 3		
	GHS Signal Word:	Warning		
	GHS Hazard Phrases:			
	H315: Causes skin irritat H319: Causes serious ey H335: May cause respira	e irritation.		
	<b>GHS Precaution Phrase</b>	es:		
	P362+364: Take off cont	loves/protective clothing/eye protection/face protectionaminated clothing and wash it before reuse.	on}.	
		ust/fume/gas/mist/vapours/spray}.		
	GHS Response Phrase			
		Wash with plenty of soap and water.		
		n occurs, get medical advice/attention. 'ES: Rinse cautiously with water for several minutes.	Remove contact lense	es, if present and easy
	-	n persists, get medical advice/attention.		
	-	N CENTER or doctor/physician if exposed or you fee	el unwell.	
		Remove victim to fresh air and keep at rest in a posi		eathing.
	GHS Storage and Dispo			č
		for Storage and Section 13 for Disposal information.		

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2.3	Advers	e Human Health	Causes serious eye irritation			
		e Human Health and Symptoms:	Causes skin irritation.			
	Encots	and cymptoms.	Material may be irritating to t	he mucous membra	nes and upper re	spiratory tract.
			May be harmful by inhalation			
			May cause respiratory syster		·	
			To the best of our knowledge	e, the toxicological p	roperties have no	t been thoroughly investigated.
		Sec	tion 3. Composition	/Information	on Ingredie	nts
CAS RTEC		Hazardous Com REACH Registra	oonents (Chemical Name)/ tion No.	Concentration	EC No./ EC Index No.	GHS Classification
NA		Fluorometric Develo	per Reagent	100.0 %	NA	Skin Corr. 2: H315
NA					NA	Eye Damage 2A: H319 STOT (SE) 3: H335 H336
		·	Section 4. Fi	rst Aid Measu	ures	
l.1	-	ption of First Aid				
	Measu		Domovo to freeh sin If not	oothing size - diff	I roopiration and	
	in Case	e of Inhalation:	Get immediate medical attent		respiration or gr	ve oxygen by trained personnel
	In Case	e of Skin Contact:	Immediately wash skin with s	oap and plenty of wa	ater for at least 15	5 minutes. Remove contaminate
			clothing. Get medical attentio	n if symptoms occur	. Wash clothing b	efore reuse.
	In Case	e of Eye Contact:	Hold eyelids apart and flush e and tested by medical persor		ater for at least 1	5 minutes. Have eyes examine
	In Case	e of Ingestion:	Wash out mouth with water p		nscious. Never g	ive anything by mouth to an
			unconscious person. Get me	dical attention. Do N	OT induce vomiti	ng unless directed to do so by
			medical personnel.			
			Section 5. Fire	Fighting Mea	asures	
5.1	0.14.1.1	le Extinguishing	Use alcohol-resistant foam, o		r, or dry chemical	spray.
			I las contan an an its an al factor			
	Media:		Use water spray to cool fire-e	-		
	Media: Unsuita	able Extinguishing	Use water spray to cool fire-e A solid water stream may be	-		
5.2	Media: Unsuita Media:	able Extinguishing		-		
5.2	Media: Unsuita Media:	able Extinguishing able Properties an	A solid water stream may be	-		
5.2	Media: Unsuita Media: Flamm	able Extinguishing able Properties an	A solid water stream may be	-		
5.2	Media: Unsuita Media: Flamm	able Extinguishing able Properties an Is:	A solid water stream may be dNo data available.	-		
5.2	Media: Unsuita Media: Flamm Hazard Flash F	able Extinguishing able Properties an Is:	A solid water stream may be dNo data available. No data available.	-	ata.	
5.2	Media: Unsuita Media: Flamm Hazard Flash F Explos	able Extinguishing able Properties an Is: Pt:	A solid water stream may be dNo data available. No data available. No data.	inefficient.	ata.	
5.2	Media: Unsuita Media: Flamm Hazard Flash F Explos Autoig	able Extinguishing able Properties an ls: Pt: ive Limits: nition Pt:	A solid water stream may be dNo data available. No data available. No data. LEL: No data.	inefficient. UEL: No da		emand (NIOSH approved or



	c,	Section 6. Accidental Release Measures
6.1	Protective Equipment and	Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
6.2		Take steps to avoid release into the environment, if safe to do so.
6.3	Precautions: Methods and Material For	Contain spill and collect, as appropriate.
		Transfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1		Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taken	Keep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Section	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:	_ab coat
	Respiratory Equipment	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 and a safety shower.
	l l	Nash thoroughly after handling.
	1	No data available.
	Se	ction 9. Physical and Chemical Properties
9.1	Information on Basic Physic	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.
	vapor Density (vs. All = 1):	no dala.
		Multi-region format

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	Specific Gravity (Water =	1): No data.				
	Solubility in Water:	No data.				
	Octanol/Water Partition	No data.				
	Coefficient:					
	Autoignition Pt:	No data.				
	Decomposition Temperat	ure: No data.				
	Viscosity:	No data.				
9.2	Other Information					
	Percent Volatile:	No data.				
		Section 10. Stability	and Reactiv	rity		
10.1	Reactivity:	No data available.				
10.2	Stability:	Unstable [ ] Stable [ X ]				
10.3	Stability Note(s):	Stable if stored in accordance with i	nformation listed o	n the product	insert.	
	Polymerization:	Will occur [ ] Will not occur [ X	]			
10.4	Conditions To Avoid:	No data available.				
10.5	Incompatibility - Materials	s strong oxidizing agents				
	To Avoid:					
10.6	Hazardous	carbon dioxide				
	Decomposition or	carbon monoxides				
	Byproducts:	nitrogen oxides				
		•				
		sodium oxides				
			gical Informa	tion		
11.1	Information on	sodium oxides	•		udied.	
11.1		sodium oxides Section 11. Toxicolog	•		udied.	
	Information on Toxicological Effects:	sodium oxides Section 11. Toxicolog	•		udied.	OSHA
	Information on Toxicological Effects:	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name)	duct have not been	thoroughly st		OSHA n.a.
11.1 CAS ;	Information on Toxicological Effects: # Hazardous Com	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name)	duct have not been NTP n.a.	thoroughly st IARC n.a.	ACGIH	_
CAS	Information on Toxicological Effects: # Hazardous Com	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) reloper Reagent	NTP n.a. n.a.	thoroughly st IARC n.a.	ACGIH	_
CAS	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) eloper Reagent Section 12. Ecologic	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
CAS ;	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) eloper Reagent Section 12. Ecologic Avoid release into the environment.	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
CAS ; 12.1	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev Toxicity:	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) eloper Reagent Section 12. Ecologic Avoid release into the environment. Runoff from fire control or dilution w	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
CAS ; 12.1 12.2	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev Toxicity: Persistence and	sodium oxides Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) eloper Reagent Section 12. Ecologic Avoid release into the environment. Runoff from fire control or dilution w	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
CAS ; 12.1 12.2	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev Toxicity: Persistence and Degradability:	sodium oxides  Section 11. Toxicolog  The toxicological effects of this prod  ponents (Chemical Name)  eloper Reagent  Section 12. Ecologic  Avoid release into the environment. Runoff from fire control or dilution w No data available.	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
11.1 CAS ; 12.1 12.2 12.3 12.4	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev Toxicity: Persistence and Degradability: Bioaccumulative Potential:	sodium oxides  Section 11. Toxicolog  The toxicological effects of this prod  ponents (Chemical Name)  eloper Reagent  Section 12. Ecologic  Avoid release into the environment. Runoff from fire control or dilution w No data available.	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
CAS ; 12.1 12.2 12.3 12.4	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev Toxicity: Persistence and Degradability: Bioaccumulative Potential: Mobility in Soil:	sodium oxides  Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) eloper Reagent  Section 12. Ecologic Avoid release into the environment. Runoff from fire control or dilution w No data available. No data available. No data available.	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_
CAS ; 12.1 12.2 12.3	Information on Toxicological Effects: # Hazardous Com NA Fluorometric Dev Toxicity: Persistence and Degradability: Bioaccumulative Potential:	sodium oxides  Section 11. Toxicolog The toxicological effects of this prod ponents (Chemical Name) eloper Reagent  Section 12. Ecologic Avoid release into the environment. Runoff from fire control or dilution w No data available. No data available. No data available.	NTP n.a. n.a.	thoroughly st IARC n.a. DN	ACGIH	_



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		Section 13. Dispo	sal Considera	itions	
13.1 Waste D	isposal Method:	Dispose in accordance with loc	cal, state, and federal	regulations.	
		Section 14. Trar	nsport Informa	ition	
14.1 LAND T	RANSPORT (US	DOT):			
DOT Prope	er Shipping Name	Not dangerous goods.			
DOT Hazar	d Class:				
UN/NA Nur	nber:				
	-	opean ADR/RID):			
	hipping Name:	Not dangerous goods.			
UN Numbe Hazard Cla					
	ANSPORT (ICAO/	/ΙΑΤΑ):			
	Shipping Name:	-			
Additional Tra		Transport in accordance with	ocal, state, and feder	al regulations.	
Information:					
		Section 15. Regu	latory Informa	ation	
EPA SARA (Su	perfund Amendn	nents and Reauthorization Act	•		
CAS #	-	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
NA	Fluorometric Dev	veloper Reagent	No	No	No
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA or	State Lists	ł
NA	Fluorometric Dev	veloper Reagent	CAA HAP,ODC: I PROP.65: No	No; CWA NPDES	: No; TSCA: No; CA
Regulatory Info	ormation	This SDS was prepared in acc	ordance with 29 CFR	1910.1200 and R	egulation (EC)
Statement:		No.1272/2008.			
		Section 16. Ot	her Informatio	n	
Revision Date:		02/09/2017			
Additional Info	rmation About	No data available.			
This Product:					
Company Polic	y or Disclaimer:	DISCLAIMER: This information		•	
		currently available to us. Howe express or implied, with respec		•	
		use. Users should make their			
		their particular purposes.			



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		ac	cording to Regulation (EC) No. 19	07/2006 as amended I	by (EC) No. 1272/200	08			
		Section 1.	Identification of the Substan	nce/Mixture and o	f the Company/U	ndertaking			
1.1	Product	Code:	700014						
	Product	Name:	HEPES Buffer (500 mM	; pH 8.0)					
1.2	Relevan	t identified uses	of the substance or mixture	and uses advised	against:				
	Releva	ant identified uses	s: For research use only, n	ot for human or vet	erinary use.				
1.3	Details	of the Supplier of	the Safety Data Sheet:						
	Comp	any Name:	Cayman Chemical Com 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	bany					
	Web s	ite address:	www.caymanchem.com						
	Inform	nation:	Cayman Chemical Com	pany	+1 (73	4)971-3335			
1.4	Emerge	ncy telephone nu	mber:						
	Emerg	gency Contact:	CHEMTREC Within USA	A and Canada:	+1 (80	00)424-9300			
			CHEMTREC Outside US	SA and Canada:	+1 (70	03)527-3887			
			Section 2. Ha	zards Identif	ication				
2.1	Classifi	cation of the Subs	stance or Mixture:						
2.2	Label Elements:								
	GHS S	Signal Word:	None						
		Hazard Phrases:							
	Based	l on evaluation of c	currently available data this sub	stance or mixture is	s not classifiable ad	ccording to GHS.			
	GHS F	Precaution Phrase	es:						
	No ph	rases apply.							
	GHS F	Response Phrase	s:						
	No ph	rases apply.							
	GHS S	GHS Storage and Disposal Phrases:							
	Please	e refer to Section 7	for Storage and Section 13 fo	r Disposal informati	on.				
2.3	Advers	e Human Health	Material may be irritating to	the mucous membra	anes and upper re	spiratory 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	e, the toxicological p	properties have no	t been thoroughly investigated.			
		Sec	tion 3. Composition	n/Information	on Ingredie	nts			
CAS	#/	Hazardous Com	ponents (Chemical Name)/	Concentration	EC No./	GHS Classification			
RTE	CS #	REACH Registra	ation No.		EC Index No.				
	5-45-9	HEPES, free acid		11.91 %	230-907-9	No data available.			
TL68	09000				NA				
		Water		88.09 %	231-791-2	No data available.			
	2-18-5 10000				NA				



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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 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
	In Case of Eye Contact:	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
	In Case of Ingestion:	Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
		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 Precautions:	Take steps to avoid release into the environment, if safe to do so.
6.3		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 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.
	Sec	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	



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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	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 and a safety shower
		Wash thoroughly after handling.
		No data available.
	Se	ection 9. Physical and Chemical Properties
9.1		sical and Chemical Properties
	Physical States:	[]Gas [X]Liquid []Solid
	Appearance and Odor:	10 ml of 500 mM HEPES, pH 8.0
	pH:	8.0
	Melting Point:	No data.
	Boiling Point:	No data.
	Flash Pt:	No data.
	Evaporation Rate:	No data.
	Flammability (solid, gas):	
	Explosive Limits:	LEL: No data. UEL: No data.
	Vapor Pressure (vs. Air o	
	Hg):	
	Vapor Density (vs. Air = 1	): No data.
	Specific Gravity (Water =	1): No data.
	Solubility in Water:	No data.
	<b>Octanol/Water Partition</b>	No data.
	Coefficient:	
	Autoignition Pt:	No data.
	Decomposition Temperat	ure: No data.
	Viscosity:	No data.
9.2	Other Information	
	Percent Volatile:	No data.
		Section 10. Stability and Reactivity
10.1	Reactivity:	No data available.
10.2	Stability:	Unstable [ ] Stable [ X ]
10.3	Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
	Polymerization:	Will occur [ ] Will not occur [ X ]
10.4	Conditions To Avoid:	No data available.
10.5	Incompatibility - Materials	
	To Avoid:	
10.6	Hazardous	No data available.
10.0	1 12221 4043	
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		waaregion torma



Multi-region format

	Decomposition or								
	Byproducts:								
	Section 11. Toxicological Information								
11.1	<b>1 Information on</b> The toxicological effects of this product have not been thoroughly studied.								
	Toxicological Effects:								
Carci	nogenicit	<b>y</b> :	NTP? No IARC Monograp	ohs? No	OSHA Re	egulated? No			
CAS	#	Hazardous Com	ponents (Chemical Name)		NTP	IARC	ACGIH	OSHA	
736	65-45-9	HEPES, free acid	1		n.a.	n.a.	n.a.	n.a.	
773	32-18-5	Water			n.a.	n.a.	n.a.	n.a.	
			Section 12. Ecolo	ogical Inf	ormat	ion			
12.1	Toxicity	:	Avoid release into the environn	nent.					
			Runoff from fire control or diluti	on water may	cause po	ollution.			
12.2	Persiste	ence and	No data available.						
	Degrada	ability:							
12.3	Bioaccu	Imulative	No data available.						
	Potentia								
12.4	Mobility		No data available.						
12.5			No data available.						
	assessr		<b>N</b> 17 <b>N</b> 11						
12.6	Other a	dverse effects:	No data available.						
			Section 13. Dispo	sal Cons	iderat	ions			
13.1	Waste D	Disposal Method:	Dispose in accordance with loc	al, state, and	federal re	egulations.			
			Section 14. Trar	nsport Inf	ormat	ion			
14.1	LAND T	RANSPORT (US	DOT):						
	OT Prope	er Shipping Name	Not dangerous goods.						
	OT Hazar	d Class:							
U	IN/NA Nur	mber:							
14.1		RANSPORT (Euro							
		hipping Name:	Not dangerous goods.						
_	IN Numbe lazard Cla								
			AT A \.						
14.3		ANSPORT (ICAO/ Shipping Name:	Not dangerous goods.						
	tional Tra		Transport in accordance with le	ocal state ar	nd federal	regulations			
	mation:	nsport		ooui, otato, ui		rogulationo.			
_			Section 15. Regu	latory Inf	format	ion			
		uporfund Amondm	nents and Reauthorization Act						
CAS		1	ponents (Chemical Name)	S. 302 (EI		S. 304 RQ	S. 313	3 (TRI)	
		HEPES, free acid	,	No		No	No	× /	
773	32-18-5	Water		No		No	No		
		1		-			<b> </b>		



CAS # Hazardous Com		ponents (Chemical Name)	Other US EPA or State Lists
7365-45-9	5-45-9 HEPES, free acid		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 accor No.1272/2008.	dance with 29 CFR 1910.1200 and Regulation (EC)
		Section 16. Oth	er Information
Revision Date:		02/09/2017	
Additional Info This Product:	rmation About	No data available.	
Company Policy or Disclaimer:		currently available to us. However express or implied, with respect	s 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



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		accor	ding to Regulation (EC) No. 190	7/2006 as amended by	(EC) No. 1272/200	8
		Section 1. Id	entification of the Substar	nce/Mixture and of t	he Company/U	ndertaking
1.1	Product Product		700015 NADH Standard			
1.2	Relevan	t identified uses of	the substance or mixture a	and uses advised ag	gainst:	
	Releva	int identified uses:	For research use only, no	ot for human or veter	inary use.	
1.3	Details o	of the Supplier of the	e Safety Data Sheet:			
	Compa	any Name:	Cayman Chemical Comp 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	pany		
	Web s	te address:	www.caymanchem.com			
	Inform	ation:	Cayman Chemical Comp	bany	+1 (734	4)971-3335
1.4	-	ncy telephone numb ency Contact:	Der: CHEMTREC Within USA CHEMTREC Outside US			0)424-9300 3)527-3887
			Section 2. Haz	zards Identific	ation	
2.1 2.2 2.3	Label El GHS S GHS H Based GHS F No phi GHS S Please	ignal Word: lazard Phrases: on evaluation of curr Precaution Phrases: ases apply. Response Phrases: ases apply. Storage and Disposa refer to Section 7 fo	<b>None</b> rently available data this sub	Disposal informatior	٦.	-
	Effects	р I М	May be harmful by inhalation May cause eye, skin, or resp Fo the best of our knowledge	iratory system irritatio	on.	been thoroughly investigated.
		Sectio	on 3. Composition	/Information of	on Ingredie	nts
CAS RTE		Hazardous Compo REACH Registratio	nents (Chemical Name)/ on No.	Concentration	EC No./ EC Index No.	GHS Classification
606 NA	68-8	NADH		100.0 %	210-123-3 NA	No data available.



Revision: 02/09/2017 Supersedes Revision: 08/06/2013

		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 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
	In Case of Eye Contact:	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
	In Case of Ingestion:	Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
		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:	g A solid water stream may be inefficient.
5.2	Flammable Properties an	dNo data available.
	Hazards:	
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	<b>s:</b> As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
		Section 6. Accidental Release Measures
6.1	Protective Precautions,	Avoid raising and breathing dust, and provide adequate ventilation.
	Protective Equipment 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	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:	



8.2	Exposure Controls:						
8.2.1	Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne					
0.2.1	(Ventilation etc.):	levels below recommended exposure limits.					
8.2.2	Personal protection equip						
0.2.2	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	-					
	ce Practices:	Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.					
		Wash thoroughly after handling.					
		No data available.					
	Se	ection 9. Physical and Chemical Properties					
9.1	Information on Basic Phys	ical 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 Temperat						
	Viscosity:	No data.					
9.2	Other Information						
5.2	Percent Volatile:	No data.					
		Section 10. Stability and Reactivity					
10.1	Reactivity:	No data available.					
10.2	Stability:	Unstable [ ] Stable [ X ]					
10.3	Stability Note(s):	Stable if stored in accordance with information listed on the product insert.					
	Polymerization:	Will occur [ ] Will not occur [ X ]					
10.4	Conditions To Avoid:	No data available.					
10.5	Incompatibility - Materials						
	To Avoid:						
10.6	Hazardous	carbon dioxide					
		carbon monoxide					
		Multi-region format					



	Decomp Byprod	oosition or	nitrogen oxides					
	71		Section 11. Toxico	logical Inf	orma	tion		
L	Informa	tion on	The toxicological effects of this				udied.	
	Toxicological Effects:							
CAS	#	Hazardous Com	ponents (Chemical Name)	NT	P	IARC	ACGIH	OSHA
60	6-68-8	NADH		n.a	ì.	n.a.	n.a.	n.a.
			Section 12. Ecolo	gical Infor	matio	Dn		
12.1								
			Runoff from fire control or dilution	on water may ca	ause pol	lution.		
12.2	Persiste	ence and	No data available.					
	Degrada	ability:						
12.3	Bioaccu	ımulative	No data available.					
	Potentia	al:						
12.4	Mobility	in Soil:	No data available.					
12.5	Results	of PBT and vPvB	No data available.					
	assessr	nent:						
12.6	Other a	dverse effects:	No data available.					
			Section 13. Dispos	sal Consid	eratio	ons		
13.1	Waste D	Disposal Method:	Dispose in accordance with loc	al, state, and fee	deral reç	gulations.		
			Section 14. Tran	sport Infor	rmatio	on		
14.1	LAND 1	RANSPORT (US I	DOT):					
c	OT Prope	er Shipping Name:	Not dangerous goods.					
	OOT Hazar							
ι	JN/NA Nui	nber:						
14.1	LAND 1	RANSPORT (Euro	opean ADR/RID):					
⊿	DR/RID S	hipping Name:	Not dangerous goods.					
ι	JN Numbe	er:						
F	lazard Cla	ISS:						
14.3		ANSPORT (ICAO/	ATA):					
10	CAO/IATA	Shipping Name:	Not dangerous goods.					
Addi	tional Tra	nsport	Transport in accordance with lo	ocal, state, and f	federal r	egulations.		
Infor	mation:							
			Section 15. Regu	latory Info	rmati	on		
EPA	SARA (Sı	perfund Amendm	ents and Reauthorization Act	of 1986) Lists				
CAS	#	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS	)	S. 304 RQ	S. 31	B (TRI)
60	6-68-8	NADH		No		No	No	
CAS	#		ponents (Chemical Name)	Other US EP				
60	6-68-8	NADH		CAA HAP,O Inventory; C			S: No; TSCA	: Yes -
		•		•				
							Ν	/ulti-region forma
							<b>N</b>	



CHIMICAL	Supersedes Revision: 08/06/2013				
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:	02/09/2017				
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.				



	Section 1.	Identification of the Substance/Mixture and of the	he Company/Undertaking
	Product Code:	700802	
	Product Name:	Acetaldehyde Assay Reagent	
2	Relevant identified uses of	of the substance or mixture and uses advised ag	ainst:
	Relevant identified uses	-	
3	Details of the Supplier of	-	
	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	mber:	
	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
.1	Classification of the Subs	tance or Mixture:	
	Carcinogenicity, Catego	ory 2	
.2	Carcinogenicity, Catego Label Elements:	ory 2	
.2		ory 2 Warning	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases:	Warning	
.2	Label Elements:	Warning	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase	Warning ing cancer. <b>s:</b>	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase P201: Obtain special inst	Warning ing cancer. <b>s:</b> ructions before use.	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase P201: Obtain special instr P202: Do not handle until	Warning ing cancer. <b>s:</b> ructions before use. all safety precautions have been read and understo	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase P201: Obtain special inst P202: Do not handle until P280: Wear {protective gl	Warning ing cancer. s: ructions before use. all safety precautions have been read and understo oves/protective clothing/eye protection/face protect	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase P201: Obtain special inste P202: Do not handle until P280: Wear {protective gl GHS Response Phrases	Warning ing cancer. s: ructions before use. all safety precautions have been read and understo loves/protective clothing/eye protection/face protect	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase P201: Obtain special inste P202: Do not handle until P280: Wear {protective gl GHS Response Phrases P308+313: IF exposed or	Warning ing cancer. s: ructions before use. all safety precautions have been read and underste oves/protective clothing/eye protection/face protect : concerned: Get medical attention/advice.	
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrase P201: Obtain special inste P202: Do not handle until P280: Wear {protective gl GHS Response Phrases P308+313: IF exposed or GHS Storage and Dispon	Warning ing cancer. s: ructions before use. all safety precautions have been read and understo loves/protective clothing/eye protection/face protection concerned: Get medical attention/advice.	ion}.
	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of cause GHS Precaution Phrases P201: Obtain special inste P202: Do not handle until P280: Wear {protective gle GHS Response Phrases P308+313: IF exposed or GHS Storage and Dispon Please refer to Section 7	Warning ing cancer. s: ructions before use. all safety precautions have been read and understo oves/protective clothing/eye protection/face protection concerned: Get medical attention/advice. sal Phrases: for Storage and Section 13 for Disposal information	ion}.
.2	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrases P201: Obtain special inste P202: Do not handle until P280: Wear {protective gl GHS Response Phrases P308+313: IF exposed or GHS Storage and Dispo Please refer to Section 7 Adverse Human Health	Warning ing cancer. s: ructions before use. all safety precautions have been read and understa loves/protective clothing/eye protection/face protect loves/protective clothing/eye protection/face protect concerned: Get medical attention/advice. sal Phrases: for Storage and Section 13 for Disposal information Material may be irritating to the mucous membran	ion}. es and upper respiratory tract.
	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of cause GHS Precaution Phrases P201: Obtain special inste P202: Do not handle until P280: Wear {protective gle GHS Response Phrases P308+313: IF exposed or GHS Storage and Dispon Please refer to Section 7	Warning ing cancer. s: ructions before use. all safety precautions have been read and underste loves/protective clothing/eye protection/face protection concerned: Get medical attention/advice. sal Phrases: for Storage and Section 13 for Disposal information Material may be irritating to the mucous membran May be harmful by inhalation, ingestion, or skin ab	ion}. es and upper respiratory tract. osorption.
	Label Elements: GHS Signal Word: GHS Hazard Phrases: H351: Suspected of caus GHS Precaution Phrases P201: Obtain special inste P202: Do not handle until P280: Wear {protective gl GHS Response Phrases P308+313: IF exposed or GHS Storage and Dispo Please refer to Section 7 Adverse Human Health	Warning ing cancer. s: ructions before use. all safety precautions have been read and understa loves/protective clothing/eye protection/face protect loves/protective clothing/eye protection/face protect concerned: Get medical attention/advice. sal Phrases: for Storage and Section 13 for Disposal information Material may be irritating to the mucous membran	ion}. es and upper respiratory tract. osorption.



		Sect	ion 3. Composition	/Information c	on Ingredie	nts	
CAS : RTEC		Hazardous Comp REACH Registra	oonents (Chemical Name)/ tion No.	Concentration	EC No./ EC Index No.	GHS Classification	
-	75-07-0 Acetaldehyde AB1925000			0.43 %	200-836-8 605-003-00-6	Flam. Liq. 1: H224 Eye Damage 2A: H319 STOT (SE) 3: H335 Carcinogen 2: H351	
7732 ZC011	2-18-5 0000	Water		99.57 %	231-791-2 NA	No data available.	
			Section 4. Fi	rst Aid Measu	res		
4.1	Measur	tion of First Aid es: of Inhalation:	Romovo to fresh oir. If not bro	othing give ortificial	respiration or div	e oxygen by trained personnel.	
	III Case	or initialation.	Get immediate medical attent		respiration of giv	e oxygen by trained personnel.	
	In Case	of Skin Contact:	Immediately wash skin with so clothing. Get medical attention			minutes. Remove contaminated efore reuse.	
	In Case	of Eye Contact:	Hold eyelids apart and flush e and tested by medical person		ater for at least 20	) minutes. Have eyes examined	
	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 Mea	sures		
5.1	Suitable	e Extinguishing	Use alcohol-resistant foam, c	<u> </u>		spray.	
	Media:		Use water spray to cool fire-e	exposed containers.			
	Unsuita Media:	ble Extinguishing	A solid water stream may be	inefficient.			
5.2	Flamma Hazards	-	<b>d</b> No data available.				
			No data available.				
	Flash P	t:	No data.				
	Explosi	ve Limits:	LEL: No data.	UEL: No da	ta.		
	Autoigr	ition Pt:	No data.				
5.3	Fire Fig	hting Instructions	As in any fire, wear self-conta equivalent), and full protective	• • • •	•	· · ·	
			Section 6. Acciden	tal Release M	leasures		
6.1 6.2	Protect	ncy Procedures:	Avoid breathing vapors and d As conditions warrant, wear and appropriate personal pro Take steps to avoid release	a NIOSH approved s ptection (rubber boots	elf-contained bre s, safety goggles	athing apparatus, or respirator, , and heavy rubber gloves).	
	Precaut						
6.3			r Contain spill and collect, as a ngTransfer to a chemical waste		al in accordance	with local regulations.	
						Multi-region format	



1		Section 7. Hand	lling and Storage				
7.1							
	in Handling: Avoid prolonged or repeated exposure.						
7.2	•						
		• •	nation listed on the product insert.				
			· · · · · · · · · · · · · · · · · · ·				
	Section	<ol> <li>Exposure Cor</li> </ol>	ntrols/Personal Protection				
3.1	Exposure Parameters:						
CAS #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations			
75-07	-0 Acetaldehyde	ACGIH TLV	CEIL: 25 ppm				
		France VL	TWA: 180 mg/m3 (100 ppm)				
		OSHA PELs	PEL: 200 ppm				
		Britain EH40	TWA: 37 mg/m3 (20 ppm)				
			STEL: 92 mg/m3 (50 ppm)				
3.2	Exposure Controls:						
3.2.1	Engineering Controls Use p	process enclosures, local	exhaust ventilation, or other engineering cont	rols to control airborn			
	(Ventilation etc.): levels	below recommended exp	posure limits.				
3.2.2	Personal protection equipment	:					
		y glasses					
	-	batible chemical-resistant	aloves				
			3				
Other Protective Clothing: Lab coat							
			conditional warrant				
		H approved respirator, as	conditions warrant.				
	(Specify Type):		conditions warrant.				
	(Specify Type): Work/Hygienic/Maintenan Do no	ot take internally.					
	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili	ot take internally. ties storing or utilizing this	material should be equipped with an eyewas	sh and a safety show			
	(Specify Type): Work/Hygienic/Maintenan Done ce Practices: Facili Wash	ot take internally. ties storing or utilizing this n thoroughly after handling	material should be equipped with an eyewas	sh and a safety show			
	(Specify Type): Work/Hygienic/Maintenan Done ce Practices: Facili Wash	ot take internally. ties storing or utilizing this	material should be equipped with an eyewas	sh and a safety show			
	(Specify Type): Work/Hygienic/Maintenan Dono ce Practices: Facili Wash No da	ot take internally. ties storing or utilizing this h thoroughly after handling ata available.	material should be equipped with an eyewas	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Dono ce Practices: Facili Wash No da	ot take internally. ties storing or utilizing this of thoroughly after handling ata available. on 9. Physical ar	material should be equipped with an eyewas	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Sectio	ot take internally. ties storing or utilizing this of thoroughly after handling ata available. on 9. Physical ar	material should be equipped with an eyewas	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a	ot take internally. ties storing or utilizing this n thoroughly after handling ata available. on 9. Physical ar nd Chemical Properties	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Sectio Information on Basic Physical a Physical States:	ot take internally. ties storing or utilizing this in thoroughly after handling ata available. on 9. Physical ar nd Chemical Properties [] Gas [X] Liquid	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
9.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor:	ot take internally. ties storing or utilizing this a thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [] Gas [X] Liquid 200 μl of 100 mM aceta	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
9.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Sectio Information on Basic Physical a Physical States: Appearance and Odor: pH:	ot take internally. ties storing or utilizing this of thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [] Gas [X] Liquid 200 μl of 100 mM aceta No data.	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
9.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point:	ot take internally. ties storing or utilizing this a thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [] Gas [X] Liquid 200 μl of 100 mM aceta No data. No data.	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point: Boiling Point: Flash Pt:	ot take internally. ties storing or utilizing this of thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [] Gas [X] Liquid 200 µl of 100 mM aceta No data. No data. No data.	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Sectio Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point: Boiling Point: Flash Pt: Evaporation Rate:	ot take internally. ties storing or utilizing this a thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [] Gas [X] Liquid 200 μl of 100 mM aceta No data. No data. No data. No data.	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Flammability (solid, gas):	bt take internally. ties storing or utilizing this in thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> []Gas [X] Liquid 200 µl of 100 mM aceta No data. No data. No data. No data. No data. No data. No data. No data.	naterial should be equipped with an eyewas naterial should be equipped with an eyewas	sh and a safety show			
9.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Flammability (solid, gas): Explosive Limits:	ot take internally. ties storing or utilizing this in thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [ ] Gas [ X ] Liquid 200 μl of 100 mM aceta No data. No data. No data. No data. No data. No data. No data. No data. No data. No data.	material should be equipped with an eyewas nd Chemical Properties [] Solid	sh and a safety show			
0.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Flammability (solid, gas): Explosive Limits: Vapor Pressure (vs. Air or mm	bt take internally. ties storing or utilizing this in thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> []Gas [X] Liquid 200 µl of 100 mM aceta No data. No data. No data. No data. No data. No data. No data. No data.	naterial should be equipped with an eyewas naterial should be equipped with an eyewas	sh and a safety show			
9.1	(Specify Type): Work/Hygienic/Maintenan Do no ce Practices: Facili Wash No da Section Information on Basic Physical a Physical States: Appearance and Odor: pH: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Flammability (solid, gas): Explosive Limits:	ot take internally. ties storing or utilizing this in thoroughly after handling ata available. <b>on 9. Physical ar</b> <b>nd Chemical Properties</b> [ ] Gas [ X ] Liquid 200 μl of 100 mM aceta No data. No data. No data. No data. No data. No data. No data. No data. No data. No data.	naterial should be equipped with an eyewas naterial should be equipped with an eyewas	sh and a safety show			

Page: 4 of 5

	=	Bravity (Water =	1): No d	ata.				
	Solubility	in Water:	No d	ata.				
	Octanol/V	Vater Partition	No d	ata.				
	Coefficier	nt:						
	Autoigniti	on Pt:	No d	ata.				
	Decompo	sition Temperat	ure: No d	ata.				
	Viscosity	:	No d	ata.				
9.2	Other Info	rmation						
	Percent V	olatile:	No d	ata.				
			Secti	on 10. Stability and	d Reactivi	ty		
10.1	Reactivity	:	No data ava	•		<u> </u>		
10.2	Stability:		Unstable [	] Stable [ X ]				
10.3	Stability N	lote(s):	-	red in accordance with inform	ation listed on	the product	insert.	
	Polymeriz		Will occur [					
10.4	-	s To Avoid:	No data ava					
10.4		ibility - Materials						
10.5	To Avoid:	-	no uala ava					
10.6	Hazardou		No doto ovo	ilabla				
10.6		_	No data ava	liadie.				
	Decompo							
	Byproduc	its:						
			Sectio	n 11. Toxicologica	Informat	ion		
11.1	Informatio	on on	The toxicolo	gical effects of this product h	ave not been t	horoughly st	udied.	
	Toxicolog	ical Effects:	-	le - Toxicity Data: Oral LD50		-		
			-	eal LDLO (rat): 500 mg/kg; Su			0 mg/kg; Intra	peritoneal LD50
			(mouse): 50	0 mg/kg; Subcutaneous LD5	0 (mouse): 560	) mg/kg;		
	Chronic T	oxicological	Acetaldehyd	le - Investigated as a mutage	n, natural prod	uct, primary	irritant, reprod	uctive effector,
	Effects:		and tumorige					
			-	Registry of Toxic Effects of C		ances (RTE	CS) data is pre	sented here.
				entry in RTECS for complete				
			-	le RTECS Number: AB19250				
Carci	nogenicity:		NTP? No	IARC Monographs? No	OSHA Reg	ulated? No		
CAS	#	Hazardous Com	ponents (Ch	emical Name)	NTP	IARC	ACGIH	OSHA
75	-07-0	Acetaldehyde			Possible	2B	A3	n.a.
773	2-18-5	Water			n.a.	n.a.	n.a.	n.a.
			Secti	ion 12. Ecological I	nformatic	n	•	·
12.1	Toxicity:		Avoid releas	e into the environment.				
			Runoff from	fire control or dilution water r	nay cause poll	ution.		
12.2	Persisten	ce and	No data ava	ilable.				
	Degradability:							
12.3	Bioaccum	-	No data ava	ilable.				
	Potential:							
12.4	Mobility i		No data ava	ilahla				
	-							
12.5		f PBT and vPvB	ino data ava					
	assessme	ent:						
							_	
1							N	Iulti-region format



Page: 5 of 5

12.6 Other a	dverse effects:	No data available.							
	Section 13. Disposal Considerations								
13.1 Waste I	<b>3.1 Waste Disposal Method:</b> Dispose in accordance with local, state, and federal regulations.								
	Section 14. Transport Information								
14.1 LAND	TRANSPORT (US	DOT):							
DOT Prop	DOT Proper Shipping Name: Not dangerous goods.								
DOT Haza	rd Class:								
UN/NA Nu	UN/NA Number:								
	14.1 LAND TRANSPORT (European ADR/RID):								
	Shipping Name:	Not dangerous goods.							
UN Numbe									
Hazard Cla		1474)-							
	ANSPORT (ICAO/ A Shipping Name:	-							
Additional Tra		Transport in accordance with lo	cal state and federal	regulations					
Information:	insport	Transport in accordance with or	cal, state, and leveral	regulations.					
		Section 15. Regul	atory Informat	tion					
EPA SARA (S	uperfund Amendn	nents and Reauthorization Act of	of 1986) Lists						
CAS #	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)				
75-07-0	Acetaldehyde		No	Yes 1000 LB	Yes				
7732-18-5	Water		No	No	No				
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA or State Lists						
75-07-0	Acetaldehyde			AP; CWA NPDES: Y BA PAIR; CA PROP.(					
7732-18-5	Water		CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No						
Regulatory Inf	ormation	This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC)							
Statement:		No.1272/2008.							
		Section 16. Oth	er Informatior	ו					
Revision Date:		02/09/2017							
Additional Info	ormation About	No data available.							
This Product:									
Company Poli	cy 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:	02/09/2017
Supersedes	Revision:	08/06/2013

		accore	ding to Regulation (EC) No. 190	7/2006 as amended by	(EC) No. 1272/200	8
		Section 1. Id	entification of the Substan	ce/Mixture and of t	he Company/Ur	ndertaking
1.1	Product Code:700803Product Name:ALDH Enzyme Mixture					
1.2	Relevan	t identified uses of t	the substance or mixture a	nd uses advised ag	jainst:	
	Relevant identified uses: For research use only,			ot for human or veteri	inary use.	
1.3	Details o	of the Supplier of the	e 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	4)971-3335
1.4	Emerge	ncy telephone numb	per:			
	Emerg	ency Contact:	CHEMTREC Within USA			0)424-9300
			CHEMTREC Outside US			3)527-3887
			Section 2. Haz	zards Identific	ation	
2.1		ation of the Substa	nce or Mixture:			
2.2	Label El	ements:				
	GHS F Based GHS F	ignal Word: lazard Phrases: on evaluation of curr Precaution Phrases: rases apply.	None ently available data this subs	stance or mixture is n	not classifiable ac	cording to GHS.
	-	Response Phrases:				
	No phr	ases apply.				
	GHS S	torage and Disposa	al Phrases:			
			r Storage and Section 13 for	-		
2.3			Material may be irritating to the			piratory tract.
	Effects	, ,	May be harmful by inhalation May cause eye, skin, or respi	•	•	
						been thoroughly investigated.
		Sectio	on 3. Composition	/Information c	on Ingredier	nts
CAS RTE		Hazardous Compo REACH Registratio	nents (Chemical Name)/ on No.	Concentration	EC No./ EC Index No.	GHS Classification
NA NA				100.0 %	NA NA	No data available.



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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 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
	In Case of Eye Contact:	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
	In Case of Ingestion:	Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
		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	dNo data available.
	Hazards:	
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
		Section 6. Accidental Release Measures
6.1	Protective Precautions,	Avoid raising and breathing dust, and provide adequate ventilation.
	Protective Equipment and	As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,
	Emergency Procedures:	and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
6.2	Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
6.3		Contain spill and collect, as appropriate.
0.5		gTransfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1	Precautions To Be Taken	Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taken	Keep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Sect	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	



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Cay	man	Revision: 02/09/2017     Supersedes Revision: 08/06/2013
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 equi	pment:
	Eye Protection:	Safety glasses
	Protective Gloves:	Compatible chemical-resistant gloves
	Other Protective Clothing	g:Lab coat
	<b>Respiratory Equipment</b>	NIOSH approved respirator, as conditions warrant.
	(Specify Type):	
	Work/Hygienic/Maintenar	n Do not take internally.
	ce Practices:	Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
		Wash thoroughly after handling.
		No data available.
	S	ection 9. Physical and Chemical Properties
9.1	Information on Basic Phy	sical 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 o	r mm No data.
	Hg):	
	Vapor Density (vs. Air = 1	I): No data.
	Specific Gravity (Water =	1): No data.
	Solubility in Water:	No data.
	Octanol/Water Partition	No data.
	Coefficient:	
	Autoignition Pt:	No data.
	Decomposition Temperat	
	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 - Material	s No data available.
	To Avoid:	
10.6	Hazardous	No data available.
		Multi-region format



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Bypr	oducts:						
	Sect	ion 11. Toxico	ological I	nforma	ation		
		ological effects of this	s product have	e not beer	n thoroughly stu	udied.	
	ological Effects:						
Carcinogeni	-		phs? No		egulated? No		
CAS #	Hazardous Components (	Chemical Name)		NTP	IARC	ACGIH	OSHA
NA	ALDH Enzyme Mixture			n.a.	n.a.	n.a.	n.a.
	Sec	ction 12. Ecol	ogical In	format	ion		
12.1 Toxic		ease into the environ					
l		om fire control or dilut	tion water may	y cause po	ollution.		
	stence and No data a	vailable.					
-	adability:	weileble					
12.3 Bioad Poter	cumulative No data a						
	ity in Soil: No data a	vailable.					
	Its of PBT and vPvB No data a						
	ssment:						
12.6 Othe	adverse effects: No data a	vailable.					
	Sect	tion 13. Dispo	sal Cons	siderat	ions		
13.1 Wast		n accordance with lo					
	Se	ection 14. Trai	nsport In	format	ion		
14.1 LAN	D TRANSPORT (US DOT):		·				
DOT Pro	per Shipping Name: Not d	langerous goods.					
DOT Ha	zard Class:						
UN/NA I	lumber:						
14.1 LAN	D TRANSPORT (European ADF	₹/RID):					
	11 0	angerous goods.					
UN Num							
Hazard							
	<pre>FRANSPORT (ICAO/IATA): TA Shipping Name: Not d</pre>	langerous goods.					
Additional 1		t in accordance with	local state a	nd federal	regulations		
Information	-				regulations.		
		ction 15. Regu	latory In	format	ion		
CAS #	Superfund Amendments and Hazardous Components (		S. 302 (E		S. 304 RQ	S 313	3 (TRI)
NA	ALDH Enzyme Mixture		No		No	No	
CAS #	Hazardous Components (0	Chemical Name)	Other US	FPA or 9	tate Lists	<b> </b>	
NA	ALDH Enzyme Mixture			P,ODC: No	; CWA NPDE	S: No; TSCA:	No; CA
						N	Iulti-region form



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Cayman	Supersedes Revision: 08/06/2013
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:	02/09/2017
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.



		accordi	ing to Regulation (EC) No. 190	7/2006 as amended by	(EC) No. 1272/200	8	
		Section 1. Ide	ntification of the Substan	ce/Mixture and of t	he Company/Ur	ndertaking	
1.1	Product Code:     700804       Product Name:     ALDH Cofactor						
1.2	I.2 Relevant identified uses of the substance or mixture and uses advised against:						
	Releva	ant identified uses:	For research use only, no	ot for human or veter	inary use.		
1.3	Details o	of the Supplier of the	Safety Data Sheet:				
	Company Name: Cayman Chemical Co 1180 E. Ellsworth Rd Ann Arbor, MI 48108			any			
	Web s	ite address:	www.caymanchem.com				
	Inform	ation:	Cayman Chemical Comp	any	+1 (734	)971-3335	
1.4	-	ncy telephone numbe ency Contact:	er: CHEMTREC Within USA CHEMTREC Outside US			0)424-9300 3)527-3887	
			Section 2. Haz	zards Identific	cation		
2.1	Classific	cation of the Substan	ce or Mixture:				
2.2	Label El	ements:					
	GHS S	ignal Word:	None				
		lazard Phrases:					
			ntly available data this subs	stance or mixture is r	not classifiable ac	cording to GHS.	
		Precaution Phrases:					
	•	ases apply.					
		Response Phrases: rases apply.					
	-	Storage and Disposal	Phrases:				
			Storage and Section 13 for	Disposal information	۱.		
2.3	Adverse	e Human Health M	aterial may be irritating to the	he mucous membran	nes and upper res	piratory tract.	
	Effects	and Symptoms: M	ay be harmful by inhalation	, ingestion, or skin at	bsorption.		
			ay cause eye, skin, and res				
						been thoroughly investigated.	
		Section	n 3. Composition	/Information c	on Ingredier	nts	
CAS RTE	# / CS #	Hazardous Compon REACH Registration	ents (Chemical Name)/ n No.	Concentration	EC No./ EC Index No.	GHS Classification	
	3-84-9 150000	NAD+		100.0 %	200-184-4 NA	No data available.	



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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 20 minutes. Remove contaminated
		clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
	In Case of Eye Contact:	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
	In Case of Ingestion:	Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
		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 an	<b>d</b> No data available.
	Hazards:	
		No data available.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting Instructions	: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
		Section 6. Accidental Release Measures
6.1	Protective Precautions,	Avoid raising and breathing dust, and provide adequate ventilation.
	Protective Equipment and	As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,
	Emergency Procedures:	and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
6.2	Environmental	Take steps to avoid release into the environment, if safe to do so.
	Precautions:	
6.3		r Contain spill and collect, as appropriate.
		gTransfer to a chemical waste container for disposal in accordance with local regulations.
	Up:	
		Section 7. Handling and Storage
7.1	Precautions To Be Taken	Avoid breathing dust/fume/gas/mist/vapours/spray.
	in Handling:	Avoid prolonged or repeated exposure.
7.2	Precautions To Be Taken	Keep container tightly closed.
	in Storing:	Store in accordance with information listed on the product insert.
	Sec	tion 8. Exposure Controls/Personal Protection
8.1	Exposure Parameters:	· ·
0.1		



		·			
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.			
		Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.			
		Wash thoroughly after handling.			
		No data available.			
	Se	ection 9. Physical and Chemical Properties			
9.1	Information on Basic Physi	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	-			
	Solubility in Water:	No data.			
	Solubility Notes:	Soluble in: water;			
	Octanol/Water Partition	No data.			
	Coefficient:				
	Autoignition Pt:	No data.			
	Decomposition Temperatu				
	Viscosity:	No data.			
9.2	Other Information				
	Percent Volatile:	No data.			
1					



5.8.5	MICAL				Si	upersedes Revis	ion: 08/06/2013
			Section 10. Stability ar	d Reacti	vity		
10.1 R	Reactivity:		No data available.				
0.2 S	Stability:		Unstable [ ] Stable [ X ]				
0.3 S	Stability Not	te(s):	Stable if stored in accordance with infor	mation listed	on the product	insert.	
Р	Polymerizat	ion:	Will occur [ ] Will not occur [ X ]				
10.4 C	Conditions	To Avoid:	No data available.				
10.5 Ir	ncompatibi	lity - Materials	strong oxidizing agents				
т	o Avoid:						
10.6 H	lazardous		carbon dioxide				
D	Decomposit	ion or	carbon monoxide				
В	Byproducts	:	nitrogen oxides				
			Section 11. Toxicologica	al Informa	ation		
11.1 lr	nformation	on	The toxicological effects of this product	have not bee	n thoroughly st	udied.	
т	oxicologic	al Effects:	NAD+ - Toxicity Data: Intraperitoneal LI	050 (mouse):	4333 mg/kg;		
С	Chronic Tox	icological	NAD+ - Investigated as a mutagen.				
E	Effects:		Only select Registry of Toxic Effects of		ostances (RTE	CS) data is pre	esented here.
			See actual entry in RTECS for complete	e information.			
			NAD+ RTECS Number: UU3450000				
CAS #	На	zardous Com	ponents (Chemical Name)	NTP	IARC	ACGIH	OSHA
53-84	4-9 NA	D+		n.a.	n.a.	n.a.	n.a.
			Section 12. Ecological	Informat	tion		
12.1 T	oxicity:		Avoid release into the environment.				
	oxiony.		Runoff from fire control or dilution water	mav cause p	ollution.		
12.2 P	Persistence	and	No data available.				
	Degradabilit						
	Bioaccumul		No data available.				
	Potential:						
	Aobility in S	Soil	No data available.				
	-		No data available.				
	issessment		NU uata avaliable.				
	Other adver		No data available.				
12.0 0		36 6116613.					
40.4	<del></del>		Section 13. Disposal Co				
13.1 W	vaste Dispo	osal Method:	Dispose in accordance with local, state		-		
			Section 14. Transport	Informat	lion		
14.1 L	LAND TRAP	NSPORT (US E	DOT):				
DOT	T Proper Sh	ipping Name:	Not dangerous goods.				
_	T Hazard Cl						
UN/I	NA Numbe	r:					
14.1 L	LAND TRAN	SPORT (Euro	opean ADR/RID):				
ADR	R/RID Shipp	oing Name:	Not dangerous goods.				
UNI	Number:						
Haza	ard Class:						

4
Calman
Caynan

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14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name:

: Not dangerous goods.

Additional Transport Information:

# Section 15. Regulatory Information

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

CAS #	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)		
53-84-9	NAD+		No	No	No		
CAS #	Hazardous Com	ponents (Chemical Name)	Other US EPA or	Other US EPA or State Lists			
53-84-9	NAD+		CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No				
Regulatory Information Statement:		This SDS was prepared in acco No.1272/2008.	ordance with 29 CFR	1910.1200 and R	egulation (EC)		
		Section 16. Oth	ner Informatio	n			
Revision Date:		02/09/2017					
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.					



		accord	ing to Regulation (EC) No. 190	)7/2006 as amended b	y (EC) No. 1272/200	8
		Section 1. Ide	ntification of the Substan	nce/Mixture and of	the Company/U	ndertaking
1.1	Produc Produc	t Code: t Name:	700805 ALDH Positive Control			
1.2	Releva	nt identified uses of th	ne substance or mixture a	and uses advised a	igainst:	
	Relev	ant identified uses:	For research use only, n	ot for human or vete	erinary use.	
1.3	Details	of the Supplier of the	Safety Data Sheet:			
	Comp	bany Name:	Cayman Chemical Comr 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	bany		
	Web s	site address:	www.caymanchem.com			
	Inform	nation:	Cayman Chemical Comp	bany	+1 (734	4)971-3335
1.4	-	ency telephone numbe gency Contact:	er: CHEMTREC Within USA CHEMTREC Outside US			0)424-9300 3)527-3887
			Section 2. Ha	zards Identifi	cation	
2.1	Classifi	cation of the Substan	ce or Mixture:			
2.2	Label E	lements:				
	GHS	Signal Word:	None			
2.3	GHS No ph GHS No ph GHS Pleas Advers	Precaution Phrases: arases apply. Response Phrases: arases apply. Storage and Disposal e refer to Section 7 for se Human Health M a and Symptoms: M To	Storage and Section 13 for aterial may be irritating to t ay be harmful by inhalatior ay cause eye, skin, or resp	r Disposal informatic he mucous membra n, ingestion, or skin a piratory system irritat e, the toxicological p	on. Ines and upper res absorption. tion. roperties have not	piratory tract.
	. # /	1	ents (Chemical Name)/	Concentration	EC No./	GHS Classification
	CS #	REACH Registration	• •	Concentration	EC Index No.	
902 NA	28-88-0	Dehydrogenase, aldehy dinucleotide (phosphate	de (nicotinamide adenine ))	0.0 -5.0 %	232-846-3 NA	No data available.
	78-77-0 615500	Potassium phosphate, N	Ionobasic	0.0 -5.0 %	231-913-4 NA	No data available.
	)-70-4 90000	Sorbitol		1.0 -20.0 %	200-061-5 NA	No data available.
	32-18-5 110000	Water		70.0 -99.0 %	231-791-2 NA	No data available.



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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 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:	<b>d</b> 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,	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	ngTransfer 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:	



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								
	Eye Protection:	Safety glasses						
	Protective Gloves: Compatible chemical-resistant gloves							
	Other Protective Clothing:Lab coat							
	<b>Respiratory Equipment</b> NIOSH approved respirator, as conditions warrant.							
	(Specify Type):							
1	Work/Hygienic/Maintena	n Do not take internally.						
	ce Practices:	Facilities storing or utilizing this material should be equipped with an eyewash and a safety showe						
		Wash thoroughly after handling.						
		No data available.						
	5	Section 9. Physical and Chemical Properties						
9.1	Information on Basic Phy	ysical and Chemical Properties						
	Physical States:	[]Gas []Liquid [X]Solid						
	Appearance and Odor:	A lyophilized powder						
	pH:	No data.						
	Melting Point:	No data.						
	<b>Boiling Point:</b>	No data.						
	Flash Pt:	No data.						
	Evaporation Rate:	No data. No data available.						
	Flammability (solid, gas)							
	Explosive Limits:	LEL: No data. UEL: No data.						
	Vapor Pressure (vs. Air	or mm No data.						
	Hg):							
	Vapor Density (vs. Air =							
	Specific Gravity (Water =	-						
	Solubility in Water:	No data.						
	Octanol/Water Partition	No data.						
	Coefficient:							
	Autoignition Pt:	No data.						
	Decomposition Tempera							
	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 - Materia	Is strong oxidizing agents						
	To Avoid:							
10.6	Hazardous	carbon dioxide						
		carbon monoxide						
		Multi-region form						



Decomposition or		osition or	phosphorous oxides					
Byproducts:		icts:	potassium oxides					
			Section 11. Toxicologic	al Informa	ation			
11.1		tion on ogical Effects: Toxicological	The toxicological effects of this product Potassium Phosphate, Monobasic - To Data: Oral LD50 (rat): 15900 mg/kg; S 17800 mg/kg; Intraperitoneal LD50 (mo Oral TDLO (woman): 1700 mg/kg; Sorbitol - Investigated as a drug and m	oxicity Data: Or ubcutaneous L ouse): 15 gm/k nutagen.	al LDLO (rat): D50 (rat): 2960 g; Subcutaneo	4640 mg/kg; S 00 mg/kg; Oral bus LD50 (mou	LD50 (mouse): se): 24 gm/kg;	
	Effects:		Only select Registry of Toxic Effects of See actual entry in RTECS for comple Potassium Phosphate, Monobasic RTE Sorbitol RTECS Number: LZ4290000	te information.		CS) data is pre	sented here.	
CAS	#	Hazardous Com	ponents (Chemical Name)	NTP	IARC	ACGIH	OSHA	
902	8-88-0	Dehydrogenase, dinucleotide (pho	aldehyde (nicotinamide adenine sphate))	n.a.	n.a.	n.a.	n.a.	
777	8-77-0	Potassium phosp	hate, Monobasic	n.a.	n.a.	n.a.	n.a.	
50	-70-4	Sorbitol		n.a.	n.a.	n.a.	n.a.	
773	2-18-5	Water		n.a.	n.a.	n.a.	n.a.	
			Section 12. Ecologica	I Informat	ion			
12.1 12.2 12.3 12.4 12.5 12.6	Potentia Mobility Results assessm Other ad	nce and ibility: mulative l: in Soil: of PBT and vPvB nent: Iverse effects:	Avoid release into the environment. Runoff from fire control or dilution wate No data available. No data available. No data available. No data available. No data available. <b>Section 13. Disposal C</b> Dispose in accordance with local, state	onsiderat	ions			
	Waste D		Section 14. Transpor		-			
			·	t morna	.1011			
D U 14.1 A	OT Prope OT Hazaro N/NA Nun LAND T	nber: RANSPORT (Euro hipping Name:	Not dangerous goods.					
	azard Cla							



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

		Content to gai			
· ·		nents and Reauthorization Act o			
CAS #	Hazardous Com	ponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
9028-88-0	Dehydrogenase, aldehyde (nicotinamide adenine dinucleotide (phosphate))		No	No	No
7778-77-0	Potassium phosp	ohate, Monobasic	No	No	No
50-70-4	Sorbitol		No	No	No
7732-18-5	Water		No	No	No
CAS # Hazardous Components (Chemical Name)		Other US EPA or State Lists			
9028-88-0	Dehydrogenase, aldehyde (nicotinamide adenine dinucleotide (phosphate))		CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No		
7778-77-0	Potassium phosphate, Monobasic		CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No		
50-70-4	Sorbitol		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 Int Statement:	formation	This SDS was prepared in accor No.1272/2008.	rdance with 29 CFF	R 1910.1200 and R	egulation (EC)
		Section 16. Oth	er Information	on	
Revision Date	:	02/09/2017			
Additional Information About		No data available.			
This Product:					
Company Poli	cy or Disclaimer:	DISCLAIMER: This information is believed to be accurate and represents the best information			

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.