

PROPER PH 7.5 POWDER

Hazard Alert Code:
MODERATE

Chemwatch SDS++

Revision No: 4

Chemwatch 4658-57

Issue Date: 23-Dec-2009

CD 2010/1

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Proper pH 7.5 Powder

STATEMENT OF HAZARDOUS NATURE

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation.
CONSIDERED A DANGEROUS SUBSTANCE ACCORDING TO DIRECTIVE 1999/45/EC AND ITS AMENDMENTS.
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

PRODUCT USE

Used according to manufacturer's directions. For product 37.

SUPPLIER

Company: Mars Fishcare Inc

Address:

50 East Hamilton Street

Chalfont

PA, 18914

USA

Telephone: +1 215 822 8181

Fax: +1 215 822 1906

Section 2 - HAZARDS IDENTIFICATION

HAZARD RATINGS

	Min	Max
Flammability:	0	■
Toxicity:	0	■
Body Contact:	2	■
Reactivity:	0	■
Chronic:	2	■

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

GHS Classification

Eye Irritation Category 2A

Serious Eye Damage Category 1

Skin Corrosion/Irritation Category 2

Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by Chemwatch using GHS criteria:

H319 H317 H315 H318 H319

Causes serious eye irritation

May cause allergic skin reaction

Causes skin irritation

Causes serious eye damage

Causes serious eye irritation

PRECAUTIONARY STATEMENTS

Prevention

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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Immediately call a POISON CENTER or doctor/physician.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Wash contaminated clothing before reuse.

EUROPEAN CLASSIFICATION - RISK

Risk Codes	Risk Phrases
R36	Irritating to eyes.
R43	May cause SENSITIZATION by skin contact.

EUROPEAN CLASSIFICATION - SAFETY

Safety Codes	Safety Phrases
S22	Do not breathe dust.
S24	Avoid contact with skin.
S39	Wear eye/ face protection.
S40	To clean the floor and all objects contaminated by this material, use water.
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Center.
S46	If swallowed, IMMEDIATELY contact Doctor or Poisons Information Center. (show this container or label).

ANNEX 2: Indications of Danger

Xi Irritant



AUSTRALIAN CLASSIFICATION - RISK

Risk Codes	Risk Phrases
R36	Irritating to eyes.
R43	May cause SENSITIZATION by skin contact.

AUSTRALIAN CLASSIFICATION - SAFETY

Safety Codes	Safety Phrases
S22	Do not breathe dust.
S24	Avoid contact with skin.
S39	Wear eye/face protection.
S40	To clean the floor and all objects contaminated by this material, use water.
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Center.
S46	If swallowed, IMMEDIATELY contact Doctor or Poisons Information Center (show this container or label).

CANADIAN WHMIS SYMBOLS



Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
non hazardous ingredients, proprietary		>60
sodium thiosulfate	7772-98-7	1-5
EDTA tetrasodium salt	64-02-8	1-5
Aloes, extract	85507-69-3	<0.5

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Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE

If this product comes in contact with eyes:

- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

For exposures involving sulfides and hydrogen sulfide (including gastric acid decomposition products of alkaline sulfides).

- Hydrogen sulfide anion produces its major toxic effect through inhibition of cytochrome oxidases.
- Symptoms include profuse salivation, nausea, vomiting and diarrhea. Central nervous effects may include giddiness, headache, vertigo, amnesia, confusion and unconsciousness. Tachypnea, palpitation, tachycardia, arrhythmia, sweating, weakness and muscle cramps may also indicate over-exposures.

Treatment involves:

- If respirations are depressed, application of artificial respiration, administration of oxygen (continue after spontaneous breathing is established).
- For severe poisonings administer amyl nitrite and sodium nitrite (as for cyanide poisoning) but omit sodium thiosulfate injection.
- Atropine sulfate (0.6 mg intramuscularly) may contribute symptomatic relief.
- Conjunctivitis may be relieved by installation of 1 drop of olive-oil in each eye and sometimes by 3 drops of epinephrine solution (1:1000) at frequent intervals. Occasionally local anesthetics and hot and cold compresses are necessary to control pain.
- Antibiotics at first hint of pulmonary infection.

[Gosselin et al, Clinical Toxicology of Commercial Products].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered to be a significant fire risk, however containers may burn.
- Decomposition may produce toxic fumes of: phosphorus oxides (POx), sulfur oxides (SOx).
May emit poisonous fumes.

FIRE INCOMPATIBILITY

None known.

PERSONAL PROTECTION

Glasses:

Gloves:

Respirator:

Chemical goggles.

PVC chemical resistant type.

Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.

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- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up, shovel up or vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labeled container.

MAJOR SPILLS

Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.
- Recover product wherever possible.
- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.
- ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

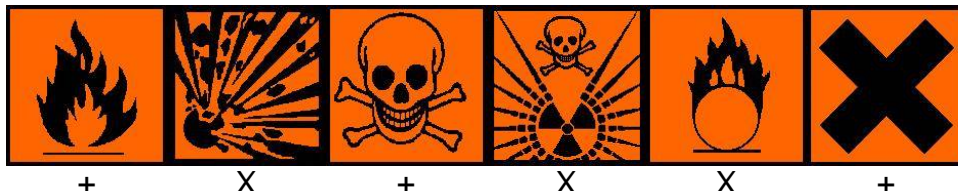
STORAGE INCOMPATIBILITY

None known.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X: Must not be stored together

O: May be stored together with specific preventions

+: May be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
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South Africa Hazardous Chemical Substances - Recommended Limits	sodium thiosulfate (Dusts)	10		see paragraph 36 of Annexure 1; total inhalable dust
South Africa Hazardous Chemical Substances - Recommended Limits	sodium thiosulfate (Dusts)	5		see paragraph 36 of Annexure 1; respirable dust
Hungary Occupational Exposure Limits (Hungarian)	sodium thiosulfate (porok (szálló porok) egyéb porok [Ásványi porok - Szénpor (kvarc <5% m/m)])	2		(TWA (Respirabilis))
Hungary Occupational Exposure Limits (Hungarian)	sodium thiosulfate (porok (szálló porok) egyéb porok [Ásványi porok - Talkum (azbeszmentes)])	2		(TWA (Respirabilis))
US OSHA Permissible Exposure Levels (PELs) - Table Z3	sodium thiosulfate (Inert or Nuisance Dust: (d) Total dust)	15		
US OSHA Permissible Exposure Levels (PELs) - Table Z3	sodium thiosulfate (Inert or Nuisance Dust: (d) Respirable fraction)	5		
Hungary Occupational Exposure Limits (Hungarian)	sodium thiosulfate (porok (szálló porok) egyéb porok [Ásványi porok - Talkum (azbeszmentes)])	10		(TWA (Totális))
Ireland Occupational Exposure Limits	sodium thiosulfate (Dusts non-specific total inhalable)	10		
Russia Maximum Allowed Concentrations (PDK) of Harmful Substances in the Air of Workplace Zone (Russian)	sodium thiosulfate (:) 10 20%)		2	
Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)	sodium thiosulfate (Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4)-Einatembare Fraktion)	10	20	AGS
Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)	sodium thiosulfate (Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4)-Alveolengängige Fraktion)	3	6	AGS
Hungary Occupational Exposure Limits (Hungarian)	sodium thiosulfate (porok (szálló porok) egyéb porok [Egyéb szerves porok])	5		(TWA (Respirabilis))
Russia Maximum Allowed Concentrations (PDK) of Harmful Substances in the Air of Workplace Zone (Russian)	sodium thiosulfate ()		6	
Russia Maximum Allowed Concentrations (PDK) of Harmful Substances in the Air of Workplace Zone (Russian)	sodium thiosulfate ()		4	
US - Hawaii Air Contaminant Limits	sodium thiosulfate (Particulates not other wise regulated - Respirable fraction)	5		
US - Hawaii Air Contaminant Limits	sodium thiosulfate (Particulates not other wise regulated - Total dust)	10		
Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	sodium thiosulfate (Partikel-partikel tidak terklasifikasi - Partikel inhalabel)	10		(TWA ((e)))
Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	sodium thiosulfate (Debu serat gelas)	10		
Germany Recommended Exposure Limits - MAK Values (German)	sodium thiosulfate (Allgemeiner Staubgrenzwert (alveolengängige Fraktion))	1,5		
Finland Industrial Safety Act - Binding Limit Values (Swedish)	sodium thiosulfate (Totaldamm)	25	30	
Germany Recommended Exposure Limits - MAK Values (German)	sodium thiosulfate (Allgemeiner Staubgrenzwert (einatembare Fraktion))	4		
Indonesia Threshold Limit Value for chemical substances in the workplace	sodium thiosulfate (Partikel-partikel tidak terklasifikasi - Partikel respirabel)	3		(TWA ((e)))

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(Bahasa Indonesian)

US - Oregon Permissible Exposure Limits (Z3)	sodium thiosulfate (Inert or Nuisance Dust: (d) Total dust)	10	*
US - Oregon Permissible Exposure Limits (Z3)	sodium thiosulfate (Inert or Nuisance Dust: (d) Respirable fraction)	5	*
Germany Recommended Exposure Limits - MAK Values (English)	sodium thiosulfate (Dust, general threshold limit value (respirable fraction))	1.5	
Germany Recommended Exposure Limits - MAK Values (English)	sodium thiosulfate (Dust, general threshold limit value (inhalable fraction))	4	
Estonia Limit values for chemical hazards in the working environment (English)	sodium thiosulfate (Dust: total dust)	10	13
France Threshold Limit Values for Occupational Exposure - VLE/VME (French)	sodium thiosulfate (Poussières réputées sans effet spécifique)	10, 5	(TWA (a))
Estonia Limit values for chemical hazards in the working environment (English)	sodium thiosulfate (Dust: respirable dust)	5	1
Japan Occupational Exposure Limits for Dusts	sodium thiosulfate (Inorganic and organic dusts other than Classes 1 and 2)	8	Total dust**
Japan Occupational Exposure Limits for Dusts	sodium thiosulfate (Inorganic and organic dusts other than Classes 1 and 2)	2	Respirable dust*
Japan Occupational Exposure Limits for Dusts	sodium thiosulfate (Dusts containing less than 10% free silica)	4	Total dust**
Japan Occupational Exposure Limits for Dusts	sodium thiosulfate (Dusts containing less than 10% free silica)	1	Respirable dust*
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	sodium thiosulfate (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)	5	
Belgium Occupational Exposure Limits (French)	sodium thiosulfate (Particules non classifiées autrement (fraction inhalable))		10
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	sodium thiosulfate (Particulates not otherwise regulated Respirable fraction)	5	
Spain Occupational Exposure Limit for Chemical Agents (Spanish)	sodium thiosulfate (Partículas (insolubles o poco solubles) no especificadas de otra forma: - Fracción inhalable)	0,005 10	d , e
US - Michigan Exposure Limits for Air Contaminants	sodium thiosulfate (Particulates not otherwise regulated, Respirable dust)	5	
South Africa Hazardous Chemical Substances - Recommended Limits	EDTA tetrasodium salt (Dusts)	10	see paragraph 36 of Annexure 1; total inhalable dust
South Africa Hazardous Chemical Substances - Recommended Limits	EDTA tetrasodium salt (Dusts)	5	see paragraph 36 of Annexure 1; respirable dust
Hungary Occupational Exposure Limits (Hungarian)	EDTA tetrasodium salt (porok (szálló porok) egyéb porok [Ásványi porok - Szénpor (kvarc <5% m/m)])	2	(TWA (Respirabilis))
Hungary Occupational Exposure Limits (Hungarian)	EDTA tetrasodium salt (porok (szálló porok) egyéb porok [Ásványi porok - Talkum (azbeszmentes)])	2	(TWA (Respirabilis))
US OSHA Permissible Exposure Levels (PELs) - Table Z3	EDTA tetrasodium salt (Inert or Nuisance Dust: (d) Total dust)	15	
US OSHA Permissible Exposure Levels (PELs) - Table Z3	EDTA tetrasodium salt (Inert or Nuisance Dust: (d) Respirable fraction)	5	
Hungary Occupational Exposure Limits (Hungarian)	EDTA tetrasodium salt (porok (szálló porok) egyéb porok [Ásványi porok - Talkum (azbeszmentes)])	10	(TWA (Totális))

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Ireland Occupational Exposure Limits	EDTA tetrasodium salt (Dusts non-specific total inhalable)	10		
Russia Maximum Allowed Concentrations (PDK) of Harmful Substances in the Air of Workplace Zone (Russian)	EDTA tetrasodium salt (:) 20%)	10	2	
Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)	EDTA tetrasodium salt (Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4)-Einatembare Fraktion)	10	20	AGS
Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)	EDTA tetrasodium salt (Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4)-Alveolengängige Fraktion)	3	6	AGS
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US - Hawaii Air Contaminant Limits	EDTA tetrasodium salt (Particulates not otherwise regulated - Respirable fraction)	5		
US - Hawaii Air Contaminant Limits	EDTA tetrasodium salt (Particulates not otherwise regulated - Total dust)	10		
Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	EDTA tetrasodium salt (Partikel-partikel tidak terklasifikasi - Partikel inhalabel)	10		(TWA ((e)))
Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	EDTA tetrasodium salt (Debu serat gelas)	10		
Germany Recommended Exposure Limits - MAK Values (German)	EDTA tetrasodium salt (Allgemeiner Staubgrenz-wert (alveolengängige Fraktion))	1,5		
Finland Industrial Safety Act - Binding Limit Values (Swedish)	EDTA tetrasodium salt (Totaldamm)	25 3	30	
Germany Recommended Exposure Limits - MAK Values (German)	EDTA tetrasodium salt (Allgemeiner Staubgrenz-wert (inatembare Fraktion))	4		
Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	EDTA tetrasodium salt (Partikel-partikel tidak terklasifikasi - Partikel respirabel)	3		(TWA ((e)))
US - Oregon Permissible Exposure Limits (Z3)	EDTA tetrasodium salt (Inert or Nuisance Dust: (d) Total dust)	10		*
US - Oregon Permissible Exposure Limits (Z3)	EDTA tetrasodium salt (Inert or Nuisance Dust: (d) Respirable fraction)	5		*
Germany Recommended Exposure Limits - MAK Values (English)	EDTA tetrasodium salt (Dust, general threshold limit value (respirable fraction))	1.5		
Germany Recommended Exposure Limits - MAK Values (English)	EDTA tetrasodium salt (Dust, general threshold limit value (inhalable fraction))	4		
Estonia Limit values for chemical hazards in the working environment (English)	EDTA tetrasodium salt (Dust: total dust)	10		13
France Threshold Limit Values for Occupational Exposure - VLE/VME (French)	EDTA tetrasodium salt (Poussières réputées sans effet spécifique)	10, 5		(TWA (a))

Estonia Limit values for

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chemical hazards in the working environment (English)	EDTA tetrasodium salt (Dust: respirable dust)	5		1
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Japan Occupational Exposure Limits for Dusts	EDTA tetrasodium salt (Inorganic and organic dusts other than Classes 1 and 2)	2		Respirable dust*
Japan Occupational Exposure Limits for Dusts	EDTA tetrasodium salt (Dusts containing less than 10% free silica)	4		Total dust**
Japan Occupational Exposure Limits for Dusts	EDTA tetrasodium salt (Dusts containing less than 10% free silica)	1		Respirable dust*
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	EDTA tetrasodium salt (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)	5		
Belgium Occupational Exposure Limits (French)	EDTA tetrasodium salt (Particules non classifiées autrement (fraction inhalable))		10	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	EDTA tetrasodium salt (Particulates not otherwise regulated Respirable fraction)	5		
Spain Occupational Exposure Limit for Chemical Agents (Spanish)	EDTA tetrasodium salt (Partículas insolubles o poco solubles) no especificadas de otra forma: - Fracción inhalable	0,005	10	d , e
US - Michigan Exposure Limits for Air Contaminants	EDTA tetrasodium salt (Particulates not otherwise regulated, Respirable dust)	5		
South Africa Hazardous Chemical Substances - Recommended Limits	Aloes, extract (Dusts)	10		see paragraph 36 of Annexure 1; total inhalable dust
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Ireland Occupational Exposure Limits	Aloes, extract (Dusts non-specific total inhalable)	10		
Russia Maximum Allowed Concentrations (PDK) of Harmful Substances in the Air of Workplace Zone (Russian)	Aloes, extract (:) 10 20%)		2	
Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)	Aloes, extract (Allgemeiner Staubgrenzwert (siehe auch Nummer 2.4)- Einatembare Fraktion)	10	20	AGS
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Russia Maximum Allowed Concentrations (PDK) of	Aloes, extract ()		4	

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Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	Aloes, extract (Partikel-partikel tidak terklasifikasi - Partikel inhalabel)	10		(TWA ((e)))
Indonesia Threshold Limit Value for chemical substances in the workplace (Bahasa Indonesian)	Aloes, extract (Debu serat gelas)	10		
Germany Recommended Exposure Limits - MAK Values (German)	Aloes, extract (Allgemeiner Staubgrenz-wert (alveolengängige Fraktion))	1,5		
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Japan Occupational Exposure Limits for Dusts	Aloes, extract (Dusts containing less than 10% free silica)	4		Total dust**
Japan Occupational Exposure Limits for Dusts	Aloes, extract (Dusts containing less than 10% free silica)	1		Respirable dust*
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	Aloes, extract (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)	5		
Belgium Occupational Exposure Limits (French)	Aloes, extract (Particules non classifiées autrement (fraction inhalable))			10
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	Aloes, extract (Particulates not otherwise regulated Respirable fraction)	5		

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Spain Occupational Exposure Limit for Chemical Agents (Spanish)	Aloes, extract (Partículas (insolubles o poco solubles) no especificadas de otra forma: - Fracción inhalable)	0,005	10	d, e
US - Michigan Exposure Limits for Air Contaminants	Aloes, extract (Particulates not otherwise regulated, Respirable dust)		5	

MATERIAL DATA

PROPER PH 7.5 POWDER:

Not available

SODIUM THIOSULFATE:

Odour Threshold Value for hydrogen sulfide: 0.0011 ppm (detection), 0.0045 ppm (recognition)

NOTE: Detector tubes for hydrogen sulfide, measuring in excess of 0.5 ppm are available commercially.

The TLV-TWA is protective against sudden death, eye irritation, neurasthenic symptoms such as fatigue, headache, dizziness, and irritability, or permanent central nervous system effects that may result from acute, subchronic, or acute exposure to hydrogen sulfide. The offensive odour of hydrogen sulfide does not give a reliable warning signal because olfactory fatigue occurs at concentrations of 150 to 200 ppm.

Hydrogen sulfide is probably the leading cause of sudden death in the workplace. Lethal hydrogen sulfide toxicity following inhalation of 1000-2000 ppm paralyzes the respiratory centre and causes breathing to stop. At concentrations between 500 to 1000 ppm, the carotid bodies are stimulated causing hypernea which is followed by apnea. Low concentrations

(50-1500 ppm) produce eye and respiratory tract irritation. Prolonged exposure to concentrations of the order of 250-500 ppm may produce pulmonary oedema although 50 ppm has also reportedly produced this effect.

Concentrations in excess of 50 ppm produce acute conjunctivitis with pain, lachrymation and photophobia. These acute changes may progress to keratoconjunctivitis and vesiculation of the corneal epithelium.

Concentrations between 5 and 30 ppm produce ocular toxicity.

Odour Safety Factor(OSF)

OSF=1.2E3 (HYDROGEN SULFIDE).

Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odor Safety Factor (OSF) is determined to fall into either Class A or B.

The Odor Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odor Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	Idem for 50-90% of persons being distracted
C	1-26	Idem for less than 50% of persons being distracted
D	0.18-1	0-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	Idem for less than 10% of persons aware of being tested

Amoore and Hautala * have determined that it is only at an OSF value of 26 that 50% of distracted persons can detect the substance at the Exposure Standard value. In the case of alerted persons, an OSF of 26 means that 99% of them can detect the odor at the Exposure Standard value. It is ONLY for substances belonging to Class A and B that there is a reasonable chance of being warned in time, that the Exposure Standard is being exceeded. * Journal Applied Toxicology: Vol 3, 1983, p272

NOTE: The use of the OSF may be inappropriate for mixtures where substances mask the odor of others.

EDTA TETRASODIUM SALT:

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

PERSONAL PROTECTION

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EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocarbon
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

Wear chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
10 x PEL	P1 Air-line*	-	PAPR-P1
50 x PEL	Air-line**	P2	PAPR-P2
100 x PEL	-	P3 Air-line*	-
100+ x PEL	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

Explanation of Respirator Codes:

Class 1 low to medium absorption capacity filters.

Class 2 medium absorption capacity filters.

Class 3 high absorption capacity filters.

PAPR Powered Air Purifying Respirator (positive pressure) cartridge.

Type A for use against certain organic gases and vapors.

Type AX for use against low boiling point organic compounds (less than 65°C).

Type B for use against certain inorganic gases and other acid gases and vapors.

Type E for use against sulfur dioxide and other acid gases and vapors.

Type K for use against ammonia and organic ammonia derivatives

Class P1 intended for use against mechanically generated particulates of sizes most commonly encountered in industry, e.g. asbestos, silica.

Class P2 intended for use against both mechanically and thermally generated particulates, e.g. metal fume.

Class P3 intended for use against all particulates containing highly toxic materials, e.g. beryllium.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Such protection might consist of:

(a): particle dust respirators, if necessary, combined with an absorption cartridge;

(b): filter respirators with absorption cartridge or canister of the right type;

(c): fresh-air hoods or masks

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:

Air Speed:

direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)

1-2.5 m/s (200-500 f/min.)

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grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

Upper end of the range

1: Room air currents minimal or favorable to capture

1: Disturbing room air currents

2: Contaminants of low toxicity or of nuisance value only.

2: Contaminants of high toxicity

3: Intermittent, low production.

3: High production, heavy use

4: Large hood or large air mass in motion

4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White powder with a little odour; soluble in water.

PHYSICAL PROPERTIES

Mixes with water.

State	Divided Solid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Applicable	Viscosity	Not Applicable
Boiling Range (°C)	Not Applicable	Solubility in water (g/L)	Miscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Applicable
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Applicable
Autoignition Temp (°C)	Not Applicable	Vapor Pressure (kPa)	Not Applicable
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	Not Available
Lower Explosive Limit (%)	Not Applicable	Relative Vapor Density (air=1)	Not Applicable
Volatile Component (%vol)	Not Applicable	Evaporation Rate	Not Applicable

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

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ACUTE HEALTH EFFECTS SWALLOWED

The material has NOT been classified as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality (death) rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, unintentional ingestion is not thought to be cause for concern.

EYE

Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.

SODIUM THIOSULFATE:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

IRRITATION

Oral (human) TDLo: 300 mg/kg/7d

Nil Reported

[Hach]

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

EDTA TETRASODIUM SALT:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

IRRITATION

Eyes (rabbit): 1.9 mg

Eyes (rabbit):100 mg/24h-Moderate

*[BASF]

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitization potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitizing substance which is widely distributed can be a more important allergen than one with stronger sensitizing potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

For ethylenediaminetetraacetic acid (EDTA) and its salts:

EDTA is a strong organic acid (approximately 1000 times stronger than acetic acid). It has a high affinity for alkaline-earth ions (for example, calcium and magnesium) and heavy-metal ions (for example, lead and mercury). This affinity generally results in the formation of highly stable and soluble hexadentate chelate complexes. EDTA's ability to complex is used commercially to either promote or inhibit chemical reactions, depending on application

EDTA and its salts are expected to be absorbed the lungs and gastrointestinal tract; absorption through the skin is unlikely.

In general, EDTA and its salts are mild skin irritants but considered severe eye irritants. The greatest risk in the human body will occur when the EDTA attempts to scavenge the trace metals used and required by the body

The binding of divalent and trivalent cations by EDTA can cause mineral deficiencies, which seem to be responsible for all of the known pharmacological

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effects. Sensitivity to the toxic effects of EDTA is, at least in part, related to the deficiency of zinc.

Several short term studies,

reported no adverse effects from administering doses up to 5% of EDTA and its salts to lab rodents daily and for several weeks. Only diarrhoea and lowered food consumption were reported in animals given 5% disodium EDTA. However, abnormal effects were seen in animals that were fed mineral deficient diets. Abnormal symptoms were observed in male and female rats fed a low mineral diet (0.54% Ca and 0.013%Fe) with the addition of 0%, 0.5%, or 1% disodium EDTA for 205 days. Rats fed a low percent of disodium EDTA in the diet for short term studies with adequate minerals showed no signs of toxicity. Rats fed 0.5% disodium EDTA for 44-52 weeks were without deleterious effects on weight gain, appetite, activity and appearance. Rats fed 1% disodium EDTA with adequate mineral diet for 220 days showed no evidence of dental erosion.

EDTA and its salts are eliminated from the body, 95% via the kidneys and 5% by the bile, along with the metals and free ionic calcium which was bound in transit through the circulatory system

Trisodium EDTA was tested in a bioassay for carcinogenicity by the National Cancer Institute. Trisodium EDTA administered to male and female rats at low (3,750 ppm) or high (7,500 ppm) concentrations for 103 weeks produced no compound-related signs of chemical toxicity, and tumor incidence was not related to treatment .

EDTA and its salts should not pose a teratogenic concern based on previous studies in lab rodents. Study results indicate no teratogenic effects are likely in lab rodents at doses up to 1000 mg/kg . Adequate minerals in the diet and administration of tap water prevented possible teratogenic effects of EDTA during pregnancy. Teratogenic effects observed in lab rodents were likely due to animals maintained on deionised water and a semi-purified diet, and housed in nonmetallic caging. Infants and children will unlikely be exposed to high concentrations as in lab rodents.

Rats given 1250 mg/kg or 1500 mg/kg by gavage exhibited more maternal toxicity than the diet group, but produced only 21% malformations in the offspring at the lower dose. The subcutaneously administration of 375 mg/kg was also maternally toxic, but did not result in malformations in the offspring. Differences in toxicity and teratogenicity are probably related to absorption differences and interaction with metals . Disodium EDTA ingested during pregnancy is teratogenic in rats at 2% in the diet and greater.

The maximum human consumption of EDTA and its salts in foods was reported to be on the order of 0.4 mg/kg/day . Infants and children also generally drink tap water instead of deionised or distilled water. Even if young infants were to be fed some solid food, given the characteristics of EDTA and its salts, residues are not likely to be present at concentrations for potential sensitivity.

Oral (rat) LD50: 2000-3200 mg/kg*

Skin (rabbit):500 mg/24h-moderate

ALOES, EXTRACT:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

Intraperitoneal (mouse) LD50: 250 mg/kg

Nil Reported

Aloe barbadensis Mill., extract

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

EDTA TETRASODIUM SALT:

SODIUM THIOSULFATE:

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

SODIUM THIOSULFATE:

EDTA TETRASODIUM SALT:

PROPER PH 7.5 POWDER:

DO NOT discharge into sewer or waterways.

PROPER PH 7.5 POWDER:

SODIUM THIOSULFATE:

Very toxic to aquatic organisms.

Sulfide ion is very toxic to aquatic life, threshold concentration for fresh or saltwater fish is 0.5ppm. The product therefore is very toxic to aquatic life. The major decomposition product, hydrogen sulfide, is damaging to vegetation at 5ppm for 24 hours.

For hydrogen sulfide:

Environmental fate:

Since hydrogen sulfide exists as a gas at atmospheric pressure, partitioning to the air is likely to occur after environmental releases. However, the compound is also soluble in oil and water, and therefore, may partition as well to surface water, groundwater, or moist soil. In addition, sorption of hydrogen sulfide from air onto soil and plant foliage occurs. Hydrogen sulfide's solubility in pure water varies with temperature from 5.3 g/L at 10 °C to 3.2 g/L at 30 °C. Once hydrogen sulfide is dissolved in water, it will dissociate into bisulfide ion (HS-) and sulfide ion (S2-); the ratio of the concentrations of these various ions will depend on the pH of the solution. Hydrogen sulfide can also form insoluble sulfide salts with various metals (i.e., copper, zinc, nickel, and iron) that may be present in soils or environmental waters .

Hydrogen sulfide evaporates easily from water, and the rate of evaporation depends on factors such as temperature, humidity, pKa, pH, and the concentration of certain metal ions. Hydrogen sulfide will cross the air-water interface with kinetics similar to other unreactive gases, such as oxygen (O2), nitrogen (N2), and carbon dioxide (CO2), at pHs <=6. At higher pHs, such as seawater, which has a pH of 8 or greater, hydrogen sulfide escape is enhanced due to an ionic species gradient in the water close to the surface. Complexation of bisulfide and sulfide ions to trace metal ions (i.e., Zn2+, Co2+, and Ni2+) found in seawater will also have an effect on the transport of hydrogen sulfide across the air-water interface.

Clay or organic matter may sorb hydrogen sulfide. Under natural conditions, it is likely that some of the hydrogen sulfide would be oxidized to sulfate, which may be removed by leaching or taken up by plants. This, in turn, may make gas sorption sites available for additional sorption. Several species of soil, aquatic, and marine microorganisms oxidize hydrogen sulfide to elemental sulfur, and its half-time in these environments usually ranges from 1 hour to several hours .Food chain bioconcentration and biomagnification are unlikely.

In the atmosphere, hydrogen sulfide may be oxidized by oxygen (O2) and ozone (O3) to give sulfur dioxide (SO2), and ultimately sulfate compounds. Sulfur

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dioxide and sulfates are eventually removed from the atmosphere through absorption by plants, deposition on and sorption by soils, or through precipitation. A residence time of approximately 1.7 days at an ozone concentration of 0.05 mg/m³ has been calculated for hydrogen sulfide. The effective life-times for hydrogen sulfide based on summer daytime and yearly average hydroxyl radical concentrations have been estimated to be 0.23 and 2.3 days, respectively, based a measured rate constant of 4.8x10⁻¹² cm³/molecule second. Life-times in air ranging from approximately 1 day in the summer to 42 days in the winter have been estimated for hydrogen sulfide. Hydrogen sulfide is not expected to be decomposed by direct absorption of ultraviolet radiation and the reaction with ozone is not expected to be a significant environmental fate.

In aqueous solution, hydrogen sulfide is a weak acid, exhibiting two acid dissociation constants. The first dissociation yields bisulfide ion (HS⁻), and the second yields sulfide ion (S²⁻), with pKa values for each of these dissociations of 7.04 and 11.96, respectively. At a pH of 7.0, the ratio of the concentration of aqueous hydrogen sulfide to bisulfate ion is approximately 1-to-1. As the pH increases above 7.0, the ratio of the concentration of bisulfide ion to aqueous hydrogen sulfide increases. At a pH of 8, the ratio of the concentration of bisulfide ion to the concentration of aqueous hydrogen sulfide is approximately 10-to-1. The relative concentration of sulfide ion does not begin to increase until a pH of 11 is exceeded; only above pH 12 will the concentration of sulfide ion become significant (>50%). Hydrogen sulfide oxidation by O₂ readily occurs in surface waters. At 25 °C and pH 8, half-times of 50 and 26 hours were reported for hydrogen sulfide in water and seawater, respectively. Above pH 8, however, the rate of oxidation was independent of pH.

Hydrogen sulfide in waste water may be controlled by addition of oxidizing chemicals, which react to form less toxic byproducts. In warm, damp environments (such as manholes and gravity sewers), hydrogen sulfide may be oxidized by autotrophic bacteria to sulfuric acid. Chemical oxidation of hydrogen sulfide dissolved in sewage water produces sulfur at pH 6–7, while sulfur, polysulfides, thiosulfates, and ultimately sulfate are formed at pHs of 7–9.

Hydrogen sulfide is one of the principal components in the natural sulfur cycle. Bacteria, fungi, and actinomycetes (a fungus-like bacteria) release hydrogen sulfide during the decomposition of sulfur containing proteins and by the direct reduction of sulfate (SO₄²⁻). Hydrogen sulfide is also consumed by bacteria found in soil and water that oxidize hydrogen sulfide to elemental sulfur. Photosynthetic bacteria can oxidize hydrogen sulfide to sulfur and sulfate in the presence of light and the absence of oxygen.

A number of microorganisms have been found to degrade hydrogen sulfide to elemental sulfur or sulfate. Among these are a heterotrophic bacterium of the genus Xanthomonas isolated from dimethyl disulfide-acclimated peat, heterotrophic fungi, and a marine isopod. Soils may sorb considerable amounts of hydrogen sulfide from the air, retaining most of it in the form of elemental sulfur. Manganese compound found in these soils appeared to catalyze the oxidation of hydrogen sulfide to elemental sulfur

Ecotoxicity:

Fish LC50 (96 h): 075->0.4 mg/l.

EDTA TETRASODIUM SALT:

Harmful to aquatic organisms.

May cause long-term adverse effects in the aquatic environment.

For ethylenediaminetetraacetic acid (EDTA) (and its salts)

Environmental fate:

Based on its physicochemical properties and collateral experimental results, EDTA is not expected to volatilize from soil or water. When released to the atmosphere, EDTA should sorb to particulate matter, and appears to have the potential to photolyse. In water, EDTA may react with photochemically generated hydroxyl radicals (half-life of approximately 230 days or 8 months).

When released to soil, EDTA is mobile and expected to complex trace metals and alkaline earth metals, thereby causing an increase in the total solubility of the metals. EDTA may eventually predominate as the Fe(III) chelate in acidic soils and as the Ca chelate in alkaline soils. EDTA and its chelates are expected to leach readily through soil. When released to water, EDTA is also expected to form soluble complexes with trace metals and alkaline earth metals. It would not be expected to sorb appreciably to sediments or suspended solids in water, and is known not to be retained or altered chemically in typical water treatment facilities. However depending upon speciation and local conditions, some sorption (approximately 6 to 25%) occurred within a contact time of one month in a sediment removed from a lake in Finland

When released to soil or water EDTA is slow to degrade, with aerobic biodegradation (mineralisation) being the dominant mechanism. Possible biodegradation products include ethylenediamine triacetic acid, iminodiacetic acid, N,N-ethylenediamine diacetic acid, ethylenediamine monoacetic acid, nitrilotriacetic acid and glycine

Recalcitrance to degradation is associated with the high thermodynamic stability of metal complexes and is problematic for treatment facilities. In a variety of representative soils, common values for the degree of aerobic metabolism of EDTA at a temperature of 30 C and soil concentrations of 2-4 ppm are 13-45% after 15 weeks and 65-70% after 45 weeks

Biodegradation in subsoil or under anaerobic conditions is essentially negligible.

Abiotic degradation in the environment, except for photolysis, is also negligible. Results in sediments were similar to those for soil.

Although EDTA is slow to degrade under typical environmental conditions, based on experimental results with bluegill sunfish and its intrinsic physicochemical properties (ionic nature and water solubility), EDTA is not expected to bioconcentrate

Ecotoxicity:

For EDTA and various salts

Fish LC50 (96 h): 20-430 mg/l

Daphnia LC50 (48 h): 14-100 mg/l

Green algae EC50 (96 h): 3-60 mg/l

EDTA compounds range from practically non-toxic to moderately toxic on an acute basis depending on the salt. Algae and invertebrates are among the most sensitive species based on predictive modeling for acute and chronic endpoints for EDTA, depending on the compound. EDTA and its salts also do not appear to be very toxic for terrestrial wild mammals and adverse effects from reasonably expected agricultural uses are not expected.

Polyanionic monomers, for example, ethylenediaminetetraacetic acid (EDTA) are of concern only for their toxicity to green algae. Toxicity to algae is moderate and it appears that the mode of toxic action of these polyanionic monomers is overchelation of nutrient elements needed by algae for growth. Polyanionic monomers are assessed similarly to the polycarboxylic acid polymers.

Not readily biodegradable.

Harmful to aquatic organisms.

May cause long term adverse effects in the aquatic environment. [ORICA]

Fish LC50 (96 h): Leuciscus idus >500 mg/l

Daphnia EC50 (48h): >100 mg/l

Algae EC50 (72h): 10-100 mg/l

COD Value: 570 mg O₂/g

BOD5-Value: 20 mg O₂/g

Toxicity to bacteria: 50 mg/l Warburg test

ALOES, EXTRACT:

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
sodium thiosulfate	HIGH		LOW	HIGH

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Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.
- Bury residue in an authorized landfill.
- Recycle containers where possible, or dispose of in an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

Regulations for ingredients

sodium thiosulfate (CAS: 7772-98-7) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (French)", "China Announcement of Ministry of Health People's Republic of China on Approval of greater range and maximum dose to some food additives (No.21 2004)", "China Inventory of Existing Chemical Substances", "EU Directive 2002/72/EC Plastic materials and articles intended to come into contact with foodstuffs - Annex III Section B Incomplete list of additives", "European Customs Inventory of Chemical Substances - ECICS (Danish)", "European Customs Inventory of Chemical Substances - ECICS (Dutch)", "European Customs Inventory of Chemical Substances - ECICS (Finnish)", "European Customs Inventory of Chemical Substances - ECICS (French)", "European Customs Inventory of Chemical Substances - ECICS (German)", "European Customs Inventory of Chemical Substances - ECICS (Greek)", "European Customs Inventory of Chemical Substances - ECICS (Italian)", "European Customs Inventory of Chemical Substances - ECICS (Portuguese)", "European Customs Inventory of Chemical Substances - ECICS (Spanish)", "European Customs Inventory of Chemical Substances - ECICS (Swedish)", "European Customs Inventory of Chemical Substances (English)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (French)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (German)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (Spanish)", "European Union (EU) Inventory of Ingredients used in Cosmetic Products", "International Council of Chemical Associations (ICCA) - High Production Volume List", "Japan Chemical Substances Control Law - Existing/New Chemical Substances", "Korea (South) Existing Chemicals List (KECL)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "OECD Representative List of High Production Volume (HPV) Chemicals", "Philippines Inventory of Chemicals and Chemical Substances (PICCS)", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US Toxic Substances Control Act (TSCA) - Inventory"

EDTA tetrasodium salt (CAS: 64-02-8,10378-23-1,13235-36-4) is found on the following regulatory lists;

"Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (French)", "Chemwatch Candidate List of Very High Concern - List of Substance Subject to Authorization", "China Inventory of Existing Chemical Substances", "European Customs Inventory of Chemical Substances - ECICS (Danish)", "European Customs Inventory of Chemical Substances - ECICS (Dutch)", "European Customs Inventory of Chemical Substances - ECICS (Finnish)", "European Customs Inventory of Chemical Substances - ECICS (French)", "European Customs Inventory of Chemical Substances - ECICS (German)", "European Customs Inventory of Chemical Substances - ECICS (Greek)", "European Customs Inventory of Chemical Substances - ECICS (Italian)", "European Customs Inventory of Chemical Substances - ECICS (Portuguese)", "European Customs Inventory of Chemical Substances - ECICS (Spanish)", "European Customs Inventory of Chemical Substances - ECICS (Swedish)", "European Customs Inventory of Chemical Substances (English)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (French)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (German)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (Spanish)", "European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31", "European Union (EU) Inventory of Ingredients used in Cosmetic Products", "European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "Japan Chemical Substances Control Law - Existing/New Chemical Substances", "Japan Marine Pollution and Disasters", "Japan Port Regulations Law (Japanese) - Chemical Liquid Waste", "Korea (South) Existing Chemicals List (KECL)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "OECD Representative List of High Production Volume (HPV) Chemicals", "Philippines Inventory of Chemicals and Chemical Substances (PICCS)", "US Cosmetic Ingredient Review (CIR) Cosmetic ingredients found safe as used", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA High Production Volume Program Chemical List", "US EPA Master Testing List - Index I Chemicals Listed", "US Food Additive Database", "US Toxic Substances Control Act (TSCA) - Inventory"

Aloes, extract (CAS: 85507-69-3,94349-62-9) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "Canada Domestic Substances List (DSL)", "China Inventory of Existing Chemical Substances", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (French)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (German)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (Spanish)", "European Union (EU) Inventory of Ingredients used in Cosmetic Products", "Japan Food Sanitation Law - List of plant or animal sources of natural flavorings (Japanese)", "Japan List of Existing Food Additives", "Japan List of plant or animal sources of natural flavorings (English)", "New Zealand Inventory of Chemicals (NZIoC)", "Philippines Inventory of Chemicals and Chemical Substances (PICCS)"

No data for Proper pH 7.5 Powder (CW: 4658-57)

PROPER PH 7.5 POWDER

Hazard Alert Code:
MODERATE

Chemwatch SDS++

Revision No: 4

Chemwatch 4658-57

Issue Date: 23-Dec-2009

CD 2010/1

Section 16 - OTHER INFORMATION

Ingredients with multiple CAS Nos

Ingredient Name	CAS
EDTA tetrasodium salt	64-02-8, 10378-23-1, 13235-36-4
Aloes, extract	85507-69-3, 94349-62-9

Classification of the mixture and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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