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## MATERIAL SAFETY DATA SHEET

### 1 Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product Identifier

Product Name	1.5% Chitosan Mix
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#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Fining agent
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### 2 Hazards Identification

#### 2.1. Classification of the substance or mixture

Classification under Regulation (EC) No 1728/2008	Eye Irritant (Category 2): H319: Causes serious eye irritation.
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#### 2.2. Label Elements

Labelling according to regulation (EC) no 1272/2008	
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Signal Word	Warning
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Hazard Pictograms	GHS07
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Hazard Statements	<b>H319:</b> Causes serious eye irritation.
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#### Precautionary Statements:

Prevention	<b>P264</b> Wash contaminated skin thoroughly after handling. <b>P280</b> Wear protective gloves/protective clothing/eye protection/face protection.
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Response	<b>P305 + P351 + P338</b> IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. <b>P337 + P313</b> If eye irritation persists: Get medical advice/attention. <b>P281</b> Use personal protective equipment as required.
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### 3 Composition/Information on ingredients

3.1. Substances	No data available.
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## 3.2. Mixtures Hazardous Component(s)

Chemical Name	CAS – No. EC-No. Registration Number	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Malic Acid	617-48-1 210-514-9	Eye Irrit, 2: H319	4-5%

## 4 First aid measures

### 4.1. Description of first aid measures

General Information	Consult a physician, Show this safety data sheet to the doctor in attendance.
Following Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Get medical attention if any discomfort continues.
Following skin contact	Remove affected person from the source of contamination. Remove any contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if any discomfort continues.
Following eye contact	Remove any contact lenses if possible and safe to do so and open eye lids wide apart. Rinse well with water for at least 15 minutes. Get medical attention if any discomfort continues
Following ingestion	Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Consult a physician.
Self-protection of first-aider	No data available

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms and effects	Irritation to eyes and mucous membranes. Effects may be delayed. Keep the affected person under observation.
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### 4.3. Indication of any immediate medical attention and special treatment needed

Special treatment	Treat symptomatically
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## 5 Firefighting measures

### 5.1. Extinguishing media

Extinguishing media	Use water spray, alcohol resistant foam, dry chemical or carbon dioxide. Dry chemical; Alcohol-resistant foam; Carbon dioxide (CO <sub>2</sub> ); Water spray
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### 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products	Carbon oxides, Nitrogen oxides (NO <sub>x</sub> )
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### 5.3. Advice for firefighters

Special protective equipment	Wear self-contained breathing apparatus for Firefighting if necessary
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## 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

<b>Non-emergency personnel</b>	Wear protective clothing as described in section 8. Avoid dust formation, Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
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### 6.2. Environmental Precautions

<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains or watercourse or onto the ground.
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### 6.3. Methods and material for containment and cleaning up

<b>For contaminant/cleaning up:</b>	Stop leak if possible without risk. Absorb in Vermiculite, dry sand or earth and place into containers. Flush contaminated area with Plenty of water. Collect the remaining powder using special dust vacuum cleaner with particle filter or carefully sweep into suitable waste disposal containers and seal securely.
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<b>Other Information</b>	Avoid generation and spread of dust. Label the containers containing waste and contaminated materials and remove as soon as possible.
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## 7 Handling and storage

### 7.1. Precautions for safe handling

<b>Protective measures</b>	Avoid spilling and contact with skin and eyes. Avoid handling which leads to dust formation. Provide adequate ventilation.
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<b>Measures to prevent fire</b>	This product is non-flammable.
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<b>Measures to prevent aerosol and dust generation</b>	Provide adequate exhaust ventilation at places where the dust is formed.
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### 7.2. Conditions for safe storage, including any incompatibilities





<b>Technical measures and storage conditions/ Requirements for storage rooms and vessels</b>	Store in tightly- closed, original container in a dry, cool and well ventilated place.
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### 7.3. Specific end use(s)

<b>Specific use(s)</b>	See section 1.2.
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## 8 Exposure controls / personal protection

### 8.1. Exposure control

<b>Personal protective equipment (PPE):</b>	   
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<b>Appropriate Engineering Controls</b>	Handle in accordance with good industrial hygiene and safety practice.
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<b>Skin Protection</b>	<p>Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.</p> <p><b>Full contact:</b> Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)</p> <p><b>Splash contact:</b> Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) test method: EN374</p> <p>If used in solution, or mixed with other substances and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.</p>
<b>Respiratory Protection</b>	<p>Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.</p>
<b>Eye Protection</b>	<p>Ensure eye protection is dust resistant, chemical splash goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).</p>
<b>Body Protection</b>	<p>Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).</p>
<b>Hygiene Measures</b>	<p>Wash hands before breaks and at the end of workday.</p>
<b>8.2. Environmental Exposure</b>	
<b>General Advice</b>	<p>Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.</p>

## 9 Physical & Chemical Properties

### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Form</b>	Viscous
<b>Colour</b>	Colourless
<b>Odour</b>	Slight smell of sulphur
<b>pH</b>	2.3-2.5 at 20°C
<b>Relative Density</b>	1.02g/ml at 20°C
<b>Water Solubility</b>	Soluble

## 10 Stability & Reactivity

<b>Reactivity</b>	There are no known reactivity hazards associated with this product.
<b>Chemical stability</b>	Stable at normal, ambient temperature.
<b>Conditions to avoid</b>	Avoid excessive heat for prolonged periods of time.
<b>Materials to avoid</b>	Oxidising materials, Alkalis Amines, Carbonates and alkali metals.
<b>Hazardous decomposition products</b>	Fire creates Carbon monoxide and carbon dioxide.

## 11 Toxicology Information

### 11.1. Information on toxicological effects

#### Acute Oral Toxicity

Practical experiment/ Human evidence: Animal Data

Product	Test	Species	Quantity	Exposure time
Malic Acid	LD50-Oral	Rat	>5000 mg/kg	
	LD50-Inhalation	Rat	>1306 mg/l	4h
Chitosan	LD50-Oral	Rat	>10 000 mg/kg	4h
Sodium Metabisulphite	LD50	Rat	1,540 mg/kg	
	LD50 Dermal	Rat	> 2,000 mg/kg	4h

#### Skin corrosion/Irritation

May irritate the skin.

#### Serious eye damage/eye irritation

Can cause serious eye irritation.

#### Carcinogenicity:

No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

## 12 Ecological Information

#### Toxicity

Product	Species	Test	Value	Exposure time
Chitosan	Oncorhynchus mykiss (Rainbow trout)	LC50	1.73mg/l	96 hr
	Daphnia pulex (Water flea)	EC50	13.69 mg/l	48 hr
Malic Acid	Brachydanio rerio (Zebra fish)	LC50	>100 mg/l	96 hr
	Daphnia Magna	EC50	>240mg/l	48 hr
	Pseudokirchneriella subcapitata	EC50	>100 mg/l	72 hr



Product	Species	Test	Value	Exposure time
Sodium Metabisulphite	Oncorhynchus mykiss (Rainbow trout)	LC50	150 - 220 mg/l	96 hr
	Daphnia magna (Water flea)	EC50	89 mg/l	24 hr
	Desmodesmus subspicatus (green algae)	IC50	48 mg/l	72 hr
	Pseudomonas putida	IC50	56 mg/l	17 hr

Further Information	Toxic to fish
Persistence and degradability	Not readily biodegradable

## 13 Disposal Considerations

### 13.1. Waste treatment methods

Waste disposal according to directive 2008/96/EC, covering waste and dangerous waste

Product/package disposal	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local waste disposal authority Dispose of a used product.
Waste treatment - relevant information	Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an after burn and scrubber.
Sewage disposal - relevant information	Do not let product enter drains. Discharge into the environment must be avoided.

## 14 Other Information

Full text of H-phrases referred to under sections 2 and 3	H319: Causes serious eye irritation.
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