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	accor	ding to Regulation (EC) No. 1907/2006 as amended by (E	EC) No. 1272/2008			
	Section 1. Id	entification of the Substance/Mixture and of the	e Company/Undertaking			
1.1	Product Code:400035Product Name:Polysorbate 20Synonyms:Tween 20™;					
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 o Company Name: Web site address:	Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 www.caymanchem.com				
	Information:	Cayman Chemical Company	+1 (734)971-3335			
1.4	Emergency telephone n Emergency Contact:	CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887			
		Section 2. Hazards Identifica	tion			
2.1.2 2.2 2.2.1	Skin Sensitization, Cate Classification according Xi: Irritant Risk Phrases: R36, R43 For full text of R- phrase Label Elements:	g to Directive 1999/45/EC:				
	competent authority. P261: Avoid breathing dus P272: Contaminated work P362+364: Take off conta GHS Response Phrases	gic skin reaction. s: ighly after handling. ves/clothing and eye/face protection as specifi st/fume/gas/mist/vapours/spray. clothing should not be allowed out of the work minated clothing and wash it before reuse. : ES: Rinse cautiously with water for several mir	kplace.			
	P337+313: If eye irritation P302+352: IF ON SKIN: V	persists, get medical advice/attention. Vash with plenty of soap and water. or rash occurs, seek medical advice/attention	1.			
	. J		Multi-region for			



Page: 2

2.2.2 2.3 A			for Storage and Section 13 Directive 1999/45/EC:	3 for Disposal infor	mation.		
2.3 A	Labeling	g according to	Directive 1999/45/EC:				
	X						
	Х						
	*						
	Xi						
	Adverse	Human Health	Causes serious eye irritati	on.			
	Effects a	nd Symptoms	: Material may be irritating to	o the mucous mem	branes and up	per respiratory tract.	
			May be harmful by inhalati	•	kin absorption.		
			May cause an allergic skin May cause respiratory sys				
			To the best of our knowled		al properties ha	ave not been thoroughly	
			investigated.	3-, 3-		,	
		Sect	ion 3. Composition	/Information c	n Ingredie	nts	
CAS #/	/ H	azardous Comp	onents (Chemical Name)/	Concentration	EC No./	Risk Phrases/	
RTECS	# R	EACH Registrat	ion No.		EC Index No.	GHS Classification	
9005-64) sorbitan monolaurate (Tween	100.0 %	500-018-3	Xi; R36-43	
TR74000	20 20)™)			NA	Skin Sens. 1: H317	
						Eye Damage 2A: H319	
			Section 4. Fir	st Aid Measu	res		
1.1 C	Descripti	on of First Aid	1				
	Measure:						
lı	n Case c	of Inhalation:	Remove to fresh air. If not personnel. Get immediate		ficial respiration	n or give oxygen by trained	
h	n Case c	of Skin	Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove				
C	Contact:		contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.				
li	n Case c	of Eye	Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.estion: 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				
	Contact:						
lı	n Case c	of Ingestion:					
			directed to do so by medic			iquce vomiting unless	
			Section 5. Fire	-	SUITOS		
5.1 S	Suitable	Extinguishing	Use alcohol-resistant foam	<u> </u>		emical sprav.	
	Media:	gelelling	Use water spray to cool fir		•		
ι	Unsuitab	le	A solid water stream may be inefficient.				
E	Extinguis	shing Media:					
		•	No data available.				
	and Haza						
	Flash Pt:		No data.				
	-	e Limits:	LEL: No data.	UEL: N	lo data.		
	Autoigni		No data.				
	Fire Figh	-	As in any fire, wear self-co approved or equivalent), a	-	•••	sure-demand (NIOSH contact with skin and eyes.	



Revision: 12/09/2013 Supersedes Revision: 05/02/2013

					Superse	des Revision: 05/02/2013
			Section 6. Ac	cidental Releas	se Measures	
6.1	Protect	tive Equipment nergency	As conditions warr	ant, wear a NIOSH a	provide adequate ventilation approved self-contained bre otection (rubber boots, safe	eathing apparatus, or
6.2	Environmental Take steps to avo Precautions:			d release into the en	vironment, if safe to do so.	
6.3		ls and Material ntainment and ng Up:	•	ollect, as appropriate iical waste container	e. for disposal in accordance	with local regulations
			Section 7.	Handling and	Storage	
7.1		tions To Be in Handling:	•	st/fume/gas/mist/vap repeated exposure.	ours/spray.	
7.2	Precautions To Be Keep container tight			•	ted on the product insert.	
		Sec	tion 8. Exposu	re Controls/Pe	rsonal Protection	
8.1	Exposi	ure Parameters:				
CAS #	#	Partial Chemical	Name	Britain EH40	France VL	Europe
900	5-64-5	Polyoxyethylene monolaurate (Twe		No data.	No data.	No data.
CAS #	4	Partial Chemical	Name	OSHA TWA	ACGIH TWA	Other Limits
900	5-64-5	Polyoxyethylene monolaurate (Twe		No data.	No data.	No data.
8.2 8.2.1	Engine (Ventila	ure Controls: ering Controls ation etc.):	control airborne lev		ventilation, or other engine nded exposure limits.	ering controls to
8.2.2	2 Personal protection equipment: Eye Protection: Safety glasses Protective Gloves: Compatible chen Other Protective Lab coat Clothing:			al-resistant gloves		
	-		t NIOSH approved re	espirator, as conditio	ns warrant.	
a safet				utilizing this materia	I should be equipped with a	an eyewash facility ar



P A B F E V N V S S S S S S S 10.1 R		No data. No data. No data. No data. LEL: No data. UEL: No data. Tor No data.			
P A B F E V N V S S S S S S S 10.1 R	Physical States: Appearance and Odor: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	[]Gas [X]Liquid []Solid A clear, yellow viscous liquid No data. No data. No data. LEL: No data. UEL: No data. tel: No data. tel: No data. tel: No data. tel: No data. tel: No data.			
A B F E V M V S S A 9.2 C P 10.1 R	Appearance and Odor: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	A clear, yellow viscous liquid No data. No data. No data. LEL: No data. Tor No data. = 1): No data.			
M B F E V M V S S S S S S S 10.1 R	Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	No data. No data. No data. No data. LEL: No data. UEL: No data. r or No data. = 1): No data.			
8 F E V M V S S S 9.2 C P 10.1 R	Boiling Point: Flash Pt: Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	No data. No data. No data. LEL: No data. uestion Uestion Uestion Uestion Uestion No data. No data. No data. No data. No data. No data.			
F E V V S S 9.2 C P 10.1 R	Flash Pt: Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	No data. No data. LEL: No data. r or No data. = 1): No data. Y = 1): No data. No data.			
E V N V S S S S S S S 10.1 R	Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	No data. LEL: No data. r or No data. = 1): No data. r = 1: No data. No data.			
E V S S 9.2 C P 10.1 R	Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	LEL: No data. UEL: No data. r or No data. = 1): No data. r = 1): No data. No data.			
V n V S A 9.2 C P 10.1 R	Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	r or No data. = 1): No data. * = 1): No data. No data.			
m V S 9.2 C P 10.1 R	mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	 = 1): No data. i = 1): No data. No data. 			
S S 9.2 C P 10.1 R	Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information	1): No data. No data.			
9.2 C P 10.1 R	Solubility in Water: Autoignition Pt: Other Information	No data.			
9.2 C P 10.1 R	Autoignition Pt: Other Information				
9.2 C P 10.1 R	Other Information	No data.			
P 10.1 R					
10.1 R	Percent Volatile:				
		N.A.			
		Section 10. Stability and Reactivity			
	Reactivity:	No data available.			
10.2 S	Stability:	Unstable [] Stable [X]			
10.3 S	Stability Note(s):	Stable if stored in accordance with information listed on the product insert.			
Р	Polymerization:	Will occur [] Will not occur [X]			
10.4 C	Conditions To Avoid:	No data available.			
	Incompatibility - Materials To Avoid:	strong oxidizing agents			
	Hazardous	carbon dioxide			
	Decomposition Or	carbon monoxide			
	Byproducts:				
		Section 11. Toxicological Information			
	Information on	The toxicological effects of this product have not been thoroughly studied.			
Т	Toxicological Effects:	Polysorbate 20 - Toxicity Data: Oral LD50 (rat): 36.7 ml/kg; Oral LD50 (hamster): 18			
		ml/kg; Oral LD50 (mouse): >33 g/kg; Irritation Data: Skin (human): 15 mg/3D mild;			
	Chronic Toxicological	Polysorbate 20 - Investigated as a tumorigen and reproductive effector.			
E	Effects:	Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented			
		here. See actual entry in RTECS for complete information.			
Caraina	ogoniaituu	Polysorbate 20 RTECS Number: TR7400000 NTP? No IARC Monographs? No OSHA Regulated? No			
Carcino	ogenicity:				
		Section 12. Ecological Information			
12.1 T	Toxicity:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.			



DOT Prope DOT Hazar UN/NA Nur 14.1 LAND ADR/RID S UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information:	TRANSPORT (US D er Shipping Name: rd Class: mber: TRANSPORT (Euro Shipping Name: er: ass: RANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20™)	Not dangerous goods. pean ADR/RID): Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	nsport Inform /ith local, state, and ulatory Inform	ation d federal regulation		
DOT Prope DOT Hazar UN/NA Nur 14.1 LAND ADR/RID S UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sur CAS # 9005-64-5	er Shipping Name: rd Class: mber: TRANSPORT (Euro Shipping Name: er: ass: ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20 TM)	DOT): Not dangerous goods. Ppean ADR/RID): Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	vith local, state, and ulatory Inform st of 1986) Lists S. 302 (EHS)	d federal regulation ation	S. 313 (TRI)	
DOT Prope DOT Hazar UN/NA Nur 14.1 LAND ADR/RID S UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sur CAS # 9005-64-5	er Shipping Name: rd Class: mber: TRANSPORT (Euro Shipping Name: er: ass: ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20 TM)	Not dangerous goods. pean ADR/RID): Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
DOT Hazar UN/NA Nur 14.1 LAND ADR/RID S UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sur CAS # 9005-64-5	rd Class: mber: TRANSPORT (Euro Shipping Name: er: ass: ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) = (Tween 20 [™])	opean ADR/RID): Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regular s and Reauthorization Accents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
UN/NA Num 14.1 LAND ADR/RID S UN Number Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sup CAS # 9005-64-5 CAS #	mber: TRANSPORT (Euro Shipping Name: er: ass: ANSPORT (ICAO/IA A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) = (Tween 20 [™])	Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
14.1 LAND ADR/RID S UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sup CAS # 9005-64-5	TRANSPORT (Euro Shipping Name: er: ass: ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20™) Hazardous Compone	Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
ADR/RID S UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sup CAS # 9005-64-5	Shipping Name: er: ass: ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20™) Hazardous Compone	Not dangerous goods. ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
UN Numbe Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sup CAS # 9005-64-5	er: ass: ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20 [™]) Hazardous Compone	ATA): Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
Hazard Cla 14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Su CAS # 9005-64-5 CAS #	ASS: ANSPORT (ICAO/I/ A Shipping Name: Ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) = (Tween 20™) Hazardous Compone	Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
14.3 AIR TR ICAO/IATA Additional Tra Information: EPA SARA (Sup CAS # 9005-64-5 CAS #	ANSPORT (ICAO/I/ A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) = (Tween 20™) Hazardous Compone	Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
ICAO/IATA Additional Tra Information: EPA SARA (Su CAS # 9005-64-5 CAS #	A Shipping Name: ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20™) Hazardous Compone	Not dangerous goods. ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
Additional Tra Information: EPA SARA (Sup CAS # 9005-64-5 CAS #	ansport Tra perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20™) Hazardous Compone	Ansport in accordance w Section 15. Regu s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
Information: EPA SARA (Sup CAS # 9005-64-5 CAS #	perfund Amendments Hazardous Compone Polyoxyethylene (20) (Tween 20™) Hazardous Compone	Section 15. Regiss and Reauthorization Actents (Chemical Name) sorbitan monolaurate	ulatory Inform et of 1986) Lists S. 302 (EHS)	ation S. 304 RQ	S. 313 (TRI)	
EPA SARA (Su CAS # 9005-64-5 CAS #	Hazardous Compone Polyoxyethylene (20) ÷ (Tween 20 [™]) Hazardous Compone	s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	t of 1986) Lists S. 302 (EHS)	S. 304 RQ		
CAS # 9005-64-5 CAS #	Hazardous Compone Polyoxyethylene (20) ÷ (Tween 20 [™]) Hazardous Compone	s and Reauthorization Ac ents (Chemical Name) sorbitan monolaurate	t of 1986) Lists S. 302 (EHS)	S. 304 RQ		
CAS # 9005-64-5 CAS #	Hazardous Compone Polyoxyethylene (20) ÷ (Tween 20 [™]) Hazardous Compone	ents (Chemical Name) sorbitan monolaurate	S. 302 (EHS)	· · · ·		
9005-64-5 CAS #	Polyoxyethylene (20) (Tween 20™) Hazardous Compone	sorbitan monolaurate		· · · ·		
CAS #	(Tween 20™) Hazardous Compone		No	No	No	
	-			·		
9005-64-5		ents (Chemical Name)	Other US EPA o	or State Lists		
	Polyoxyethylene (20) (Tween 20™)	sorbitan monolaurate	CAA HAP,ODC: PROP.65: No	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No		
·	May Avoid	Xi Safety Phrases: ting to eyes. cause sensitization by s d contact with skin and e se of contact with eyes,	eyes.	with plenty of wat	er and seek medical	
S36/37/39	Wear	r suitable protective clot	hing, gloves and e	ye/face protection		
Regulatory Inf Statement:		s SDS was prepared in ropean Directive 67/548			o.1272/2008 and	



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Section 16. Other Information

Revision Date:	12/09/2013						
Additional Information A This Product:	bout 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.						
	N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required						



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			Supersedes Revision: 05/02/2013				
		rding to Regulation (EC) No. 1907/2006 as amended by (E					
	Section 1. I	dentification of the Substance/Mixture and of the	e Company/Undertaking				
1.1	Product Code:	400054					
	Product Name:	Immunoassay Buffer B Concentrate (10X)					
1.2	Relevant identified uses	s of the substance or mixture and uses adv	ised against:				
	Relevant identified uses: For research use only, not for human or veterinary use.						
1.3	Details of the Supplier of Company Name:	of the Safety Data Sheet: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108					
	Web site address: Information:	www.caymanchem.com Cayman Chemical Company	+1 (734)971-3335				
1.4	Emergency telephone r Emergency Contact:	umber: CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887				
		Section 2. Hazards Identifica	ation				
2.1.1	Classification according to Regulation (EC) No 1272/2008 [CLP]: Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1						
2.1.2	Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15.						
2.2.1	Labeling according to	Regulation (EC) No 1272/2008 [CLP]:					
	GHS Signal Word:	Danger					
	GHS Hazard Phrases: H302: Harmful if swallow H313: May be harmful in H316: Causes mild skin i H318: Causes serious ey	ed. contact with skin. rritation.					
	GHS Precaution Phrases: P264: Wash hands thoroughly after handling. P280: Wear protective gloves/clothing and eye/face protection as specified by the manufacturer/supplier or the competent authority.						
	P330: Rinse mouth. P312: Call a POISON CE P332+313: If skin irritatio P305+351+338: IF IN EY	/ED: Call a POISON CENTER or doctor/physic NTER or doctor/physician if you feel unwell. n occurs, get medical advice/attention. ES: Rinse cautiously with water for several mir					
	present and easy to do. C		Multi-ragion forma				



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

GHS Storage and Disposal Phrases:

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

2.2.2 Labeling according to Directive 1999/45/EC:



Xn

2.3 Adverse Human Health Causes mild skin irritation.

Effects and Symptoms: Causes serious eye damage.

Harmful if swallowed.

- Material may be irritating to the mucous membranes and upper respiratory tract.
- May be harmful by inhalation or skin absorption.
- May cause respiratory system irritation.
- To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

		1	1	
CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
7758-11-4 TC5580000	Potassium phosphate, dibasic	13.3 %	231-834-5 NA	R41 Eye Damage 1: H318
7778-77-0 TC6615500	Potassium phosphate, Monobasic	3.21 %	231-913-4 NA	R52 Acute Tox.(D) 5: H313
26628-22-8 VY8050000	Sodium azide	0.1 %	247-852-1 011-004-00-7	T+; N; R28-32-50/53 Acute Tox.(O) 2: H300 Acute Tox.(D) 1: H310 TOST (RE) 2: H373 Aquatic (C) 1: H410
7647-14-5 VZ4725000	Sodium chloride	23.4 %	231-598-3 NA	Xi; R36 Eye Damage 2A: H319
194491-31-1 NA	EDTA, tetrasodium salt, hydrate	0.38 %	NA NA	Xn; R22-41 Acute Tox.(O) 4: H302 Eye Damage 1: H318
9048-46-8 MT6446000	Bovine Serum Albumin (BSA)	11.0 %	232-936-2 NA	Xn; R22 Acute Tox.(O) 4: H302
7732-18-5 ZC0110000	Water	48.61 %	231-791-2 NA	No phrases apply. 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	Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove
	Contact:	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.
4.2	Important Symptoms and Effects, Both	Exposure may cause: nausea, vomiting, abdominal pain, diarrhea, thirst, lowered blood pressure.
<u> </u>	Acute and Delayed:	Ocation C. Fine Fighting Managemen
		Section 5. Fire Fighting Measures
5.1	• •	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
	Media:	Use water spray to cool fire-exposed containers.
	Unsuitable	A solid water stream may be inefficient.
	Extinguishing Media:	
5.2	Flammable Properties and Hazards:	Emits toxic fumes under fire conditions.
	Flash Pt:	No data.
	Explosive Limits:	LEL: No data. UEL: No data.
	Autoignition Pt:	No data.
5.3	Fire Fighting	As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH
	Instructions:	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	As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or
	and Emergency	respirator, and appropriate personal protection (rubber boots, safety goggles, and heav
	Procedures:	rubber gloves).
6.2	Environmental Precautions:	Take steps to avoid release into the environment, if safe to do so.
6.3	Methods and Material For Containment and Cleaning Up:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations
		Section 7. Handling and Storage
7.1	Precautions To Be Taken in Handling:	Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.
		Keep container tightly closed.



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Section 8. Exposure Controls/Personal Protection

8.1 Expos	ure Parameters:			
CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
7758-11-4	Potassium phosphate, dibasic	No data.	No data.	No data.
7778-77-0	Potassium phosphate, Monobasic	No data.	No data.	No data.
26628-22-8	Sodium azide	TWA: 0.1 mg/m3 () STEL: 0.3 mg/m3 ()	TWA: 0.1 mg/m3 STEL: 0.3 mg/m3	TWA: 0.1 mg/m3 STEL: 0.3 mg/m3
7647-14-5	Sodium chloride	No data.	No data.	No data.
194491-31-1	EDTA, tetrasodium salt, hydrate	No data.	No data.	No data.
9048-46-8	Bovine Serum Albumin (BSA)	No data.	No data.	No data.
7732-18-5	Water	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
7758-11-4	Potassium phosphate, dibasic	No data.	No data.	No data.
7778-77-0	Potassium phosphate, Monobasic	No data.	No data.	No data.
26628-22-8	Sodium azide	No data.	CEIL: 0.29 mg/m3	No data.
7647-14-5	Sodium chloride	No data.	No data.	No data.
194491-31-1	EDTA, tetrasodium salt, hydrate	No data.	No data.	No data.
9048-46-8	Bovine Serum Albumin (BSA)	No data.	No data.	No data.
7732-18-5	Water	No data.	No data.	No data.

8.2 Exposure Controls:

8.2.1 Engineering Controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2 Personal protection equipment:

Eye Protection:	Safety glasses
Protective Gloves:	Compatible chemical-resistant gloves
Other Protective	Lab coat

Clothing:

Respiratory Equipment NIOSH approved respirator, as conditions warrant.

(Specify Type):

Work/Hygienic/Mainten Do not take internally.

ance Practices: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Wash thoroughly after handling.



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				Supersedes Revision: 05/02/2013		
	Se	ection 9.	Physical and Chemi	cal Properties		
9.1	Information on Basic Physical and Chemical Properties					
	Physical States: []Gas [X] Liquid [] Solid					
	Appearance and Odor:	A yello	wish, milky solution			
	pH:	7.0				
	Melting Point:	No dat	a.			
	Boiling Point:	No dat	a.			
	Flash Pt:	No dat	a.			
	Evaporation Rate:	No dat	a.			
	Explosive Limits:	LEL: I	No data.	UEL: No data.		
	Vapor Pressure (vs. Air	or No dat	a.			
	mm Hg):					
	Vapor Density (vs. Air =	= 1): No dat	a.			
	Specific Gravity (Water	= 1): No dat	a.			
	Solubility in Water:	No dat	a.			
	Autoignition Pt:	No dat	a.			
9.2	Other Information					
	Percent Volatile:	No dat	a.			
		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 -	strong oxidizing agents				
	Materials To Avoid:					
10.6	Hazardous	hydrogen chloride gas				
	Decomposition Or	potassium oxides				
	Byproducts:	sodium oxide	S			
		Section	11. Toxicological Ir	Iformation		
11.1	Information on	The toxicolog	ical effects of this compour	nd have not been thoroughly studied.		
	Toxicological Effects:	D / · · ·				
			-	city Data: Skin LD50 (rabbit): >4,640 mg/kg;		
		mg/kg;	ide - Toxicity Data: Ofai LD	50 (rat): 3,000 mg/kg; Oral LD50 (mouse): 4,000		
			ide - Irritation Data: Eves (r	abbit): 100 mg (24h) moderate; Skin (rabbit):		
		500 mg				
		(24h) mild;				
	Chronic Toxicological	Only select R	egistry of Toxic Effects of C	Chemical Substances (RTECS) data is presented		
	Effects:	here.	0 ,			
		See actual er	ntry in RTECS for complete	information.		
			osphate, Monobasic RTEC			
		Sodium chlor	ide RTECS Number: VZ472	25000		
Carci	nogenicity:	NTP? No	IARC Monographs? No	OSHA Regulated? No		



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	Section 12. Ecc	ological Information	ation						
12.1 Toxici	Toxicity:Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.								
Section 13. Disposal Considerations									
13.1 Waste Metho	Disposal Dispose in accordance with								
	Section 14. Tra	ansport Informa	ation						
14.1 LANE) TRANSPORT (US DOT):								
-	per Shipping Name: Not dangerous goods. ard Class: umber:								
ADR/RID UN Numb Hazard C 14.3 AIR T ICAO/IAT Additional T	lass: RANSPORT (ICAO/IATA): A Shipping Name: Not dangerous goods.		federal regulations	5.					
Information:	Section 15 Dec	ulator / Inform	otion						
	Section 15. Reg	•	ation						
-	uperfund Amendments and Reauthorization A	-							
CAS # 7758-11-4	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)					
	Potassium phosphate, dibasic	No	No No	No					
7778-77-0 26628-22-8	Potassium phosphate, Monobasic Sodium azide	Yes 500 LB	Yes 1000 LB	No Yes					
7647-14-5	Sodium azue	No	No	No					
194491-31-1	EDTA, tetrasodium salt, hydrate	No	No	No					
9048-46-8	Bovine Serum Albumin (BSA)	No	No	No					
7732-18-5	Water	No	No	No					
CAS #	Hazardous Components (Chemical Name)	Other US EPA o	r State Lists						
7758-11-4	Potassium phosphate, dibasic	CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: Inventory; CA					
7778-77-0	Potassium phosphate, Monobasic	CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: Inventory; CA					
26628-22-8	Sodium azide	CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: Inventory; CA					
7647-14-5	Sodium chloride	CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: Inventory; CA					
194491-31-1	EDTA, tetrasodium salt, hydrate	CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: No; CA					
9048-46-8	Bovine Serum Albumin (BSA)	CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: Inventory; CA					
	1	-+		Multi-region forma					



Multi-region format

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7732-18-5 Water CAA HAP, ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No **European Community Hazard Symbol codes: European Community Risk and Safety Phrases:** R22 Harmful if swallowed. R41 Risk of serious damage to the eyes. S24/25 Avoid contact with skin and eyes. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection. This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and **Regulatory Information** European Directive 67/548/EEC as amended. Statement: Section 16. Other Information 12/09/2013 Revision Date: Additional Information About No data available. This Product: **Company Policy or** DISCLAIMER: This information is believed to be accurate and represents the best Disclaimer: information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required



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	acco	rding to Regulation (EC) No. 1907/2006 as amended by (I	EC) No. 1272/2008					
	Section 1. Ic	dentification of the Substance/Mixture and of the	e Company/Undertaking					
1.1	Product Code:	400062						
	Product Name:	Wash Buffer Concentrate (400X)						
.2		s of the substance or mixture and uses adv	•					
		: For research use only, not for human or vet	erinary use.					
1.3	Details of the Supplier of Company Name:	of the Safety Data Sheet: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108						
	Web site address: Information:	www.caymanchem.com Cayman Chemical Company	+1 (734)971-3335					
1.4	Emergency telephone n Emergency Contact:	umber: CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887					
		Section 2. Hazards Identifica	ation					
2.1 2.1.1 2.1.2	Acute Toxicity: Skin, Category 5 Serious Eye Damage/Eye Irritation, Category 1							
	Xi: Irritant Risk Phrases: R41 For full text of R- phras	es: see SECTION 15.						
2.2 2.2.1	Label Elements: Labeling according to I	Regulation (EC) No 1272/2008 [CLP]:						
	GHS Signal Word:	Danger						
	GHS Hazard Phrases: H313: May be harmful in H318: Causes serious ey							
	GHS Precaution Phrase	-	fied by the manufacturer/supplier or the					
	P305+351+338: IF IN EY present and easy to do. C	NTER or doctor/physician if you feel unwell. ES: Rinse cautiously with water for several min	nutes. Remove contact lenses, if					
	GHS Storage and Dispo Please refer to Section 7	sal Phrases: for Storage and Section 13 for Disposal inform	nation.					



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2.2.2 Labeling according to Directive 1999/45/EC:



2.3 Adverse Human Health Causes serious eye damage.

Effects and Symptoms: Material may be irritating to the mucous membranes and upper respiratory tract. May be harmful by inhalation, ingestion, or skin absorption.

May cause skin or respiratory system irritation.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

	Section 3. Composition		<u> </u>		
CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification	
7758-11-4 TC5580000	Potassium phosphate, dibasic	53.0 %	231-834-5 NA	R41 Eye Damage 1: H318	
7778-77-0 TC6615500	Potassium phosphate, Monobasic	12.9 %	231-913-4 NA	R52 Acute Tox.(D) 5: H313	
7732-18-5 ZC0110000	Water	34.1 %	231-791-2 NA	No phrases apply. No data available.	

Section 4. First Aid Measures

L							
4.1	Description of First Aid Measures:	i					
	In Case of Inhalation:	Remove to fresh air. If not personnel. Get immediate	breathing, give artificial respiration or give oxygen by trained 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 flue examined and tested by n	sh eyes with plenty of water for at least 20 minutes. Have eyes nedical personnel.				
	In Case of Ingestion:	n: Wash out mouth with water provided person is conscious. Never give anything to an unconscious person. Get medical attention. Do NOT induce vomiting unle directed to do so by medical personnel.					
4.2	Important Symptoms and Effects, Both Acute and Delayed:	Ingestion of large amount and vomiting.	s can cause abdominal pain, lowered blood pressure, nausea,				
		Section 5. Fire	Fighting Measures				
5.1	Suitable Extinguishing Media:	J Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.					
	Unsuitable Extinguishing Media:	A solid water stream may	be inefficient.				
5.2	Flammable Properties and Hazards:	No data available.					
	Flash Pt:	No data.					
	Explosive Limits:	LEL: No data.	UEL: No data.				
	Autoignition Pt:	No data.					
			Multi-region format				



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5.3	Fire Fig	ahting	As in any fire wear	self-contained breath	· · ·	des Revision: 05/02/2013		
5.5	-	FightingAs in any fire, wear self-contained breathing apparatus pressure-demand (NIOSHtructions:approved or equivalent), and full protective gear to prevent contact with skin and eyes.						
			Section 6. Acc	cidental Releas	e Measures			
6.1 6.2	Protect and Err Proced	quate ventilation. oproved self-contained brotection (rubber boots, safe	ety goggles, and heavy					
6.3	Precautions:							
		ntainment and	•		or disposal in accordance	e with local regulations.		
			Section 7.	Handling and	Storage			
7.1		tions To Be n Handling:	-	st/fume/gas/mist/vapo repeated exposure.	ours/spray.			
7.2		tions To Be n Storing:	Keep container tigh Store in accordance	•	ed on the product insert.			
		Sect	tion 8. Exposu	re Controls/Per	sonal Protection			
8.1	Exposi	ure Parameters:						
CAS #	4	Partial Chemical	Name	Britain EH40	France VL	Europe		
775	8-11-4	Potassium phospl	nate, dibasic	No data.	No data.	No data.		
777	8-77-0	Potassium phospl	nate, Monobasic	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		
775	8-11-4	Potassium phospl	nate, dibasic	No data.	No data.	No data.		
777	8-77-0	Potassium phospl	nate, Monobasic	No data.	No data.	No data.		
773	2-18-5	Water		No data.	No data.	No data.		
8.2 8.2.1	Engine (Ventila	ure Controls: ering Controls ation etc.):	control airborne lev	sures, local exhaust v els below recommend	entilation, or other engine ded exposure limits.	ering controls to		
8.2.2		nal protection entection entection:	quipment: Safety glasses					
	•	ive Gloves:	Compatible chemic	al-resistant gloves				
		Protective	Lab coat					
	Respira	-	t NIOSH approved re	espirator, as condition	is warrant.			
		lygienic/Mainter ractices:	Do not take internal Facilities storing or a safety shower. Wash thoroughly af	utilizing this material	should be equipped with	an eyewash facility and		
						Multi-region forma		



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		Supersedes Revision: 05/02	2/2013					
	S	Section 9. Physical and Chemical Properties						
9.1	Information on Basic F	Physical and Chemical Properties						
	Physical States: [] Gas [X] Liquid [] Solid							
	Appearance and Odor: A clear, colorless solution							
	pH:	7.4						
	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. Ai	ir or No data.						
	mm Hg):							
	Vapor Density (vs. Air	= 1): No data.						
	Specific Gravity (Wate	er = 1): No data.						
	Solubility in Water:	No data.						
	Autoignition Pt:	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 -	strong oxidizing agents						
	Materials To Avoid:							
10.6	Hazardous	phosphorus oxides						
	Decomposition Or	potassium oxides						
	Byproducts:							
		Section 11. Toxicological Information						
11.1	Information on	The toxicological effects of this product have not been thoroughly studied.						
• • •	Toxicological Effects:							
Carci	nogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No						
		Section 12. Ecological Information						
12.1	Toxicity:	Avoid release into the environment.						
		Runoff from fire control or dilution water may cause pollution.						
			on for-					
		Multi-regio	on torn					



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	Section 13. Dispos	sal Considerat	tions						
13.1 Waste Metho	Disposal Dispose in accordance with I d:	local, state, and fee	deral regulations.						
Section 14. Transport Information									
14.1 LAND) TRANSPORT (US DOT):								
	per Shipping Name: Not dangerous goods. ard Class: umber:								
14.1 LAND) TRANSPORT (European ADR/RID):								
ADR/RID UN Numb Hazard C									
14.3 AIR T	RANSPORT (ICAO/IATA):								
ICAO/IAT	A Shipping Name: Not dangerous goods.								
Additional T	•	h local, state, and f	ederal regulation	IS.					
Information:									
	Section 15. Regul	latory Informa	tion						
	uperfund Amendments and Reauthorization Act	of 1986) Lists	r						
CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)					
7758-11-4	Potassium phosphate, dibasic	No	No	No					
7778-77-0	Potassium phosphate, Monobasic	No	No	No					
7732-18-5	Water	No	No	No					
CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists							
7758-11-4	Potassium phosphate, dibasic	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No							
7778-77-0	Potassium phosphate, Monobasic	CAA HAP,ODC: N PROP.65: No	o; CWA NPDES:	No; TSCA: Inventory; CA					
7732-18-5	Water	CAA HAP,ODC: N PROP.65: No	o; CWA NPDES:	No; TSCA: Inventory; CA					
European Co	ommunity Hazard Symbol codes:								
European Co R41	ommunity Risk and Safety Phrases: Risk of serious damage to the	eves							
S24/25	Avoid contact with skin and ey	•							
S26	In case of contact with eyes, ri advice.		ith plenty of wate	er and seek medical					
S36/37/39	Wear suitable protective clothi	ng, gloves and eye	/face protection.						
Regulatory Ir Statement:	nformation This SDS was prepared in a European Directive 67/548/E		gulation (EC) No	.1272/2008 and					
				Multi-region format					



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	Supersedes Revision: 05/02/2013								
	Section 16. Other Information								
Revision Date:	12/09/2013								
Additional Information A This Product:	bout 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.								
	N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required								



SAFETY DATA SHEET TMB Substrate Solution

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						Supersedes Revision: 05/08/2013
		accol	ding to Regulation (EC) No. 19	907/2006 as amended b	y (EC) No. 1272/20	08
		Section 1. Ic	lentification of the Substa	ance/Mixture and of	the Company/L	Indertaking
1.1		ct Code: ct Name:	400074 TMB Substrate Solutio	on		
1.2	Releva	Int identified uses	of the substance or m	ixture and uses a	dvised against	:
	Releva	int identified uses	: For research use only	, not for human or v	veterinary use.	
1.3		s of the Supplier c any Name:	f the Safety Data Shee Cayman Chemical Co 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	mpany		
	Web si Inform	ite address: ation:	www.caymanchem.co Cayman Chemical Co		+1 (73	4)971-3335
1.4	-	ency telephone n ency Contact:	umber: CHEMTREC Within U CHEMTREC Outside		•	10)424-9300 13)527-3887
			Section 2. Ha	azards Identifi	cation	
2.1.1 2.1.2 2.2 2.2.1 2.2.1 2.2.2	Class Risk P For fu Label GHS Si GHS H Based GHS P No phra GHS R No phra GHS S Please Label	ification accordin Phrases: II text of R- phrase Elements: ing according to F ignal Word: azard Phrases: on evaluation of cu recaution Phrases ases apply. esponse Phrases ases apply. torage and Dispo refer to Section 7 f ing according to I	s:	EC: 2/2008 [CLP]: is substance or mix	ture is not class	ifiable according to GHS.
2.3		and Symptoms:	May be harmful by inhala May cause eye, skin, or Overexposure may caus To the best of our knowle nvestigated.	ation, ingestion, or s respiratory system e reproductive diso edge, the toxicologi	skin absorption. irritation. orders based on ical properties h	tests with laboratory animal ave not been thoroughly
		Section	on 3. Compositio	mormation		ins .
		1				
CAS # RTEC		Hazardous Compo REACH Registratio	nents (Chemical Name)/ on No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification



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				1. First Aid Me	easures		
4.1	Descrij Measu	ption of First Ai res:	d				
	In Case	e of Inhalation:	Remove to fresh air personnel. Get imm		ve artificial respiration or g ntion.	ive oxygen by trained	
	In Case Contac	e of Skin st:	-		lenty of water for at least 2 ention if symptoms occur. V		
	In Case Contac	e of Eye st:	Hold eyelids apart a examined and teste		plenty of water for at least 2 nnel.	20 minutes. Have eye	
	In Case	e of Ingestion:		erson. Get medical	erson is conscious. Never of attention. Do NOT induce		
			Section 5.	Fire Fighting	Measures		
5.1	Suitabl Media: Unsuita		Use water spray to	cool fire-exposed c		ıl spray.	
5.2	Exting Flamm	uishing Media: able Properties	A solid water strean No data available.	n may be memcient			
	and Ha Flash F		170.00 F (76.7 C)	Method Used: Cl	osed Cup		
	Explos	ive Limits:	LEL: No data.	U	EL: No data.		
	Autoig	nition Pt:	No data.				
5.3	Fire Fig Instruc		•		athing apparatus pressure- ctive gear to prevent contac	•	
			Section 6. Acc	cidental Relea	se Measures		
6.1	Protect	tive Equipment nergency		ant, wear a NIOSH	dequate ventilation. approved self-contained br rotection (rubber boots, saf	• • • •	
6.2	Enviro Precau	nmental itions:	Take steps to avoid release into the environment, if safe to do so.				
6.3		ds and Material ntainment and ng Up:	Contain spill and contain spill and contain spill and contain the		e. r for disposal in accordanc	e with local regulations	
			Section 7.	Handling and	d Storage		
7.1		itions To Be in Handling:	Avoid breathing dus Avoid prolonged or	-			
7.2							
		Sec	tion 8. Exposu	re Controls/Pe	ersonal Protection		
8.1	Expos	ure Parameters:					
CAS	#	Partial Chemical	Name	Britain EH40	France VL	Europe	
	NA	TMB Substrate S	olution	No data.	No data.	No data.	



SAFETY DATA SHEET **TMB Substrate Solution**

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CAS #	# Partial Chemical		Name		OSHA TWA			ACGIH TWA		Other Limits	
NA TMB Substrate So			olution		No dat	a.		No data.		No data.	
3.2	Expos	sure Controls:			Į					-!	
8.2.1	Engin	eering Controls	Use p	rocess enclos	sures, l	ocal exhaust	ven	tilation, or other er	gineering	controls to	
	-	lation etc.):						d exposure limits.	0 0		
8.2.2	Perso	onal protection e	quipm	ent:							
	Eye P	rotection:	Safety	/ glasses							
	Protec	ctive Gloves:	Comp	atible chemic	al-resis	stant gloves					
	Other	Protective	Lab c	oat							
	Clothi	ng:									
	•	ratory Equipment ify Type):	t NIOS	H approved re	espirato	or, as conditio	ons v	warrant.			
		Hygienic/Mainter			•						
	ance F	Practices:		•	utilizin	g this materia	al sh	ould be equipped	with an ey	ewash and a	
				shower. thoroughly a	ftor har	odling					
						•	<u> </u>				
		S	ectio	n 9. Phys	sical a	and Chem	nica	al Properties			
9.1	Inform	nation on Basic P	hysica	al and Chemi	cal Pro	operties					
	Physic	cal States:			[X] Lio	quid []S	Solid				
	Appea	arance and Odor:		No data ava	ilable.						
	pH:			5.9							
		g Point:		No data.							
		g Point:		No data.							
	Flash			170.00 F (76	6.7 C)	Method Use	ed:	Closed Cup			
	-	oration Rate:		No data.							
	-	sive Limits:		LEL: No dat	ta.			UEL: No data.			
	mm H			No data.							
	-	Density (vs. Air	•	No data.							
	•	fic Gravity (Water	r = 1):	No data.							
		ility in Water:		No data.							
	-	gnition Pt:		No data.							
9.2	Other	Information									
	Perce	nt Volatile:		No data.							
			S	ection 10	. Stat	oility and	Rea	activity			
10.1	React	ivity:	No da	ta available.							
10.2	Stabili	ity:	Unsta	ble[] S	table [X]					
10.3	Stabili	ity Note(s):	Stable	e if stored in a	iccorda	nce with info	rmat	tion listed on the p	roduct ins	ert.	
	Polym	erization:	Will o	ccur []	Will not	occur [X]					
10.4	Condi	tions To Avoid:	No da	ta available.							
10.5		patibility - ials To Avoid:	strong	ı oxidizing ag	ents						
10.6	Hazar	dous	carbo	n dioxide							
	Decon	nposition Or	carbo	n monoxide							
	Bypro	ducts:	nitrog	en oxides							
										Multi-region for	



SAFETY DATA SHEET TMB Substrate Solution

Revision: 12/09/2013 Supersedes Revision: 05/08/2013

			Section	11. Toxicol	ogical Inform		sedes ((evision: 03/00/2013		
11.1	Informat Toxicolo	ion on gical Effects:	The toxicolog	gical effects of th	is product have	not been thoroughl	ly studied.		
Carci	inogenicit	-	NTP? No	IARC Monogra	aphs? No C	SHA Regulated?	No		
			Sectio	on 12. Ecolo	gical Inform	ation			
12.1	Toxicity:		Avoid releas	e into the enviro	nment.				
			Runoff from	fire control or dil	ution water may	cause pollution.			
			Sectior	n 13. Dispos	al Consider	ations			
13.1	3.1 Waste Disposal Dispose in accordance with local, state, and federal regulations. Method: Dispose in accordance with local, state, and federal regulations.								
			Secti	on 14. Trans	sport Inform	ation			
14.1	LAND T	RANSPORT (I	JS DOT):						
D	OT Prope OT Hazar IN/NA Nun		me: Not danç	gerous goods.					
U H 14.3	 14.1 LAND TRANSPORT (European ADR/RID): ADR/RID Shipping Name: Not dangerous goods. UN Number: Hazard Class: 14.3 AIR TRANSPORT (ICAO/IATA): ICAO/IATA Shipping Name: Not dangerous goods. Additional Transport Transport in accordance with local, state, and federal regulations. 								
Infor	mation:		Sectio	n 15. Regul	atory Inform	ation			
		orfund Amonda		uthorization Act of	-				
CAS	i	Hazardous Com			S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)		
		TMB Substrate S			No	No	No		
CAS	#	Hazardaua Cam	nonanta (Chai	miaal Nama)	Other US EPA o	r Stata Liata	ł		
CAS		Hazardous Com TMB Substrate S				No; CWA NPDES: I	No; TSCA: No; CA		
Euro S24/	European Community Hazard Symbol codes: European Community Risk and Safety Phrases: S24/25 Avoid contact with skin and eyes. S37/39 Wear suitable gloves and eye/face protection.								
-	llatory Info ment:	ormation		as prepared in ac rective 67/548/E		egulation (EC) No.	.1272/2008 and		
			Sec	tion 16. Oth	er Informati	on			
Addit	sion Date: tional Info Product:	rmation About	12/09/2013 : No data avai	ilable.					
Com	pany Polic	cy or	DISCLAIME	R: This informati	on is believed to	be accurate and re	epresents the best		
							Multi-region format		



SAFETY DATA SHEET TMB Substrate Solution

Revision: 12/09/2013 Supersedes Revision: 05/08/2013

Disclaimer:

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

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



Multi-region format

Revision: 12/06/2013

		ording to Regulation (EC) No. 1907/2006 as amended by (B dentification of the Substance/Mixture and of the			
	Section 1. 1		e company/ondenaking		
1.1	Product Code: Product Name:	400850 Anti-TNFaplha. (mouse) Biotin Conjugate			
1.2	Relevant identified use	s of the substance or mixture and uses adv	ised against:		
	Relevant identified use	s: For research use only, not for human or vet	erinary use.		
1.3	Details of the Supplier	of the Safety Data Sheet:			
1.5	Company Name:	Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108			
	Web site address: Information:	www.caymanchem.com Cayman Chemical Company	+1 (734)971-3335		
1.4	Emergency telephone r 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		
2.1 2.1.1	Classification of the Su Classification accordir Acute Toxicity: Oral, Ca Acute Toxicity: Skin, C	ng to Regulation (EC) No 1272/2008 [CLP]: ategory 4			
	Skin Corrosion/Irritatio				
2.1.2	 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 				
2.2 2.2.1	2.2 Label Elements:				
	GHS Signal Word:	Danger			
	GHS Hazard Phrases:				
	H302: Harmful if swallow H313: May be harmful in H316: Causes mild skin i	contact with skin. rritation.			
	H318: Causes serious ey	-			
	GHS Precaution Phrase P264: Wash {hands} thor P280: Wear {protective g		rotection}.		
	GHS Response Phrases				
	P301+312: IF SWALLOV P330: Rinse mouth.	VED: Call a POISON CENTER or doctor/physic ENTER/doctor/} if you feel unwell.	cian if you feel unwell.		



	GHS Storage and Disposal Phrases:									
	ase refer to Section 7 for Storage and Section	13 for Disposal info	ormation.							
2.2.2 La	2 Labeling according to Directive 1999/45/EC:									
>										
2.3 Adv	verse Human Health Causes mild skin irritation	n								
	ects and Symptoms: Causes serious eye dar									
	Harmful if swallowed.	nage.								
	Material may be irritatin	-		oper respiratory tract.						
	May be harmful by inha	ation or skin absor	ption.							
	May cause respiratory s	system irritation.								
	To the best of our know	ledge, the toxicolog	ical properties h	ave not been thoroughly						
	investigated.									
	Section 3. Composition	n/Information	on Ingredie	ents						
CAS #/	Hazardous Components (Chemical Name)/	Concentration	EC No./	Risk Phrases/						
RTECS #	REACH Registration No.		EC Index No.	GHS Classification						
NA	Anti-TNFalpha. (mouse) Biotin Conjugate	99.99 %	NA	Xn; R22-41						
NA			NA	Acute Tox.(O) 4: H302						
				Acute Tox.(D) 5: H313						
				Skin Corr 2. 4216						

				Acute Tox.(D) 5: H313 Skin Corr. 3: H316 Eye Damage 1: H318
26628-22-8 VY8050000	Sodium azide	0.01 %	011-004-00-7	T+; N; R28-32-50/53 Acute Tox.(O) 2: H300 Acute Tox.(D) 1: H310 TOST (RE) 2: H373 Aquatic (C) 1: H410

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 M	easures			
ـــــــ 5.1	Suitab	le Extinguishing			e, water, or dry chemical	spray.		
	Media	:	Use water spray	to cool fire-exposed cont	tainers.			
	Unsuit	able	A solid water stre	eam may be inefficient.				
	-	uishing Media:						
5.2		able Properties azards:	Emits toxic fume	s under fire conditions.				
	Flash	Pt:	No data.					
	Explos	sive Limits:	LEL: No data.	UEL	: No data.			
	Autoig	nition Pt:	No data.					
5.3	Fire Fi Instruc		•		ng apparatus pressure-de re gear to prevent contact	•		
			Section 6. A	ccidental Release	e Measures			
6.1	Protec and Er	Protective Precautions, Avoid raising and breathing dust, and provide adequate ventilation.Protective Equipment and EmergencyAs conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and he rubber gloves).						
6.2		Environmental Take steps to avoid release into the environment, if safe to do so. Precautions:						
6.3	For Co	ds and Material ontainment and ng Up:	Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.					
			Section	7. Handling and S	Storage			
7.1	Precau	utions To Be	Avoid breathing	d breathing dust/fume/gas/mist/vapours/spray.				
	Taken	in Handling:	Avoid prolonged or repeated exposure.					
7.2	Precau	utions To Be	Keep container tightly closed.					
	Taken	in Storing:	Store in accordance with information listed on the product insert.					
		Sec	tion 8. Expos	sure Controls/Pers	sonal Protection			
8.1	Expos	ure Parameters:						
CAS	#	Partial Chemical	Name	Britain EH40	France VL	Europe		
	NA	Anti-TNFalpha. (Conjugate	(mouse) Biotin	No data.	No data.	No data.		
2662	28-22-8	Sodium azide		TWA: 0.1 mg/m3 () STEL: 0.3 mg/m3 ()	TWA: 0.1 mg/m3 STEL: 0.3 mg/m3	TWA: 0.1 mg/m3 STEL: 0.3 mg/m3		
CAS	#	Partial Chemical	Name	OSHA TWA	ACGIH TWA	Other Limits		
NA Anti-TNFalpha. (Conjugate		(mouse) Biotin	No data.	No data.	No data.			
		- 1.3						



8.2	Exposure Controls:	
8.2.1	Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
8.2.2		
	Eye Protection:	Safety glasses
	Protective Gloves:	Compatible chemical-resistant gloves
	Other Protective Clothing:	Lab coat
	-	t NIOSH approved respirator, as conditions warrant.
	Work/Hygienic/Mainter	Do not take internally.
	ance Practices:	Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower. Wash thoroughly after handling.
	S	ection 9. Physical and Chemical Properties
9.1		Physical and Chemical Properties
	Physical States:	[]Gas []Liquid [X]Solid
	Appearance and Odor:	
	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. Ai	
	mm Hg):	
	Vapor Density (vs. Air	= 1): No data.
	Specific Gravity (Wate	
	Solubility in Water:	, No data.
	Autoignition Pt:	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 -	strong oxidizing agents
	Materials To Avoid:	
10.6	Hazardous	hydrogen chloride gas
	Decomposition Or	phosphorus oxides
	Byproducts:	potassium oxides
		sodium oxides



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		Sectior	n 11. Toxico	ological Inf	ormation		
	ormation on kicological Effects:	The toxicolo	gical effects of	this compound	have not been thoro	oughly studied.	
Carcinog	enicity:	NTP? No	IARC Monog	graphs? No	OSHA Regulated?	' No	
		Section	on 12. Ecol	ogical Info	rmation		
12.1 To>	cicity:		e into the envir fire control or c		ay cause pollution.		
		Sectior	n 13. Dispo	sal Consic	lerations		
	ste Disposal thod:	Dispose in a	ccordance with	n local, state, a	nd federal regulations	S.	
		Secti	on 14. Trai	nsport Info	rmation		
14.1 LA	AND TRANSPORT (US DOT):					
DOT H	Proper Shipping Na Hazard Class: A Number:	me: Not dang	gerous goods.				
ADR/F UN Nu Hazar 14.3 AI ICAO/	AND TRANSPORT (I RID Shipping Name umber: rd Class: IR TRANSPORT (IC/ /IATA Shipping Nam al Transport on:	Not dang AO/IATA): he: Not dang	gerous goods. gerous goods.	ith local, state,	and federal regulatio	ons.	
		Sectio	on 15. Regu	ulatory Info	rmation		
EPA SARA	A (Superfund Amendn	nents and Rea	uthorization Ac	t of 1986) Lists			
CAS #	Hazardous Com	ponents (Che	mical Name)	S. 302 (EHS	6) S. 304 RQ	S. 313 (TRI)	
NA	Anti-TNFalpha.	(mouse) Biotin	Conjugate	No	No	No	
26628-22	-8 Sodium azide			Yes 500 LB	Yes 1000 LB	Yes	
CAS #	Hazardous Com	ponents (Che	mical Name)	Other US EF	PA or State Lists		
NA	Anti-TNFalpha.	(mouse) Biotin	Conjugate	CAA HAP,O PROP.65: N	DC: No; CWA NPDES	:: No; TSCA: No; CA	
26628-22	-8 Sodium azide	Sodium azide			CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No		



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European Community Ha	azard Symbol codes:
	Xn
European Community Ris	sk and Safety Phrases
R22	Harmful if swallowed.
R41	Risk of serious damage to the eyes.
S22	Do not breathe dust.
S24/25	Avoid contact with skin and eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
Regulatory Information Statement:	This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.
	Section 16. Other Information
Revision Date:	12/06/2013
Additional Information Ab 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.
	N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

Product Information



Item No.

COMMENTS:

Each plate is coated with antibody. This Safety Data Sheet (SDS) is for the antibody only. An SDS on this material is not required as this substance is a naturally occurring animal product. However, we do recommend the following minimum precautions when using this substance:

- Do NOT get in eyes, on skin, or on clothing.
- Do NOT take internally.
- Wear protective gloves and safety glasses.
- Keep container closed.
- Store at correct temperature.
- Do NOT reuse this container.
- Do NOT release this material to the environment; dispose of by incineration in accordance with federal, state, and local regulations.
- Wash thoroughly after handling.

WARNING:

Not for human or animal disease diagnostics or therapeutic drug use.

The above information is believed to be correct but should only be used as a guide. Cayman Chemical disclaims any express or implied warranty as to the accuracy of the above information and shall not be held liable for any direct, incidental, or consequential damages resulting from reliance on the above information.

Copyright Cayman Chemical Company

Revision Date:

Cayman Chemical

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Web www.caymanchem.com



		ording to Regulation (EC) No. 1907/2006 as amended by (E	
	Section 1. I	Identification of the Substance/Mixture and of the	e Company/Undertaking
.1	Product Code: Product Name:	400853 TNFalpha. Streptavidin-HRP	
.2	Relevant identified use	s of the substance or mixture and uses adv	ised against:
	Relevant identified use	s: For research use only, not for human or vet	erinary use.
1.3	Details of the Supplier Company Name: Web site address:	of the Safety Data Sheet: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 www.caymanchem.com	
	Information:	Cayman Chemical Company	+1 (734)971-3335
1.4	Emergency telephone Emergency Contact:	number: CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887
		Section 2. Hazards Identifica	ation
2.1.2 2.2 2.2.1	Xn: Harmful Risk Phrases: R42/43 For full text of R- phras Label Elements:	egory 1 ng to Directive 1999/45/EC:	
	GHS Signal Word: GHS Hazard Phrases:	Danger	includ
	H317: May cause an alle	v or asthma symptoms or breathing difficulties if argic skin reaction.	innaled.
	P284: {In case of inadeq P272: Contaminated wor P280: Wear {protective g	es: lust/fume/gas/mist/vapours/spray}. uate ventilation, }wear respiratory protection {}. rk clothing should not be allowed out of the worl gloves/protective clothing/eye protection/face pr raminated clothing and wash it before reuse.	kplace.
	GHS Response Phrase P304+341: IF INHALED: for breathing. P342+311: If experiencir P302+352: IF ON SKIN:	-	ER or doctor/physician.
	GHS Storage and Dispo Please refer to Section 7	osal Phrases: 7 for Storage and Section 13 for Disposal inform	nation.



2.2.2	×		Directive 1999/45/EC:				
2.3	 Xn 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 allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause eye, skin, or respiratory system irritation. To the best of our knowledge, the toxicological properties have not been thoroughly investigated. 						
		Sect	tion 3. Composition	/Information of	on Ingredie	nts	
CAS : RTEC		Hazardous Com REACH Registra	oonents (Chemical Name)/ tion No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification	
NA NA		TNFalpha. Strepta	vidin-HRP	100.0 %	NA NA	Xn; R42/43 Resp. Sens. 1: H334 Skin Sens. 1: H317	
		·	Section 4. Fi	rst Aid Measu	ires	·	
4.1	Measures:		Remove to fresh air. If not personnel. Get immediate Immediately wash skin wit contaminated clothing. Ge reuse. Hold eyelids apart and flus examined and tested by m Wash out mouth with wate to an unconscious person.	medical attention. h soap and plenty t medical attention th eyes with plenty redical personnel. or provided person Get medical atten	of water for at l if symptoms of of water for at is conscious. N	ccur. Wash clothing before least 15 minutes. Have eyes lever give anything by mouth	
			directed to do so by medic	•			
	<u> </u>		Section 5. Fire				
5.1	Media: Unsuit		Use alcohol-resistant foan Use water spray to cool fir A solid water stream may	e-exposed contain		emical spray.	
5.2		azards:	No data available. No data.				
5.3	Explos	sive Limits: Inition Pt:	LEL: No data. No data. As in any fire, wear self-co		lo data. apparatus pres	sure-demand (NIOSH	
5.5	Instruc		-	-		contact with skin and eyes.	



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			Section 6. Ac	cidental Relea	se Measures			
6.1	Protect	ive Equipment lergency	As conditions warra	, Avoid breathing vapors and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy				
6.2	Enviror Precau	nmental tions:	Take steps to avoid	d release into the er	wironment, if safe to do so			
6.3		ls and Material ntainment and ng Up:	•	ollect, as appropriat ical waste containe	e. [.] for disposal in accordanc	e with local regulations.		
			Section 7.	Handling and	l Storage			
7.1 7.2	Taken i Precau	tions To Be n Handling: tions To Be n Storing:	Avoid prolonged or Keep container tigh	•				
		Sect	tion 8. Exposu	re Controls/Pe	ersonal Protection			
8.1	Exposu	Ire Parameters:						
CAS #	ŧ	Partial Chemical	Name	Britain EH40	France VL	Europe		
	NA	TNFalpha. Strep	tavidin-HRP	No data.	No data.	No data.		
CAS #	<i>‡</i>	Partial Chemical	Name	OSHA TWA	ACGIH TWA	Other Limits		
	NA	TNFalpha. Strep	tavidin-HRP	No data.	No data.	No data.		
8.2.1	(Ventila	ering Controls ition etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.					
8.2.2		nal protection e otection:						
	•	ive Gloves:	Safety glasses Compatible chemical-resistant gloves					
		Protective	Lab coat					
	Respira	-	t NIOSH approved respirator, as conditions warrant.					
		ygienic/Mainter ractices:	Do not take interna Facilities storing or safety shower. Wash thoroughly at	utilizing this materia	Il should be equipped with	an eyewash and a		



	ection 9. Physical and Chemical Properties		
Information on Basic P	hysical and Chemical Properties		
Physical States:	[]Gas [X]Liquid []Solid		
•	solution		
••	No data.		
-	No data.		
Flash Pt:	No data.		
	No data.		
•	LEL: No data. UEL: No data.		
-			
• •			
	= 1): No data.		
	•		
• •	No data.		
•	No data.		
Other Information			
Percent Volatile:	No data.		
	Section 10. Stability and Reactivity		
Reactivity:	No data available.		
-	Unstable [] Stable [X]		
•	Stable if stored in accordance with information listed on the product insert.		
	Stable If stored in accordance with information listed on the product insert. Will occur [] Will not occur [X]		
-			
	No data available.		
Materials To Avoid:	No data available.		
Hazardous	No data available.		
Byproducts:			
	Section 11. Toxicological Information		
Information on	The toxicological effects of this product have not been thoroughly studied.		
Toxicological Effects:			
nogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No		
	Section 12. Ecological Information		
Toxicity:	Avoid release into the environment.		
	Runoff from fire control or dilution water may cause pollution.		
	Section 13. Disposal Considerations		
Waste Disposal	Dispose in accordance with local, state, and federal regulations.		
Method:			
	Multi-region format		
	Appearance and Odor: Melting Point: Boiling Point: Flash Pt: Evaporation Rate: Explosive Limits: Vapor Pressure (vs. Air mm Hg): Vapor Density (vs. Air = Specific Gravity (Water Solubility in Water: Autoignition Pt: Other Information Percent Volatile: Reactivity: Stability: Stability: Stability: Stability: Stability: Stability Note(s): Polymerization: Conditions To Avoid: Incompatibility - Materials To Avoid: Hazardous Decomposition Or Byproducts: Information on Toxicological Effects: ogenicity:		



Revision: 12/06/2013

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not dangerous goods. DOT Hazard Class: UN/NA Number:

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods. UN Number: Hazard Class:

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not dangerous goods.

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

Information:

Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
NA	TNFalpha. Streptavidin-HRP	No	No	No
CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists		
NA	TNFalpha. Streptavidin-HRP	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA		
			0, 000/111 DE0. 110,	100A. NO, OA

European Community Hazard Symbol codes:



European Community Risk and Safety Phrases:				
R42/43	May cause sensitization by inhalation and skin contact.			
S24/25	Avoid contact with skin and eyes.			
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.			
Regulatory Information Statement:	This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.			
	Section 16. Other Information			
Revision Date:	12/06/2013			
Additional Information Ab	out No data available.			
This Product:				
Company Policy or	DISCLAIMER: This information is believed to be accurate and represents the best			
Disclaimer:	information currently available to us. However, we make no warranty of merchantability			
	or any other warranty, express or implied, with respect to such information, and we			
	assume no liability resulting from its use. Users should make their own investigations to			
	determine the suitability of the information for their particular purposes.			
	N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required			
	Multi-region format			



Section 1. Identification of the Substance/M 1.1 Product Code: 400854 Product Name: TNFalpha. (mouse) EIA St 1.2 Relevant identified uses of the substance or mixture Relevant identified uses: For research use only, not fo 1.3 Details of the Supplier of the Safety Data Sheet: Company Name: Cayman Chemical Company 1130 E. Ellsworth Rd. Ann Arbor, MI 48108 Web site address: www.caymanchem.com Information: Cayman Chemical Company 1.4 Emergency telephone number: Emergency Contact: CHEMTREC Within USA an CHEMTREC Outside USA a Section 2. Hazard 2.1 Classification of the Substance or Mixture: 2.1.1 Classification according to Regulation (EC) No 127: Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/200	6 as amended by (EC) No. 1272/2008
Product Name: TNFalpha. (mouse) EIA St 1.2 Relevant identified uses of the substance or mixture Relevant identified uses: For research use only, not for the Safety Data Sheet: Company Name: Cayman Chemical Company Name: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 Web site address: www.caymanchem.com Information: Cayman Chemical Company 1.4 Emergency telephone number: Emergency Contact: CHEMTREC Within USA an CHEMTREC Outside USA a 2.1 Classification according to Regulation (EC) No 1272 Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. E.2 2.1 Labeling according to Regulation (EC) No 1272/200 Volumeter GHS Signal Word: Danger GHS Hazard Phrases: Hacute for charmful in contact with skin. H313: May be harmful in contact with skin. H316: Causes serious eye damage. GHS Precaution Phrases: P264: Wash (hands) thoroughly after handling. <th>ixture and of the Company/Undertaking</th>	ixture and of the Company/Undertaking
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 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 Cayman Chemical Company 1.4 Emergency telephone number: Emergency Contact: CHEMTREC Within USA an CHEMTREC Outside USA a Section 2. Hazard 2.1 Classification of the Substance or Mixture: 2.1.1 Classification according to Regulation (EC) No 1272 Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/200 I CHS Signal Word: Danger GHS Signal Word: Danger GHS Hazard Phrases: H302: Harmful if swallowed. H313: May be harmful in contact with skin. H316: Causes mild skin irritation. H318: Causes serious eye damage. GHS Precaution Phrases: P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye prise GHS Response Phrases: P301+312: IF SWALLOWED: Call a POISON CENTER 	and uses advised against:
Company Name: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 Web site address: www.caymanchem.com Information: Cayman Chemical Company 1.4 Emergency telephone number: Emergency Contact: CHEMTREC Within USA and CHEMTREC Outside USA at Section 2. Hazard 2.1 Classification of the Substance or Mixture: 2.1.1 Classification according to Regulation (EC) No 127: Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/200 Image: GHS Signal Word: Danger GHS Signal Word: Danger GHS Hazard Phrases: H302: Harmful if swallowed. H313: May be harmful in contact with skin. H316: Causes mild skin irritation. H318: Causes serious eye damage. GHS Precaution Phrases: P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye pr </td <td>r human or veterinary use.</td>	r human or veterinary use.
Company Name: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108 Web site address: www.caymanchem.com Information: Cayman Chemical Company 1.4 Emergency telephone number: Emergency Contact: CHEMTREC Within USA and CHEMTREC Outside USA at 2.1 Classification of the Substance or Mixture: 2.1.1 Classification according to Regulation (EC) No 127: Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/200 Image: GHS Signal Word: Danger GHS Signal Word: Danger GHS Hazard Phrases: H302: Harmful if swallowed. H313: May be harmful in contact with skin. H316: Causes mild skin irritation. H318: Causes serious eye damage. GHS Precaution Phrases: P264: Wash (hands) thoroughly after handling. P280: Wear (protective gloves/protective clothing/eye pr	
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Emergency Contact: CHEMTREC Within USA an CHEMTREC Outside USA a Section 2. Hazard 2.1 Classification of the Substance or Mixture: 2.1 Classification according to Regulation (EC) No 1273 Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.1 Label Elements: 2.1.1 Labeling according to Regulation (EC) No 1272/200 Image: Contact Signal Word: Danger GHS Signal Word: Danger GHS Hazard Phrases: H302: Harmful if swallowed. H313: May be harmful in contact with skin. H316: Causes mild skin irritation. H318: Causes serious eye damage. GHS Precaution Phrases: P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye pr GHS Response Phrases: P301+312: IF SWALLOWED: Call a POISON CENTER	+1 (734)971-3335
CHEMTREC Outside USA a Section 2. Hazard 2.1 Classification of the Substance or Mixture: 2.1.1 Classification according to Regulation (EC) No 1272 Acute Toxicity: Oral, Category 4 Acute Toxicity: Skin, Category 5 Skin Corrosion/Irritation, Category 3 Serious Eye Damage/Eye Irritation, Category 1 2.1.2 Classification according to Directive 1999/45/EC: Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/200 GHS Signal Word: Danger GHS Hazard Phrases: H302: Harmful if swallowed. H313: May be harmful in contact with skin. H316: Causes mild skin irritation. H318: Causes serious eye damage. GHS Precaution Phrases: P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye pu GHS Response Phrases: P301+312: IF SWALLOWED: Call a POISON CENTER	
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 Xn: Harmful Risk Phrases: R22, R41 For full text of R- phrases: see SECTION 15. 2.2 Label Elements: 2.2.1 Labeling according to Regulation (EC) No 1272/2004 	
 2.2.1 Labeling according to Regulation (EC) No 1272/2001 Constraint of the second straint of	
GHS Signal Word:DangerGHS Hazard Phrases:DangerGHS Hazard Phrases:H302: Harmful if swallowed.H313: May be harmful in contact with skin.H316: Causes mild skin irritation.H318: Causes serious eye damage.GHS Precaution Phrases:P264: Wash {hands} thoroughly after handling.P280: Wear {protective gloves/protective clothing/eye prGHS Response Phrases:P301+312: IF SWALLOWED: Call a POISON CENTER	3 [CLP]:
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H318: Causes serious eye damage. GHS Precaution Phrases: P264: Wash {hands} thoroughly after handling. P280: Wear {protective gloves/protective clothing/eye pr GHS Response Phrases: P301+312: IF SWALLOWED: Call a POISON CENTER	
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P280: Wear {protective gloves/protective clothing/eye pr GHS Response Phrases: P301+312: IF SWALLOWED: Call a POISON CENTER	
P301+312: IF SWALLOWED: Call a POISON CENTER	otection/face protection}.
P312: Call a {POISON CENTER/doctor/} if you feel un P332+313: If skin irritation occurs, get medical advice/at P305+351+338: IF IN EYES: Rinse cautiously with wate present and easy to do. Continue rinsing.	well.



C	HS Storage an	d Disposal Phrases:			
	-	ection 7 for Storage and Section 1	3 for Disposal inf	ormation	
		ding to Directive 1999/45/EC:		ornation.	
	×				
	Xn				
.3 A	dverse Human	Health Causes mild skin irritation	۱.		
Ef	ffects and Sym	ptoms: Causes serious eye dama	age.		
	-	Harmful if swallowed.			
		Material may be irritating	to the mucous me	embranes and up	oper respiratory tract.
		May be harmful by inhala	tion or skin absor	otion.	
		May cause respiratory sy			
		To the best of our knowle		ical properties h	ave not been thoroughly
					ave 1101 been 111010000111
			age, the toxicolog		ave not been thoroughly
		investigated.			
CAS # /		investigated. Section 3. Composition s Components (Chemical Name)/		on Ingredie	NtS Risk Phrases/
		investigated. Section 3. Composition	n/Information	on Ingredie	nts
TECS #	# REACH R	investigated. Section 3. Composition s Components (Chemical Name)/	n/Information	on Ingredie	NtS Risk Phrases/
TECS #	# REACH R	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No.	n/Information	On Ingredie EC No./ EC Index No.	NTS Risk Phrases/ GHS Classification
ATECS #	# REACH R	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No.	n/Information	On Ingredie EC No./ EC Index No. NA	NtS Risk Phrases/ GHS Classification Xn; R22-41
RTECS #	# REACH R	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No.	n/Information	On Ingredie EC No./ EC Index No. NA	Nts Risk Phrases/ GHS Classification Xn; R22-41 Acute Tox.(O) 4: H302
TECS #	# REACH R	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No.	n/Information	On Ingredie EC No./ EC Index No. NA	Nts Risk Phrases/ GHS Classification Xn; R22-41 Acute Tox.(O) 4: H302 Acute Tox.(D) 5: H313
TECS # A A	# REACH R TNFalpha	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No. . (mouse) EIA Standard	n/Information	On Ingredie EC No./ EC Index No. NA	NtS Risk Phrases/ GHS Classification Xn; R22-41 Acute Tox.(O) 4: H302 Acute Tox.(D) 5: H313 Skin Corr. 3: H316
TECS # A A 26628-22	# REACH R TNFalpha 2-8 Sodium azi	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No. . (mouse) EIA Standard	Concentration 99.99 %	On Ingredie EC No./ EC Index No. NA NA	Nts Risk Phrases/ GHS Classification Xn; R22-41 Acute Tox.(O) 4: H302 Acute Tox.(D) 5: H313 Skin Corr. 3: H316 Eye Damage 1: H318
RTECS #	# REACH R TNFalpha 2-8 Sodium azi	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No. . (mouse) EIA Standard	Concentration 99.99 %	On Ingredie EC No./ EC Index No. NA NA 247-852-1	Nts Risk Phrases/ GHS Classification Xn; R22-41 Acute Tox.(O) 4: H302 Acute Tox.(D) 5: H313 Skin Corr. 3: H316 Eye Damage 1: H318 T+; N; R28-32-50/53
26628-22 (Y805000	# REACH R TNFalpha 2-8 Sodium azi	investigated. Section 3. Composition s Components (Chemical Name)/ egistration No. . (mouse) EIA Standard	Concentration 99.99 %	On Ingredie EC No./ EC Index No. NA NA 247-852-1	Risk Phrases/ GHS ClassificationXn; R22-41 Acute Tox.(O) 4: H302 Acute Tox.(D) 5: H313 Skin Corr. 3: H316 Eye Damage 1: H318T+; N; R28-32-50/53 Acute Tox.(O) 2: H300

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. Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove In Case of Skin **Contact:** contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes In Case of Eye Contact: examined and tested by medical personnel. Wash out mouth with water provided person is conscious. Never give anything by mouth In Case of Ingestion: to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.



			Section 5.	Fire Fighting M	easures	
5.1					le, water, or dry chemical	spray.
	Media:			cool fire-exposed cont	tainers.	
	Unsuit		A solid water strea	m may be inefficient.		
	-	uishing Media:				
5.2	Flamm and Ha	able Properties zards:	Emits toxic fumes	under fire conditions.		
	Flash F	Pt:	No data.			
	Explos	ive Limits:	LEL: No data.	UEL	.: No data.	
	Autoig	nition Pt:	No data.			
5.3	Fire Fig Instruc				ing apparatus pressure-de re gear to prevent contact	•
			Section 6. Ac	cidental Release	e Measures	
6.1				•	ovide adequate ventilation	
		tive Equipment			proved self-contained brea	• • •
	and En	nergency	respirator, and ap rubber gloves).	propriate personal prote	ection (rubber boots, safe	y goggles, and neav
6.2		nmental	• ,	id release into the envir	ronment, if safe to do so.	
0.2	Precau					
6.3	Method	ds and Material	Contain spill and o	collect, as appropriate.		
		ntainment and	Transfer to a cher	nical waste container fo	or disposal in accordance	with local regulation
	Cleanii	ng Up:				
			Section 7	. Handling and S	Storage	
7.1	Precau	tions To Be	-	ıst/fume/gas/mist/vapoເ	urs/spray.	
		in Handling:		r repeated exposure.		
7.2		tions To Be	Keep container tig	•		
	Taken	in Storing:	Store in accordance	ce with information liste	d on the product insert.	
		Sec	tion 8. Exposu	ure Controls/Pers	sonal Protection	
8.1	Expos	ure Parameters:				
CAS	#	Partial Chemical	Name	Britain EH40	France VL	Europe
	NA	TNFalpha. (mou	se) EIA Standard	No data.	No data.	No data.
266	28-22-8	Sodium azide		TWA: 0.1 mg/m3 ()	TWA: 0.1 mg/m3	TWA: 0.1 mg/m3
				STEL: 0.3 mg/m3 ()	STEL: 0.3 mg/m3	STEL: 0.3 mg/m3
CAS	#	Partial Chemical	Name	OSHA TWA	ACGIH TWA	Other Limits
	NA	TNFalpha. (mou	se) EIA Standard	No data.	No data.	No data.
		Sodium azide		No data.	CEIL: 0.29 mg/m3	No data.



8.2	Exposure Controls:	
8.2.1	•	Use process enclosures, local exhaust ventilation, or other engineering controls to
•- <u>-</u>	(Ventilation etc.):	control airborne levels below recommended exposure limits.
8.2.2	Personal protection e	quipment:
	Eye Protection:	Safety glasses
	Protective Gloves:	Compatible chemical-resistant gloves
	Other Protective	Lab coat
	Clothing:	
	Respiratory Equipmen (Specify Type):	t NIOSH approved respirator, as conditions warrant.
	Work/Hygienic/Mainter	
	ance Practices:	Facilities storing or utilizing this material should be equipped with an eyewash and a
		safety shower.
		Wash thoroughly after handling.
	S	ection 9. Physical and Chemical Properties
9.1		Physical and Chemical Properties
	Physical States:	[]Gas []Liquid [X]Solid
	Appearance and Odor:	
	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. Ai	r or No data.
	mm Hg): Vapor Density (vs. Air	= 1): No data.
	Specific Gravity (Water	-
	Solubility in Water:	No data.
	Autoignition Pt:	No data.
9.2	Other Information	
0.2	Percent Volatile:	No data.
		Section 10. Stability and Reactivity
	Depetivity	No data available.
10.1 10.2	Reactivity:	Unstable [] Stable [X]
10.2	Stability: Stability Note(s):	Stable if stored in accordance with information listed on the product insert.
10.5	Polymerization:	Will occur [] Will not occur [X]
10.4	Conditions To Avoid:	No data available.
10.4	Incompatibility -	strong oxidizing agents
	Materials To Avoid:	
10.6	Hazardous	hydrogen chloride gas
	Decomposition Or Byproducts:	phosphorus oxides potassium oxides
	Byproducts:	sodium oxides



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Revision: 12/06/2013

		Section	n 11. Toxico	logical Inf	orma	tion	
	mation on cological Effects:	The toxicolo	gical effects of t	his compound	have r	not been thorough	ly studied.
Carcinoger	icity:	NTP? No	IARC Monog	raphs? No	OSH	A Regulated? No	
		Sectio	on 12. Ecolo	ogical Info	rmati	on	
12.1 Toxic	city:		e into the enviro fire control or di		nay cau	se pollution.	
		Sectior	n 13. Dispos	sal Consid	derati	ons	
13.1 Wast Meth	e Disposal od:	Dispose in a	ccordance with	local, state, ai	nd fede	eral regulations.	
		Secti	on 14. Tran	sport Info	rmati	on	
14.1 LAN	ID TRANSPORT (US DOT):					
DOT Ha	oper Shipping Na ızard Class: Number:	me: Not danç	gerous goods.				
		-	R/RID): gerous goods.				
14.3 AIR	TRANSPORT (IC	AO/IATA):					
	TA Shipping Nan		gerous goods.	h la sal stata	a se al fac		
Additional Information	•	i ransport in	accordance wit	n Iocal, state,	and red	deral regulations.	
		Sectio	n 15. Regu	latory Info	ormati	on	
EPA SARA (Superfund Amendr			-			
CAS #	Hazardous Com	ponents (Chei	mical Name)	S. 302 (EHS	6)	S. 304 RQ	S. 313 (TRI)
NA	TNFalpha. (mo	use) EIA Standa	ard	No		No	No
26628-22-8	Sodium azide			Yes 500 LB		Yes 1000 LB	Yes
CAS #	Hazardous Com	ponents (Chei	mical Name)	Other US EP	PA or St	tate Lists	
NA	TNFalpha. (mo	use) EIA Standa	ard	CAA HAP,O PROP.65: N		; CWA NPDES: No;	TSCA: No; CA
26628-22-8	Sodium azide			CAA HAP,O PROP.65: N		; CWA NPDES: No;	TSCA: Inventory; CA



European Community Ha	azard Symbol codes:
	Xn
European Community Ri	ick and Safety Phrases
R22	Harmful if swallowed.
R22 R41	
S22	Risk of serious damage to the eyes. Do not breathe dust.
S22 S24/25	
	Avoid contact with skin and eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical
000/07/00	advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
Regulatory Information	This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and
Statement:	European Directive 67/548/EEC as amended.
	Section 16. Other Information
Revision Date:	12/06/2013
Additional Information At	bout No data available.
This Product:	
Company Policy or	DISCLAIMER: This information is believed to be accurate and represents the best
Disclaimer:	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.
	NA Net available N.D. Net applicable N.D. Net determined N.C. Net actablished
	N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established,
	N.R.=Not required



Page: 1

			Supersedes Revision: 05/02/2013
	acco	rding to Regulation (EC) No. 1907/2006 as amended by (E	C) No. 1272/2008
	Section 1. Ic	dentification of the Substance/Mixture and of the	e Company/Undertaking
.1	Product Code: Product Name:	10011355 HRP Stop Solution	
.2		s of the substance or mixture and uses advi : For research use only, not for human or vete	-
1.3		of the Safety Data Sheet: Cayman Chemical Company 1180 E. Ellsworth Rd. Ann Arbor, MI 48108	
	Web site address: Information:	www.caymanchem.com Cayman Chemical Company	+1 (734)971-3335
1.4	Emergency telephone n Emergency Contact:	umber: CHEMTREC Within USA and Canada: CHEMTREC Outside USA and Canada:	+1 (800)424-9300 +1 (703)527-3887
		Section 2. Hazards Identifica	tion
2.2 2.2.1	Risk Phrases: R36/38 For full text of R- phras Label Elements: Labeling according to R	es: see SECTION 15. Regulation (EC) No 1272/2008 [CLP]:	
	GHS Signal Word: GHS Hazard Phrases: H314: Causes severe skii GHS Precaution Phrase P260: Do not breathe dus P264: Wash hands thorou	s: t/fume/gas/mist/vapours/spray.	
		oves/clothing and eye/face protection as specif	ied by the manufacturer/supplier or the
	water/shower. P363: Wash contaminater P305+351+338: IF IN EY present and easy to do. C P301+330+331: IF SWAL P304+340: IF INHALED:	KIN (or hair): Remove/take off immediately all o d clothing before reuse. ES: Rinse cautiously with water for several mir	nutes. Remove contact lenses, if
	GHS Storage and Dispo Please refer to Section 7	sal Phrases: for Storage and Section 13 for Disposal inform	ation



2.2.2 Labeling according to Directive 1999/45/EC:



2.3 Adverse Human Health Irritating to eyes, respiratory system, and skin.

Effects and Symptoms: Chronic exposure to mists containing sulfuric acid is a cancer hazard.

Harmful if swallowed, inhaled, or absorbed through the skin.

Inhalation may cause lung edema.

Long-term exposure to mist or vapors may cause damage to teeth.

Material is irritating to the mucous membranes and upper respiratory tract.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

	Section 3. Composition/Information on Ingredients					
CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification		
7664-93-9 WS5600000	Sulfuric acid	4.904 %	231-639-5 016-020-00-8	C;Xi; R35 Skin Corr. 1A: H314		
7732-18-5 ZC0110000	Water	95.096 %	231-791-2 NA	No phrases apply. No data available.		

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 Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove Contact: contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. In Case of Eye Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel. **Contact:** In Case of Ingestion: Do NOT induce vomiting. Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. 4.2 Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and Important Symptoms and Effects, Both scanty urine may follow ingestion or skin contact. Acute and Delayed: Ingestion may cause: Sore throat, vomiting, and diarrhea. Irritating to the skin, eyes, nose, throat, and respiratory tract. Section 5. Fire Fighting Measures 5.1 Suitable Extinguishing Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Media: Unsuitable DO NOT USE WATER. Extinguishing Media: 5.2 Flammable Properties Concentrated solutions react violently with water, spattering and liberating heat. and Hazards: Emits toxic and corrosive fumes under fire conditions. Not Flammable, but reacts with most metals to form flammable hydrogen gas. Flash Pt: No data. **Explosive Limits:** LEL: No data. UEL: No data. Multi-region format



	Autoia	nition Pt:	No data.		· · · ·		
5.3	Fire Fi			self-contained breat	hing apparatus pressure-de	mand (NIOSH	
	Instruc		approved or equivalent), and full protective gear to prevent contact with skin and eyes.				
			Section 6. Ac	cidental Releas	e Measures		
6.1	Protec	tive Precautions	s, Avoid breathing va	pors and provide ade	equate ventilation.		
		tive Equipment			pproved self-contained brea	• • •	
	and En Proced	nergency lures:	respirator, and app rubber gloves).	propriate personal pro	otection (rubber boots, safet	y goggles, and heavy	
6.2		nmental	Take steps to avoid release into the environment, if safe to do so.				
	Precau				,		
6.3		ds and Material	•	ollect, as appropriate			
	For Co Cleani	ntainment and	Transfer to a chem	nical waste container	for disposal in accordance	with local regulations.	
	Cleanin	ng op.			•		
			Section 7.	Handling and	Storage		
7.1		itions To Be	-	st/fume/gas/mist/vapo	ours/spray.		
7.2		in Handling: Itions To Be	Keep container tigh	repeated exposure.			
1.2		in Storing:		•	ed on the product insert.		
		-	tion 9 Exposu	ura Controle/Pou	reanal Protection		
0.4	Even		•		rsonal Protection		
8.1 CAS#	-	ure Parameters: Partial Chemical		Britain EH40	France VL	Europe	
	* 4-93-9	Sulfuric acid	Name	No data.	TWA: 1.0 mg/m3	No data.	
100	4-90-9				STEL: 3.0 mg/m3	No data.	
773	2-18-5	Water		No data.	No data.	No data.	
CAS #	#	Partial Chemical	Name	OSHA TWA	ACGIH TWA	Other Limits	
766	4-93-9	Sulfuric acid		PEL: 1 mg/m3	TLV: (1 mg/m3) STEL: (3 mg/m3)	No data.	
773	2-18-5	Water		No data.	No data.	No data.	
8.2	•	ure Controls:					
8.2.1	-	ering Controls ation etc.):		sures, local exhaust v vels below recommen	ventilation, or other enginee	ring controls to	
8.2.2	•	nal protection e					
•		otection:	Safety glasses				
	Protec	tive Gloves:	Compatible chemic	al-resistant gloves			
	Other I	Protective	Lab coat				
	Clothir	-					
	-	atory Equipmen fy Type):	t NIOSH approved r	espirator, as conditior	ns warrant.		
			Do not take interna				
	ance P	ractices:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.				
			Wash thoroughly a	fter handling.			
			0,				
						Multi-region forma	



		Supersedes Revision: 05/02/2013
	S	ection 9. Physical and Chemical Properties
9.1	Information on Basic F	Physical and Chemical Properties
	Physical States:	[]Gas [X]Liquid []Solid
	Appearance and Odor:	No data available.
	pH:	4.4
	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. Ai mm Hg):	r or No data.
	Vapor Density (vs. Air	= 1): No data.
	Specific Gravity (Wate	r = 1): No data.
	Solubility in Water:	No data.
	Autoignition Pt:	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 -	bases
	Materials To Avoid:	halogens
		hydrides
		lithium
		metal acetylides
		metals organic material
		oxides
		potassium chlorate
		potassium perchlorate
		potassium permanganate
		sodium
		strong oxidizing agents
		strong reducing agents
		water
10.6	Hazardous	carbon dioxide
	Decomposition Or Byproducts:	hydrogen cyanide hydrogen sulfide
	Byproducis.	nyarogen sullide



		Section 11. Toxi	cological Information			
11.1	Information on Toxicological Effects:	The toxicological effects	of this product have not been thoroug	ghly studied.		
		Sulfuric acid - Toxicity Data: Oral LD50 (rat): 2,140 mg/kg; Inhalation TCLO (human): 0.63				
			(mouse): 320 mg/m3; Inhalation LC5	0 (guinea pig): 18 mg/m3		
		Sulfuric acid - Irritation D	ata: Eyes (rabbit): 5 mg (30s) severe	, ,		
	Chronic Toxicological Effects:	•	ed as a reproductive effector. oxic Effects of Chemical Substances	(RTECS) data is presente		
		here.				
		See actual entry in RTEC Sulfuric Acid RTECS Nut	CS for complete information. mber: WS5600000			
Carci	nogenicity:	NTP? No IARC Mor	nographs? No OSHA Regulated	? No		
		Section 12. Ec	ological Information			
2.1	Toxicity:	Avoid release into the en Runoff from fire control o	vironment. r dilution water may cause pollution.			
		Section 13. Disp	oosal Considerations			
3.1	Waste Disposal Method:	Dispose in accordance w	vith local, state, and federal regulatior	nS.		
		Section 14. Tr	ansport Information			
14.1 D	LAND TRANSPORT (U OT Proper Shipping Nar	JS DOT): ne: Sulfuric acid [with 51	% or less acid]			
	OT Hazard Class:		ROSIVE			
U	N/NA Number:	2796	Packing Group:	II		
14.1	LAND TRANSPORT (E	European ADR/RID):				
	DR/RID Shipping Name:	• •	% or less acid]			
	N Number:	2796	Packing Group:	II		
	azard Class:	8 - CORROSIVE				
14.3 זי	AIR TRANSPORT (ICA AO/IATA Shipping Nam	•	% or less acid]			
	N Number:	2796	Packing Group:	Ш		
	azard Class:	8 - CORROSIVE	IATA Classification:	8		
	tional Transport	Transport in accordance	with local, state, and federal regulati	ons.		
Intor	mation:					



Revision: 12/09/2013 Supersedes Revision: 05/02/2013

		Section 15. Reg	-				
-		idments and Reauthorization Ac	-	0.001.00	0.040 (75)		
CAS #		omponents (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)		
7664-93-9	Sulfuric acid		Yes 1000 LB	Yes 1000 LB	Yes		
7732-18-5	Water		No	No	No		
CAS #	Hazardous C	omponents (Chemical Name)	Other US EPA o	r State Lists			
7664-93-9	Sulfuric acid		CAA HAP,ODC: No; CWA NPDES: No; TSCA: Inventor PROP.65: No				
7732-18-5	Water		CAA HAP,ODC: PROP.65: No	No; CWA NPDES: N	No; TSCA: Inventory; C/		
European C R36/38	ommunity Ris	Xi k and Safety Phrases: Irritating to eyes and skin.					
S24/25		Avoid contact with skin and e	eyes.				
S26		In case of contact with eyes, rinse immediately with plenty of water and seek medical					
		advice.					
S36/37/39 S45		Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)					
Regulatory l Statement:	nformation	This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.					
		Section 16. O	ther Information	on			
Revision Dat	te:	12/09/2013					
Additional In		out 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.					
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Company Po	olicy or	information currently availa or any other warranty, expr assume no liability resulting	ble to us. However ess or implied, with g from its use. Use the information for	, we make no warr n respect to such in ns should make the their particular pur	anty of merchantabilit formation, and we eir own investigations poses.		
Company Po	olicy or	information currently availa or any other warranty, expr assume no liability resulting determine the suitability of N.A.=Not available, N.P.=N	ble to us. However ess or implied, with g from its use. Use the information for	, we make no warr n respect to such in ns should make the their particular pur	anty of merchantability formation, and we eir own investigations poses.		
Company Po	olicy or	information currently availa or any other warranty, expr assume no liability resulting determine the suitability of N.A.=Not available, N.P.=N	ble to us. However ess or implied, with g from its use. Use the information for	, we make no warr n respect to such in ns should make the their particular pur	anty of merchantability formation, and we eir own investigations poses.		