**MYOSPOTS AUSTRALIA PTY LTD**
**ABN 12630100300**

# Technical Data Sheet

**Product description:** Myospots (tongue exercise spots)

**Manufacturer:** The product is a property of:

Myospots Australia Pty Ltd, Gold Coast, QLD, Australia

And is being manufactured by:

Acino Pharma AG, Birsweg 2, CH-4253, Liesberg, Switzerland

**Composition:**

**1. Myospots™ BANANA**

| No. | Name | Type / Quality | Acino mat no. |
|---|---|---|---|
| 1 | Sodium CMC | Blanose, Na-CMC 7HF (NEM) | 42658 |
| 2 | Xanthan gum | Xanthan FF (NEM) | 42655 |
| 3 | Agar | Idealblend AG-102 (NEM) | 42654 |
| 4 | Stevia | Navia 97 (NEM) | 42656 |
| 5 | Potassium sorbate | Premium Sorb GR (NEM) | 42657 |
| 6 | Carthamus color (Safflomin) | Carthamus Concentrate P-WS-409960 (NEM) | 42726 |
| 7 | Banana flavor | Banana flavor PHS-118845 (NEM) | 42724 |
| 8 | Glyceryl dibehenate | Compritol 888 ATO | 41948 |

**2. Myospots™ BLUEBERRY**

| No. | Name | Type / Quality | Acino mat no. |
|---|---|---|---|
| 1 | Sodium CMC | Blanose, Na-CMC 7HF (NEM) | 42658 |
| 2 | Xanthan gum | Xanthan FF (NEM) | 42655 |
| 3 | Agar | Idealblend AG-102 (NEM) | 42654 |
| 4 | Stevia | Navia 97 (NEM) | 42656 |
| 5 | Potassium sorbate | Premium Sorb GR (NEM) | 42657 |
| 6 | Spirulina blue color (arthrospira platensis extract) | Spirulina blue P.WS-409422 (NEM) | 42730 |
| 7 | Blueberry flavor | Blueberry flavor S-354805 (NEM) | 42725 |
| 8 | Glyceryl dibehenate | Compritol 888 ATO | 41948 |

**Properties and product analysis data:**

**1. Myospots™ BANANA**

| Tests | Requirements | Results |
|---|---|---|
| Appearance | Light yellow, slightly marbled, round, biplanar and facetted tablet | Complies |
| Average mass | 92.5 - 107.5 mg 100.0mg ± 7.5% (92.5 - 107.5mg) | 100.7 mg |
| Uniformity of mass | Complies | Complies |
| Dimensions of tablet | | |
| Diameter | 5.9 - 6.1 mm | 6.1 mm |
| Height | 2.6 - 3.3 mm | 2.9 mm |
| Resistance to crushing | ≥ 25 N | 35 N |

**2. Myospots™ BLUEBERRY**

| Tests | Requirements | Results |
|---|---|---|
| Appearance | Light blue, slightly marbled, round, biplanar and facetted tablet | Complies |
| Average mass | 92.5 - 107.5 mg 100.0mg ± 7.5% (92.5 - 107.5mg) | 100.8 mg |
| Uniformity of mass | Complies | Complies |
| Dimensions of tablet | | |
| Diameter | 5.9 - 6.1 mm | 6.1 mm |
| Height | 2.6 - 3.3 mm | 3.0 mm |
| Resistance to crushing | ≥ 25 N | 42 N |

**Safety Data Sheets**

# SODIUM CARBOXYMETHYLCELLULOSE
## ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **21986**
Version No: **5.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **15/02/2020**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | SODIUM CARBOXYMETHYLCELLULOSE |
| **Chemical Name** | sodium carboxymethylcellulose |
| **Synonyms** | (C30-H43-O26-Na3)n; carboxymethyl cellulose; carboxymethyl cellulose, sodium salt; cellulose, carboxymethyl ether, sodium salt; cellulose gum; sodium cellulose glycolate; cellulose glycolic acid, sodium salt; Cellogen; Cellpro; Cellufix FF 100; Cellugel; Collowel; Copagel; CMC; Courlose; C.N Cellulose; Daicel; sodium CMC; Polycell; Cellolax; Aquaplast; Tylose; Blanose; Unisol; Carbose 1M; Cehol; Carmethose; Vegetable gum 466; Cellofas; Finnfix; CCRIS 3653; Cellofas B; Cellofas B5; Cellofas B50; Cellofas B6; Cellofas C; Cellogel C; Cellogen 3H; Cellogen PR; Cellogen WS-C; Cellufresh; Cellulose carboxymethyl ether sodium salt; Cellulose sodium glycolate; Cellulose, carboxymethyl ether, sodium salt, low-substituted; Celluvisc; CM-Cellulose sodium salt; CMC 2; CMC 3M5T; CMC 41A; CMC 4H1; GPR; Finnfix Purified Range; Cellogen BSH-5, 6A, 7A,WS-A,HP-4H, HSSH |
| **Chemical formula** | (C30-H43-O26-Na3)n |
| **Other means of identification** | Not Available |
| **CAS number** | 9004-32-4 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | Synthetic polymer.<br>Modified cellulose polymers are used in a wide variety of cosmetics as thickeners, suspending agents, film formers, stabilisers, emulsifiers, emollients, binders, or water-retention agents<br>Carboxymethyl cellulose (CMC) or cellulose gum[1] is a cellulose derivative with carboxymethyl groups (-CH2-COOH) bound to some of the hydroxyl groups of the glucopyranose monomers that make up the cellulose backbone. It is often used as its sodium salt, sodium carboxymethyl cellulose.<br>CMC is used in food under the E number E466 or E469 (when it is enzymatically hydrolyzed) as a viscosity modifier or thickener, and to stabilize emulsions in various products including ice cream. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 1 | |
| Body Contact | 0 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

**Page 1 continued...**

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |
| **Signal word** | **Not Applicable** |

**Hazard statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

| CAS No | %[weight] | Name |
|---|---|---|
| 9004-32-4 | >99 | sodium carboxymethylcellulose |

**Mixtures**

See section above for composition of Substances

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with the eyes:<br>▸ Wash out immediately with fresh running water.<br>▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.<br>▸ Seek medical attention without delay; if pain persists or recurs seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes or combustion products are inhaled remove from contaminated area.<br>▸ Lay patient down. Keep warm and rested.<br>▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.<br>▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.<br>▸ Transport to hospital, or doctor. |
| **Ingestion** | ▸ If swallowed do **NOT** induce vomiting.<br>▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.<br>▸ Observe the patient carefully.<br>▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.<br>▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.<br>▸ Seek medical advice. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |

**Continued...**

| | |
|---|---|
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>metal oxides<br>other pyrolysis products typical of burning organic material.<br>May emit poisonous fumes. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Remove all ignition sources.<br>▸ Clean up all spills immediately.<br>▸ Avoid contact with skin and eyes.<br>▸ Control personal contact with the substance, by using protective equipment. |
| **Major Spills** | Moderate hazard.<br>▸ **CAUTION**: Advise personnel in area.<br>▸ Alert Emergency Services and tell them location and nature of hazard.<br>▸ Control personal contact by wearing protective clothing. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Avoid all personal contact, including inhalation.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Prevent concentration in hollows and sumps.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Glass container is suitable for laboratory quantities<br>▸ Polyethylene or polypropylene container.<br>▸ Check all containers are clearly labelled and free from leaks. |
| **Storage incompatibility** | Dilute solutions of all sugars are subject to fermentation, either by yeast or by other microorganisms or enzymes derived from these, producing gases which can pressurise and burst sealed containers.<br>Some microorganisms will produce hydrogen or methane, adding a fire and explosion hazard.<br>Cellulose and its derivatives may react vigorously with calcium oxide, bleaching powder, perchlorates, perchloric acid, sodium chlorate, fluorine, nitric acid, sodium nitrate and sodium nitrite.<br>May be incompatible with aminacrine hydrochloride, chlorocresol, mercuric chloride, phenol, resorcinol, tannic acid and silver nitrate.<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| SODIUM CARBOXYMETHYLCELLULOSE | Not Available | Not Available | Not Available | Not Available |

**Continued...**

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| sodium carboxymethylcellulose | Not Available | Not Available |

### Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |
| **Eye and face protection** | ▸ Safety glasses with side shields<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ P.V.C apron.<br>▸ Barrier cream.<br>▸ Skin cleansing cream. |

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | White to off-white, odourless, hygroscopic powder or granules. Solubility in water depends on degree of substitution. Very slowly degraded biochemically.<br>Modified cellulose polymers formed by the reaction with the free hydroxyl groups in cellulose. The number of hydroxyl groups reacting, as well as the the nature of the substituent, largely determine the physical properties, particularly solubility, of the product.<br>Family of products which vary in their physical properties as a result of variations in production. Data presented here is for typical family member. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | 1.59 |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |

**Continued...**

| | | | |
|---|---|---|---|
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | 370~ |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not available. |
| **Melting point / freezing point (°C)** | Not available. | **Viscosity (cSt)** | Not Applicable |
| **Initial boiling point and boiling range (°C)** | Not Applicable | **Molecular weight (g/mol)** | 21,000-500,000 |
| **Flash point (°C)** | Not Available | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Available | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | 8 |
| **Vapour pressure (kPa)** | Not Applicable | **Gas group** | Not Available |
| **Solubility in water** | Partly miscible | **pH as a solution (1%)** | 6.5-8.0 |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Applicable |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | ▸ Unstable in the presence of incompatible materials.<br>▸ Product is considered stable.<br>▸ Hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.<br>Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.<br>Cellulose, given via the windpipe, caused fibrosis in the alveoli and airways, with injuries of the lung cells. Some health effects associated with wood, cotton, flax, jute and hemp particles or fibres are not attributable to cellulose content but to other substances and/or impurities.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures. |
| **Ingestion** | Accidental ingestion of the material may be damaging to the health of the individual.<br>Large doses of cellulose may be administered orally as non-nutritive bulk, with doses of up to 30 g/day tolerated as bulk laxative while extremely large oral doses may produce disturbances to the gut.<br>High molecular weight material; on single acute exposure would be expected to pass through gastrointestinal tract with little change / absorption.<br>Occasionally accumulation of the solid material within the alimentary tract may result in formation of a bezoar (concretion), producing discomfort.<br>Bulk laxatives can cause temporary bloating and blockage of the oesophagus and/or intestine. As they shorten the time of digestion, the absorption of other drugs will be affected.<br>Polysaccharides are not easily absorbed from the digestive tract, but may produce a laxative effect. Larger doses may produce intestinal or stomach blockage.<br>< |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>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. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| **Chronic** | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.<br>Inhalation studies using animals have shown that cellulose fibres can cause lung scarring, and humans exposed to cellulose at work are more likely to develop asthma and obstructive lung disease. The substance may also induce the production of free radicals in human white blood cells.<br><br>Studies indicate that diets containing large amounts of non-absorbable polysaccharides, such as cellulose, might decrease absorption of calcium, magnesium, zinc and phosphorus.<br>This material contains a substantial amount of polymer considered to be of low concern. These are classified under having MWs of between 1000 to 10000 with less than 25% of molecules with MWs under 1000 and less than 10% under 500; or having a molecular weight average of over 10000.<br>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. |

| | | |
|---|---|---|
| **sodium carboxymethylcellulose** | **TOXICITY** | **IRRITATION** |

**Continued...**

| | | |
|---|---|---|
| | 140 mg/kg[2] | Not Available |
| | Dermal (rabbit) LD50: >2000 mg/kg[2] | |
| | Inhalation (rat) LC50: >5.8 mg/l/4H[2] | |
| | Oral (rat) LD50: 27000 mg/kg[2] | |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **SODIUM CARBOXYMETHYLCELLULOSE** | Neoplastic by RTECS criteria<br>While thought to be uncommon, case reports of severe reactions to carboxymethylcellulose exist. In one such instance, a woman was known to experience anaphylaxis following exposure. Skin testing is believed to be a useful diagnostic tool for this purpose.<br>Effects on inflammation, microbiota-related metabolic syndrome, and colitis are a subject of research Carboxymethyl cellulose has been found to cause inflammation of the gut, altering microbiota, and was found to be a triggering factor of inflammatory bowel diseases such as ulcerative colitis and Crohn's disease |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | Endpoint | Test Duration (hr) | Species | Value | Source |
|---|---|---|---|---|---|
| **sodium carboxymethylcellulose** | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

Non-ionic polymers with MWs > 1,000 that do not contain reactive functional groups and are comprised of minimal low MW oligomers are estimated to display no effects at saturation (NES). These polymers display NES because the amount dissolved in water is not anticipated to reach a concentration at which adverse effects may be expressed. Guidance for the assessment of aquatic toxicity hazard results in a Low hazard designation for those materials that display NES.
For high molecular weight synthetic polymers: (according to the Sustainable Futures (SF) program (U.S. EPA 2005b; U.S. EPA 2012c) polymer assessment guidance.)
High MW polymers are expected:
·to have low vapour pressure and are not expected to undergo volatilization .
· to adsorb strongly to soil and sediment
·to be non-biodegradable (not anticipated to be assimilated by microorganisms.- therefore, biodegradation is not expected to be an important removal process. However many exceptions exist
High MW polymers are not expected to undergo removal by other degradative processes under environmental conditions
Cellulosic products, including cellulose ethers, generally have a low biodegradation rate and are generally of low toxicity to fish.
Sugar-based compounds (saccharides), including polysaccharides are generally easily decomposed by biodegradation. Not all polysaccharides decompose with equal rapidity, and polysaccharides are also synthesised by microorganisms during, for example, the compost maturation phases. Water-insoluble species such as cellulose take longer to decompose and those with a significant degree of branching also take longer.
**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

### Mobility in soil

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse |

**Continued...**

| | |
|---|---|
| | ▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority. |

## SECTION 14 Transport information

### Labels Required

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

## SECTION 15 Regulatory information

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

**sodium carboxymethylcellulose is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

### National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC | Yes |
| Australia Non-Industrial Use | No (sodium carboxymethylcellulose) |
| Canada - DSL | Yes |
| Canada - NDSL | No (sodium carboxymethylcellulose) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | No (sodium carboxymethylcellulose) |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - ARIPS | Yes |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 15/02/2020 |
| **Initial Date** | 28/08/2006 |

### SDS Version Summary

| Version | Issue Date | Sections Updated |
|---|---|---|
| 4.1.1.1 | 13/11/2017 | Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Appearance, Chronic Health, Classification, Disposal, Environmental, Exposure Standard, Fire Fighter (fire/explosion hazard), First Aid (eye), First Aid (inhaled), First Aid (swallowed), Handling Procedure, Instability Condition, Personal Protection (other), Physical Properties, Spills (major), Spills (minor), Storage (storage incompatibility), Storage (suitable container), Supplier Information, Synonyms, Use |
| 5.1.1.1 | 15/02/2020 | Appearance, CAS Number, Environmental, Synonyms, Toxicity and Irritation (Toxicity Figure), Toxicity and Irritation (Other), Use |

### Other information

Classification of the preparation 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.

The 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.

**Continued...**

**Definitions and abbreviations**

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# GUM XANTHAN
# ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **14073**
Version No: **6.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **17/08/2019**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | GUM XANTHAN |
| **Chemical Name** | gum xanthan |
| **Synonyms** | xanthan gum; polysaccharide gum; xanthum; xanthem; xanthen; xanthum gum; Kelco Kelzan AR; Kelco Xanvis; Keltrol F, M, T, TF, BT, GM, RD, SF, 1000, PF300, K1B111; Kelco D, D35, M, MU, S, XC, XCD; Flocon 1035; Keltrol T; Rhodopol 23; Kelzan S; Xanvis; Actigum CX 9; Biozan R; Keltrol TF 1000; Kelzan XC; Monategum GS; Ekogum ketorol; Kelzan XCD; Kelzan AR; biopolymer 9702; xanthan Gum(food grade); xanthan gum NF, EP, JP; xanthan; Rhodopol R 23; xanthan gum food grade 80MESH; xanthan gum pharmaceutical grade 80MESH; xanthan gun; xanthan gum(food grade,oil drilling grade,etc); xanthan Gum,11138-66-2; Capryl mono glyceride(CMG); Xanthan Gum FCC4; San Ace; Echogum F; Echogum T; Rhodoflood XR 75; Keltrol RD; XC 85II-F4; Xanflood; Idvis; XB 23; Kelzan F; Kelzan MF; Kelzan M; Keltrol TF; Kelzan T; Shellflo XA; Satiaxane CX |
| **Other means of identification** | Not Available |
| **CAS number** | 11138-66-2 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | In foods, non-foods, and cosmetics as stabilizer and emulsifying agent.Used in chemically enhanced oil recovery.<br>Polysaccharides obtained from bacteria or fungal sources, may accumulate inside the cells displaying storage function such as glycogen, may be present as structural components in the form of a slime layer as capsular polysaccharides or secreted outside the cells as extracellular bacterial polysaccharides or exopolysaccharides (EPS) e.g. xanthan, bacterial alginate, sphingan etc. Structurally related exopolysaccharides may or may not demonstrate a similar aqueous solubility profile, rheological behavior, thermostability and acid stability. Gel-forming polysaccharides have been found to be mostly water-insoluble producing thermostable gels. Non-gel forming polysaccharides may be water-soluble or water-insoluble. A common structural feature found in all non-gel forming exopolysaccharides is the presence of protective side chains preventing favourable interactions between solvent molecules and highly active functional groups like carboxylate groups. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 0 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |

**Page 1 continued...**

| | |
|---|---|
| **Signal word** | **Not Applicable** |

**Hazard statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

| CAS No | %[weight] | Name |
|---|---|---|
| 11138-66-2 | >99 | gum xanthan |

**Mixtures**

See section above for composition of Substances

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with eyes:<br>▸ Wash out immediately with water.<br>▸ If irritation continues, seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area.<br>▸ Other measures are usually unnecessary. |
| **Ingestion** | ▸ Immediately give a glass of water.<br>▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>other pyrolysis products typical of burning organic material. |
| **HAZCHEM** | Not Applicable |

**Continued...**

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | Note: Very slippery when wet.<br>▸ Clean up all spills immediately.<br>▸ Avoid contact with skin and eyes.<br>▸ Wear impervious gloves and safety glasses.<br>▸ Use dry clean up procedures and avoid generating dust. |
| **Major Spills** | ▸ Clear area of personnel and move upwind.<br>▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Control personal contact with the substance, by using protective equipment and dust respirator.<br>▸ Prevent spillage from entering drains, sewers or water courses. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Limit all unnecessary personal contact.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Avoid contact with incompatible materials.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Lined metal can, lined metal pail/ can.<br>▸ Plastic pail.<br>▸ Polyliner drum.<br>▸ Packing as recommended by manufacturer. |
| **Storage incompatibility** | Avoid contamination of water, foodstuffs, feed or seed.<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| GUM XANTHAN | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| gum xanthan | Not Available | Not Available |

### Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |

**Continued...**

| | |
|---|---|
| **Eye and face protection** | ▸ Safety glasses with side shields<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | No special equipment needed when handling small quantities.<br>**OTHERWISE:**<br>▸ Overalls.<br>▸ Barrier cream.<br>▸ Eyewash unit. |

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | Cream to tan-coloured dry powder; mixes with water. Produced from simple sugars using a fermentation process, and derives its name from the species of bacteria used, Xanthomonas campestris. he xanthan gum polysaccharide consists of a backbone of beta-(1->4) linkedD-glucose molecules.Every second glucose molecule is substituted at C3 with a trisaccharide side chain consisting of beta-D-mannose-(1->4)-b-D-glucuronic acid-(1->2)-a-D-mannose. In the side chains, the terminal mannose moiety is partially substituted with a pyruvate.residue linked as an acetal to the 4- and 6- positions; the internal mannose unit is acetylated at C-6. The viscosity of xanthan gum solutions decreases with higher shear rates; this is called shear thinning or pseudoplasticity. This means that a product subjected to shear, whether from mixing, shaking or even chewing, will thin out, but, once the shear forces are removed, the food will thicken back up. In salad dressing, for example, the addition of xanthan gum makes it thick enough at rest in the bottle to keep the mixture fairly homogeneous, but the shear forces generated by shaking and pouring thins it, so it can be easily poured. When it exits the bottle, the shear forces are removed and it thickens again, |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not available. |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | >200 |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not available. |
| **Melting point / freezing point (°C)** | Not Applicable | **Viscosity (cSt)** | Not Available |
| **Initial boiling point and boiling range (°C)** | Not Applicable | **Molecular weight (g/mol)** | >10000000 |
| **Flash point (°C)** | > 93 (PMCC) | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Applicable | **Oxidising properties** | Not Available |

**Continued...**

| | | | |
|---|---|---|---|
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Not Applicable |
| **Vapour pressure (kPa)** | Not Applicable | **Gas group** | Not Available |
| **Solubility in water** | Miscible | **pH as a solution (1%)** | 7 |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | Product is considered stable and hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | Excessive inhalation of dust can impede respiration due to its hygroscopic properties, i.e. it can form a paste or gel in the airways.<br>The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives 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.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures. |
| **Ingestion** | The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.<br>Polysaccharides are not easily absorbed from the digestive tract, but may produce a laxative effect. Larger doses may produce intestinal or stomach blockage.<br>< |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| **Chronic** | Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.<br>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.<br>Studies indicate that diets containing large amounts of non-absorbable polysaccharides, such as cellulose, might decrease absorption of calcium, magnesium, zinc and phosphorus. |

| | | |
|---|---|---|
| **gum xanthan** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **GUM XANTHAN** | Evaluation of workers exposed to xanthan gum dust found evidence of a link to respiratory symptoms.. On May 20, 2011, the FDA issued a press release about SimplyThick, a food-thickening additive containing xanthan gum as the active ingredient, warning parents, caregivers and health care providers not to feed SimplyThick, a thickening product, to premature infants[. The concern is that the product may cause premature infants to suffer necrotizing enterocolitis. According to a 2017 safety review by a scientific panel of the European Food Safety Authority (EFSA), xanthan gum (European food additive number E 415) is extensively digested during intestinal fermentation, and causes no adverse effects, even at high intake amounts. The EFSA panel found no concern about genotoxicity from long-term consumption. EFSA concluded that there is no safety concern for the general population when xanthan gum is consumed as a food additive. Xanthan gum (E 415) can be regarded as non-toxic based on the results of acute oral toxicity studies.From short-term and subchronic toxicity studies, no toxicological relevant changes were reported apart from a decrease in red blood cell count and haemoglobin concentration in dogs receiving 2,000 mg/kg body weight (bw) per day for 12 weeks. This effect was marginal and it was not reproduced in a dog chronic toxicity study at 1,000 mg/kg bw per day, the highest dose tested. The EFSA Panel noted that decreased total serum cholesterol was frequently reported.For genotoxicity, insufficient experimental data were available. However, taking into account the information on structure–activity relationships and considering that xanthan gum has a molecular w eight far above the threshold for absorption, according to absorption, distribution, metabolism, and excretion (ADME) data, it was not degraded in the intestine and is slightly fermented to non-hazardous short-chain fatty acids by the gut microbiota, the Panel concluded that xanthan gum (E 415) does not give rise to concerns for genotoxicity.In chronic and long-term studies, no adverse effects, including biochemical and haematological parameters, were reported in dogs and rats. From a human study with repeated intake ranging from 10.4 to 12.9 g of xanthan gum per day(assuming a body weight of 70 kg corresponding to 149–184 mg/kg bw per day), it was reported that xanthan gum acts as a bulk laxative causing no adverse dietary nor physiological effects. The only effects observed were moderate (10%) reduction in serum cholesterol ($p<0.05$) and a significant increase in faecal bile acid concentrations ($p<0.05$) .A study investigating the effect of repeated intake of 15 g xanthan gum/day (assuming a bodyweight of 70 kg corresponding to 214 mg/kg bw per day) on colonic function showed significant increases in stool output ($p<0.01$), frequency of defecation ($p<0.05$) and flatulence ($p<0.01$) due to the ingestion of the xanthan gum.In clinical studies involving infants, the Panel noted that consumption of xanthan gum in infant formula or formula for special medical purposes in infant was well tolerated, did not |

**Continued...**

| | |
|---|---|
| | influence minerals(Ca, P, Mg), fat and nitrogen balance and did not affect growth characteristics up to concentration of 1,500 mg/L (232 mg/kg bw per day). These results were supported by the outcome of the post-marketing surveillance with formulae containing xanthan gum at a concentration of approximately 750 mg/L of reconstituted formula. No significant acute toxicological data identified in literature search. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | Endpoint | Test Duration (hr) | Species | Value | Source |
|---|---|---|---|---|---|
| **gum xanthan** | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

Sugar-based compounds (saccharides), including polysaccharides are generally easily decomposed by biodegradation. Not all polysaccharides decompose with equal rapidity, and polysaccharides are also synthesised by microorganisms during, for example, the compost maturation phases. Water-insoluble species such as cellulose take longer to decompose and those with a significant degree of branching also take longer.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

### Mobility in soil

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority.<br>▸ Recycle wherever possible.<br>▸ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.<br>▸ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material)<br>▸ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed. |

## SECTION 14 Transport information

### Labels Required

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Continued...**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

## SECTION 15 Regulatory information

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

**gum xanthan is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

**National Inventory Status**

| National Inventory | Status |
|---|---|
| Australia - AIIC | Yes |
| Australia Non-Industrial Use | No (gum xanthan) |
| Canada - DSL | Yes |
| Canada - NDSL | No (gum xanthan) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - ARIPS | Yes |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 17/08/2019 |
| **Initial Date** | 16/07/2003 |

**SDS Version Summary**

| Version | Issue Date | Sections Updated |
|---|---|---|
| 4.1.1.1 | 15/09/2005 | Supplier Information |
| 6.1.1.1 | 17/08/2019 | Appearance, Toxicity and Irritation (Other), Use |

**Other information**

Classification of the preparation 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.

The 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.

**Definitions and abbreviations**

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# AGAR
## ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **43942**
Version No: **4.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **27/06/2017**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | AGAR |
| **Chemical Name** | agar |
| **Synonyms** | agar-agar agar agar flake agar-agar gum Bengal Bengal gelatin; Bengal isinglass Ceylon isinglass Chinese isinglass; Digenea simplex mucilage gelose Japan agar Japan isinglass; Layor carang |
| **Other means of identification** | Not Available |
| **CAS number** | 9002-18-0 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | In nutrient media for bacterial cultures; substitute for gelatin, isinglass in making emulsions for photography, cosmetics; thickening agent in foods; meat canning; medical encapsulants and ointments; for dental impressions; corrosion inhibitor; sizing of textiles and paper; dying and printing of textiles; in adhesives.Used therapeutically as a cathartic, veterinary laxative and demulcent. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 0 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |
| **Signal word** | **Not Applicable** |

### Hazard statement(s)

Not Applicable

### Precautionary statement(s) Prevention

Not Applicable

**Page 1 continued...**

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

| CAS No | %[weight] | Name |
|---|---|---|
| 9002-18-0 | >90 | agar |

**Mixtures**

See section above for composition of Substances

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with eyes:<br>▸ Wash out immediately with water.<br>▸ If irritation continues, seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area.<br>▸ Other measures are usually unnecessary. |
| **Ingestion** | ▸ Immediately give a glass of water.<br>▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves in the event of a fire.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use fire fighting procedures suitable for surrounding area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>other pyrolysis products typical of burning organic material. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

See section 8

**Environmental precautions**

See section 12

**Continued...**

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Clean up all spills immediately.<br>▸ Avoid contact with skin and eyes.<br>▸ Wear impervious gloves and safety glasses.<br>▸ Use dry clean up procedures and avoid generating dust. |
| **Major Spills** | ▸ Clear area of personnel and move upwind.<br>▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Control personal contact with the substance, by using protective equipment and dust respirator.<br>▸ Prevent spillage from entering drains, sewers or water courses. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Limit all unnecessary personal contact.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Avoid contact with incompatible materials.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Lined metal can, lined metal pail/ can.<br>▸ Plastic pail.<br>▸ Polyliner drum.<br>▸ Packing as recommended by manufacturer. |
| **Storage incompatibility** | Avoid contamination of water, foodstuffs, feed or seed.<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| AGAR | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| agar | Not Available | Not Available |

### Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |
| **Eye and face protection** | ▸ Safety glasses with side shields<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care. |

**Continued...**

| | |
|---|---|
| | Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | No special equipment needed when handling small quantities.<br>**OTHERWISE:**<br>▸ Overalls.<br>▸ Barrier cream.<br>▸ Eyewash unit. |

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | Buff powder. No odour. Tasteless. Insoluble in cold water but is slowly soluble in hot water to form a viscous solution. A phycocolloid (complex polysaccharide) derived from the agarocytes of red algae Rhodophyceae. Major producing genera are the Gelidium, Gracilaria, Acanthopeltis found in the Indian and Pacific oceans and the Japan Sea. Can be separated into two major fractions, agarose (neutral, gelling), and agaropectin (sulphated, non-gelling). May contain up to 22% bound water with crude protein 1.5% max. Crude ash in the laboratory grades is 4% max. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not Available |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not available. |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not available. |
| **Melting point / freezing point (°C)** | Not Available | **Viscosity (cSt)** | Not Applicable |
| **Initial boiling point and boiling range (°C)** | Not available. | **Molecular weight (g/mol)** | Not available. |
| **Flash point (°C)** | Not Applicable | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Applicable | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not available. | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not available. | **Volatile Component (%vol)** | Not Available |
| **Vapour pressure (kPa)** | Negligible | **Gas group** | Not Available |
| **Solubility in water** | Partly miscible | **pH as a solution (1%)** | Not Available |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | Product is considered stable and hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |

**Continued...**

| | |
|---|---|
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives 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.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures.<br><br>Not normally a hazard due to non-volatile nature of product |
| **Ingestion** | The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.<br>Polysaccharides are not easily absorbed from the digestive tract, but may produce a laxative effect. Larger doses may produce intestinal or stomach blockage.<br>< |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| **Chronic** | Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.<br>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.<br>Studies indicate that diets containing large amounts of non-absorbable polysaccharides, such as cellulose, might decrease absorption of calcium, magnesium, zinc and phosphorus. |

| | | |
|---|---|---|
| **agar** | **TOXICITY** | **IRRITATION** |
| | Oral (rat) LD50: 11000 mg/kg[2] | Not Available |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | | | | | |
|---|---|---|---|---|---|
| **agar** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

Sugar-based compounds (saccharides), including polysaccharides are generally easily decomposed by biodegradation. Not all polysaccharides decompose with equal rapidity, and polysaccharides are also synthesised by microorganisms during, for example, the compost maturation phases. Water-insoluble species such as cellulose take longer to decompose and those with a significant degree of branching also take longer.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

**Continued...**

**Mobility in soil**

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

**Waste treatment methods**

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority.<br>▸ Recycle wherever possible.<br>▸ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.<br>▸ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material)<br>▸ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed. |

## SECTION 14 Transport information

**Labels Required**

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

## SECTION 15 Regulatory information

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

**agar is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

**National Inventory Status**

| National Inventory | Status |
|---|---|
| Australia - AIIC | Yes |
| Australia Non-Industrial Use | No (agar) |
| Canada - DSL | Yes |
| Canada - NDSL | No (agar) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | No (agar) |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | No (agar) |
| Vietnam - NCI | Yes |
| Russia - ARIPS | No (agar) |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

## SECTION 16 Other information

**Continued...**

| | |
|---|---|
| **Revision Date** | 27/06/2017 |
| **Initial Date** | Not Available |

### SDS Version Summary

| Version | Issue Date | Sections Updated |
|---|---|---|
| 3.1.1.1 | 07/01/2006 | Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Chronic Health, Disposal, Engineering Control, Fire Fighter (extinguishing media), Fire Fighter (fire/explosion hazard), Fire Fighter (fire fighting), Fire Fighter (fire incompatibility), First Aid (eye), First Aid (inhaled), First Aid (skin), Personal Protection (other), Personal Protection (eye), Personal Protection (hands/feet), Physical Properties, Spills (major), Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container), Supplier Information |

### Other information

Classification of the preparation 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.

The 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.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# Stevia Leaf Extracts
# ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **4779-50**
Version No: **5.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **01/11/2019**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | Stevia Leaf Extracts |
| **Chemical Name** | rebaudioside A |
| **Synonyms** | food ingredient; sweetener; Stevia 98% |
| **Other means of identification** | Not Available |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | Food ingredient extracted from herb plants. Sweetener and dietary supplement.<br>Use according to manufacturer's directions. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 1 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |
| **Signal word** | **Not Applicable** |

### Hazard statement(s)

Not Applicable

### Precautionary statement(s) Prevention

Not Applicable

### Precautionary statement(s) Response

Not Applicable

**Page 1 continued...**

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No | %[weight] | Name |
|---|---|---|
| 58543-16-1 | 40-99 | rebaudioside A |
| Not Available | 1-60 | other steviol glycosides |

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with the eyes:<br>▸ Wash out immediately with fresh running water.<br>▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.<br>▸ Seek medical attention without delay; if pain persists or recurs seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area.<br>▸ Other measures are usually unnecessary. |
| **Ingestion** | ▸ Immediately give a glass of water.<br>▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>other pyrolysis products typical of burning organic material.<br>May emit corrosive fumes. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

See section 8

**Environmental precautions**

**Continued...**

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Clean up all spills immediately.<br>▸ Avoid breathing dust and contact with skin and eyes.<br>▸ Wear protective clothing, gloves, safety glasses and dust respirator.<br>▸ Use dry clean up procedures and avoid generating dust. |
| **Major Spills** | Moderate hazard.<br>▸ **CAUTION**: Advise personnel in area.<br>▸ Alert Emergency Services and tell them location and nature of hazard.<br>▸ Control personal contact by wearing protective clothing. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Avoid all personal contact, including inhalation.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Prevent concentration in hollows and sumps.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Lined metal can, lined metal pail/ can.<br>▸ Plastic pail.<br>▸ Polyliner drum.<br>▸ Packing as recommended by manufacturer. |
| **Storage incompatibility** | ▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| Stevia Leaf Extracts | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| rebaudioside A | Not Available | Not Available |

### Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |
| **Eye and face protection** | ▸ Safety glasses with side shields.<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care. |

**Continued...**

| | |
|---|---|
| | Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ P.V.C apron.<br>▸ Barrier cream.<br>▸ Skin cleansing cream. |

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | White or off-white; partially miscible with water. Loss on Drying: 5% max. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not Available |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not Available |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not Available |
| **Melting point / freezing point (°C)** | Not Available | **Viscosity (cSt)** | Not Applicable |
| **Initial boiling point and boiling range (°C)** | Not Available | **Molecular weight (g/mol)** | Not Applicable |
| **Flash point (°C)** | Not Available | **Taste** | Not Available |
| **Evaporation rate** | Not Available | **Explosive properties** | Not Available |
| **Flammability** | Not Available | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Negligible |
| **Vapour pressure (kPa)** | Negligible | **Gas group** | Not Available |
| **Solubility in water** | Miscible | **pH as a solution (1%)** | Not Available |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | Product is considered stable and hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

**Continued...**

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures. |
| **Ingestion** | Considered an unlikely route of entry in commercial/industrial environments<br>The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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. |
| **Eye** | There is some evidence to suggest that this material can cause eye irritation and damage in some persons. |
| **Chronic** | Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.<br>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. |

| | | |
|---|---|---|
| **Stevia Leaf Extracts** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **rebaudioside A** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **REBAUDIOSIDE A** | Stevioside, a main glycoside of stevia, was found to be nontoxic in acute toxicity studies in a variety of laboratory animals.<br>A study evaluated the safety of this sweetener when administered as a dietary admix at target exposure levels of 500, 1000, and 2000 mg/kg/day to Sprague-Dawley rats for 90 days. There were no treatment-related effects on the general condition and behavior of the animals as determined by clinical observations, functional observational battery, and locomotor activity assessments. Evaluation of clinical pathology parameters revealed no toxicologically relevant, treatment-related effects on hematology, serum chemistry, or urinalysis. Macroscopic and microscopic findings revealed no treatment-related effects on any organ evaluated. |
| **Stevia Leaf Extracts & REBAUDIOSIDE A** | No significant acute toxicological data identified in literature search. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | | | | | |
|---|---|---|---|---|---|
| **Stevia Leaf Extracts** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| **rebaudioside A** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

Fully degradable glycosides. [Manufacturer]

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

**Continued...**

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

**Mobility in soil**

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

**Waste treatment methods**

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority.<br>▸ Recycle wherever possible.<br>▸ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.<br>▸ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material)<br>▸ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed. |

## SECTION 14 Transport information

**Labels Required**

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

## SECTION 15 Regulatory information

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

**rebaudioside A is found on the following regulatory lists**

Not Applicable

**National Inventory Status**

| National Inventory | Status |
|---|---|
| Australia - AIIC | No (rebaudioside A) |
| Australia Non-Industrial Use | No (rebaudioside A) |
| Canada - DSL | No (rebaudioside A) |
| Canada - NDSL | No (rebaudioside A) |
| China - IECSC | No (rebaudioside A) |
| Europe - EINEC / ELINCS / NLP | No (rebaudioside A) |
| Japan - ENCS | No (rebaudioside A) |
| Korea - KECI | No (rebaudioside A) |
| New Zealand - NZIoC | No (rebaudioside A) |
| Philippines - PICCS | No (rebaudioside A) |
| USA - TSCA | No (rebaudioside A) |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | No (rebaudioside A) |
| Vietnam - NCI | Yes |
| Russia - ARIPS | No (rebaudioside A) |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

**Continued...**

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 01/11/2019 |
| **Initial Date** | 30/04/2012 |

### SDS Version Summary

| Version | Issue Date | Sections Updated |
|---|---|---|
| 4.1.1.1 | 14/03/2018 | Physical Properties |
| 5.1.1.1 | 01/11/2019 | One-off system update. NOTE: This may or may not change the GHS classification |

### Other information

Classification of the preparation 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.

The 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.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# POTASSIUM SORBATE
## ChemWatch Review SDS

Chemwatch Hazard Alert Code: **2**

Chemwatch: **25839**
Version No: **7.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **09/12/2019**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | POTASSIUM SORBATE |
| **Chemical Name** | potassium sorbate |
| **Synonyms** | C6-H8-O2-K; potassium 2,4-hexadienoate; 2,4-hexadienoic acid, (E,E')-, potassium salt; 2,4-Hexadienoic acid, potassium salt (CAS RN: 590-00-1); sorbic acid, potassium salt; Sorbistat-K; Sorbistat-Potassium; BB powder; Sorbistat K; Code: RP346; potassium sorbate granular; potassium sorbate powder & granules; POSORB18 |
| **Chemical formula** | C6H8O2.K |
| **Other means of identification** | Not Available |
| **CAS number** | 24634-61-5 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | A preservative inhibiting the growth of yeasts, moulds and some bacteria in a wide range of food, beverage, pharmaceutical and cosmetic products. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 1 | |
| Body Contact | 2 | |
| Reactivity | 1 | |
| Chronic | 2 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Skin Corrosion/Irritation Category 2, Skin Sensitizer Category 1, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Eye Irritation Category 2A |
| ***Legend:*** | *1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI* |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | |
| **Signal word** | **Warning** |

**Page 1 continued...**

### Hazard statement(s)

| | |
|---|---|
| **H315** | Causes skin irritation. |
| **H317** | May cause an allergic skin reaction. |
| **H335** | May cause respiratory irritation. |
| **H319** | Causes serious eye irritation. |

### Precautionary statement(s) Prevention

| | |
|---|---|
| **P271** | Use only outdoors or in a well-ventilated area. |
| **P280** | Wear protective gloves/protective clothing/eye protection/face protection. |
| **P261** | Avoid breathing dust/fumes. |
| **P272** | Contaminated work clothing should not be allowed out of the workplace. |

### Precautionary statement(s) Response

| | |
|---|---|
| **P321** | Specific treatment (see advice on this label). |
| **P362** | Take off contaminated clothing and wash before reuse. |
| **P302+P352** | IF ON SKIN: Wash with plenty of water. |
| **P305+P351+P338** | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |

### Precautionary statement(s) Storage

| | |
|---|---|
| **P405** | Store locked up. |
| **P403+P233** | Store in a well-ventilated place. Keep container tightly closed. |

### Precautionary statement(s) Disposal

| | |
|---|---|
| **P501** | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |

## SECTION 3 Composition / information on ingredients

### Substances

| CAS No | %[weight] | Name |
|---|---|---|
| 24634-61-5 | 100 | potassium sorbate |

### Mixtures

See section above for composition of Substances

## SECTION 4 First aid measures

### Description of first aid measures

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with the eyes:<br>▸ Wash out immediately with fresh running water.<br>▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.<br>▸ Seek medical attention without delay; if pain persists or recurs seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin contact occurs:<br>▸ Immediately remove all contaminated clothing, including footwear.<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes or combustion products are inhaled remove from contaminated area.<br>▸ Lay patient down. Keep warm and rested.<br>▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.<br>▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.<br>▸ Transport to hospital, or doctor, without delay. |
| **Ingestion** | ▸ If swallowed do **NOT** induce vomiting.<br>▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.<br>▸ Observe the patient carefully.<br>▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.<br>▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.<br>▸ Seek medical advice. |

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5 Firefighting measures

### Extinguishing media

- Water spray or fog.
- Foam.
- Dry chemical powder.

**Continued...**

- BCF (where regulations permit).

### Special hazards arising from the substrate or mixture

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

### Advice for firefighters

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>other pyrolysis products typical of burning organic material.<br>May emit poisonous fumes.<br>May emit corrosive fumes. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Remove all ignition sources.<br>▸ Clean up all spills immediately.<br>▸ Avoid contact with skin and eyes.<br>▸ Control personal contact with the substance, by using protective equipment. |
| **Major Spills** | Moderate hazard.<br>▸ **CAUTION**: Advise personnel in area.<br>▸ Alert Emergency Services and tell them location and nature of hazard.<br>▸ Control personal contact by wearing protective clothing. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Avoid all personal contact, including inhalation.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Prevent concentration in hollows and sumps.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Polyethylene or polypropylene container.<br>▸ Check all containers are clearly labelled and free from leaks. |
| **Storage incompatibility** | ▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Continued...**

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| POTASSIUM SORBATE | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| potassium sorbate | Not Available | Not Available |

**Occupational Exposure Banding**

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|---|---|---|
| potassium sorbate | E | ≤ 0.01 mg/m³ |
| ***Notes:*** | *Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.* | |

## Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |
| **Eye and face protection** | ▸ Safety glasses with side shields.<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | **NOTE:**<br>▸ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.<br>▸ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.<br>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ P.V.C apron.<br>▸ Barrier cream.<br>▸ Skin cleansing cream. |

## Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

**Continued...**

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | White, fluffy powder. Mild acrid odour. Soluble up to 58.2 g/L in water. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | 1.363 |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not Available |
| **pH (as supplied)** | Not Available | **Decomposition temperature** | Not Available |
| **Melting point / freezing point (°C)** | 270 (dec.) | **Viscosity (cSt)** | Not Applicable |
| **Initial boiling point and boiling range (°C)** | Not Available | **Molecular weight (g/mol)** | 150.22 pure |
| **Flash point (°C)** | Not Available | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Available | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Negligible |
| **Vapour pressure (kPa)** | Negligible | **Gas group** | Not Available |
| **Solubility in water** | Miscible | **pH as a solution (1%)** | Not Available |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | ▸ Unstable in the presence of incompatible materials.<br>▸ Product is considered stable.<br>▸ Hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures. |
| **Ingestion** | Accidental ingestion of the material may be damaging to the health of the individual.<br>Acute potassium poisoning after swallowing is rare, because vomiting usually occurs and renal excretion is fast. Potassium causes a slow, weak pulse, irregularities in heart rhythm, heart block and an eventual fall in blood pressure. |
| **Skin Contact** | This material can cause inflammation of the skin on contact in some persons.<br>The material may accentuate any pre-existing dermatitis condition<br>Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>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. |
| **Eye** | This material can cause eye irritation and damage in some persons. |
| **Chronic** | Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.<br>Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.<br>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. |

**Continued...**

| | |
|---|---|
| | 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.<br>Sorbic acid and its salts are weak sensitisers and have occasionally been implicated in causing an itchy rash on contact. |

| | TOXICITY | IRRITATION |
|---|---|---|
| **potassium sorbate** | Oral (rat) LD50: >6650 mg/kg[2] | Eye: adverse effect observed (irritating)[1] |
| | Oral (rat) LD50: 3200-10500 mg/kg[2] | Eyes (rabbit) (-) Irritant |
| | | Skin (rabbit) (-) Irritant |
| | | Skin: no adverse effect observed (not irritating)[1] |

| | |
|---|---|
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* |

| | |
|---|---|
| **POTASSIUM SORBATE** | Substance has been investigated as a mutagen by cytogenetis analysis in rodents.<br>The following information refers to contact allergens as a group and may not be specific to this product.<br>Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. 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 sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important.<br>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✓ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✓ | **STOT - Single Exposure** | ✓ |
| **Respiratory or Skin sensitisation** | ✓ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | Endpoint | Test Duration (hr) | Species | Value | Source |
|---|---|---|---|---|---|
| **potassium sorbate** | LC50 | 96 | Fish | >1-mg/L | 2 |
| | EC50 | 48 | Crustacea | 750mg/L | 2 |
| | NOEC | 96 | Fish | >=1-mg/L | 2 |

| | |
|---|---|
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* |

**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

### Mobility in soil

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | ▸ Containers may still present a chemical hazard/ danger when empty.<br>▸ Return to supplier for reuse/ recycling if possible.<br>Otherwise: |

**Continued...**

| | |
|---|---|
| | ▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.<br>▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product.<br>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority. |

## SECTION 14 Transport information

### Labels Required

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

### Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

**potassium sorbate is found on the following regulatory lists**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals | Australian Inventory of Industrial Chemicals (AIIC)

### National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC | Yes |
| Australia Non-Industrial Use | No (potassium sorbate) |
| Canada - DSL | Yes |
| Canada - NDSL | No (potassium sorbate) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - ARIPS | Yes |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 09/12/2019 |
| **Initial Date** | 13/07/2005 |

### SDS Version Summary

| Version | Issue Date | Sections Updated |
|---|---|---|
| 6.1.1.1 | 13/04/2015 | Chronic Health, Disposal, Storage (storage requirement), Supplier Information, Synonyms |
| 7.1.1.1 | 09/12/2019 | Expiration. Review and Update |

### Other information

Classification of the preparation 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.

**Continued...**

The 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.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# SAFFLOMIN A
## ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **1981618**
Version No: **2.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **23/07/2016**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | SAFFLOMIN A |
| **Chemical Name** | Safflomin A |
| **Synonyms** | C27-H32-O16; 3,4,5-trihydroxy-2-[hydroxy(3,4,5-trihydroxyoxan-2-yl)methyl]-6-[(2Z)-3-(4-hydroxyphenyl)prop-2-; enoyl]-4-[3,4,5-trihydroxy-6-(hydroxymethyl)oxan-2-yl]cyclohexa-2,5-dien-1-one; 24-di-beta-D-glucopyranosyl-3,4,5-trihydroxy-6-[3-(4-hydroxyphenyl)-1-oxo-2E-propenyl]-2,5-cyclohexadien-1-one; Hydroxysafflor Yellow A; Carthamus Yellow; C.I. Natural Yellow; HSYA; ring opened of form of Safflor Yellow A. (CAS RN: 85532-77-0); flavonoid |
| **Other means of identification** | Not Available |
| **CAS number** | 78281-02-4 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | Pigments are defined as "colored, black, white, or fluorescent particulate organic or inorganic solids which usually are insoluble in, and essentially physically and chemically unaffected by, the vehicle or substrate in which they are incorporated" They are extremely insoluble in water..They alter appearance by selective absorption and/or by scattering of light. Pigments are usually dispersed in vehicles or substrates for application, as for instance in the manufacture of inks, paints, plastics, or other polymeric materials. Pigments retain a crystal or particulate structure throughout the colouration process<br>Safflomin A is found in fats and oils. Safflomin A is a pigment from safflower (Carthamus tinctorius) Neuroprotective agent. Antagonises platelet-activating factor receptor binding, reduces myocardial infarct size, reduced blood presure and heart rate. Exhibits vascular effects on rat pulmonary artery. A flavonoid, is obtained by extracting the corolla (petals) of Carthamus tinctorius L. with water or slightly acidified water and drying the extract. The principal colouring matters are safflomin A (hydroxysafflor yellow A) and safflomine B (safflor yellow B; CAS RN: 120478-62-8). Besides the colour pigments carthamus yellow consists of sugars, salts and/or proteins naturally occurring in the source materials. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 0 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |

**Page 1 continued...**

| | |
|---|---|
| **Signal word** | **Not Applicable** |

**Hazard statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

| CAS No | %[weight] | Name |
|---|---|---|
| 78281-02-4 | >98 | Safflomin A |

**Mixtures**

See section above for composition of Substances

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with eyes:<br>▸ Wash out immediately with water.<br>▸ If irritation continues, seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area.<br>▸ Other measures are usually unnecessary. |
| **Ingestion** | ▸ Immediately give a glass of water.<br>▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>other pyrolysis products typical of burning organic material. |
| **HAZCHEM** | Not Applicable |

**Continued...**

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Clean up all spills immediately.<br>▸ Avoid contact with skin and eyes.<br>▸ Wear impervious gloves and safety glasses.<br>▸ Use dry clean up procedures and avoid generating dust. |
| **Major Spills** | ▸ Clear area of personnel and move upwind.<br>▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Control personal contact with the substance, by using protective equipment and dust respirator.<br>▸ Prevent spillage from entering drains, sewers or water courses. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Limit all unnecessary personal contact.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Avoid contact with incompatible materials.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Lined metal can, lined metal pail/ can.<br>▸ Plastic pail.<br>▸ Polyliner drum.<br>▸ Packing as recommended by manufacturer. |
| **Storage incompatibility** | Avoid contamination of water, foodstuffs, feed or seed.<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| SAFFLOMIN A | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| Safflomin A | Not Available | Not Available |

### Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |
| **Eye and face protection** | ▸ Safety glasses with side shields<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing |

**Continued...**

| | |
|---|---|
| | the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | No special equipment needed when handling small quantities.<br>**OTHERWISE:**<br>▸ Overalls.<br>▸ Barrier cream.<br>▸ Eyewash unit. |

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | Yellow powder; does not mix well with water. Soluble in methanol Safflomin a belongs to the family of dihexoses. These are disaccharides containing two hexosecarbohydrates The ring opened of form of Safflor Yellow A. (CAS RN: 85532-77-0). Exists as keto-enol tautomers. Component of Carthamus Yellow (safflower yellow) |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not Available |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not Available |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not Available |
| **Melting point / freezing point (°C)** | 300 | **Viscosity (cSt)** | Not Applicable |
| **Initial boiling point and boiling range (°C)** | Not Applicable | **Molecular weight (g/mol)** | 612.53 |
| **Flash point (°C)** | Not Available | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Available | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Negligible |
| **Vapour pressure (kPa)** | Negligible | **Gas group** | Not Available |
| **Solubility in water** | Immiscible | **pH as a solution (1%)** | Not Applicable |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

**Continued...**

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | Product is considered stable and hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives 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.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures. |
| **Ingestion** | Although ingestion is not thought to produce harmful effects (as classified under EC Directives), 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. |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| **Chronic** | Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.<br>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. |

| | | |
|---|---|---|
| **Safflomin A** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **SAFFLOMIN A** | Antagonises platelet-activating factor receptor binding, reduces myocardial infarct size, reduced blood presure and heart rate. Exhibits vascular effects on rat pulmonary artery. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | | | | | |
|---|---|---|---|---|---|
| **Safflomin A** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

For Organic Pigments:
Environmental Fate: Organic pigments are highly persistent in natural environments.
Atmospheric Fate: The chemical processes underlying breakdown of organic pigments through light or atmospheric conditions are difficult to clarify. Atmospheric contaminants, such as peroxides, which appear as the products of radiation, frequently start the degradation process.
Terrestrial Fate: Color pigments are protected from leaching into groundwater by the plastics, paints and inks that make up the final products incorporating color pigments.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|

**Continued...**

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

**Bioaccumulative potential**

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

**Mobility in soil**

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

**Waste treatment methods**

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority. |

## SECTION 14 Transport information

**Labels Required**

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

## SECTION 15 Regulatory information

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

**Safflomin A is found on the following regulatory lists**

Not Applicable

**National Inventory Status**

| National Inventory | Status |
|---|---|
| Australia - AIIC | No (Safflomin A) |
| Australia Non-Industrial Use | No (Safflomin A) |
| Canada - DSL | No (Safflomin A) |
| Canada - NDSL | No (Safflomin A) |
| China - IECSC | No (Safflomin A) |
| Europe - EINEC / ELINCS / NLP | No (Safflomin A) |
| Japan - ENCS | No (Safflomin A) |
| Korea - KECI | No (Safflomin A) |
| New Zealand - NZIoC | No (Safflomin A) |
| Philippines - PICCS | No (Safflomin A) |
| USA - TSCA | No (Safflomin A) |
| Taiwan - TCSI | No (Safflomin A) |
| Mexico - INSQ | No (Safflomin A) |
| Vietnam - NCI | Yes |
| Russia - ARIPS | No (Safflomin A) |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

**Continued...**

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 23/07/2016 |
| **Initial Date** | Not Available |

### Other information

Classification of the preparation 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.

The 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.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# SPIRULINA PLATENSIS EXTRACT
## ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **4203-50**
Version No: **3.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **23/12/2016**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | SPIRULINA PLATENSIS EXTRACT |
| **Chemical Name** | spirulina platensis extract |
| **Synonyms** | arthrospira platensis extract; extract of the alga, spirulina platensis, cyanophyceae; spirulina extract (spirulina platensis) |
| **Other means of identification** | Not Available |
| **CAS number** | 223751-80-2 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | Personal care product.<br>C-phycocyanin (C-PC)-enriched water extract of the cyanobacterium Arthrospira maxima or Arthrospira platensis, (also known as Spirulina maxima or Spirulina platensis). Spirulina is known to have nutritional advantages of high-quality protein content and other components such as vitamins; minerals, and essential fatty acids including gamma-linolenic acid, and beta-carotene. C-PC (a phycobiliprotein) is a blue-colored photosynthetic accessory pigment in all cyanobacteria that has high antioxidant activity to enhance the prolonged induction period for fats or oils by preventing peroxidation of unsaturated fatty acids. Phycocyanin (PC) has been evaluated in twelve experimental models of inflammation and exerted anti-inflammatory effects in a dose-dependent fashion in all of these. Thus, PC reduced edema, histamine (Hi) release, myeloperoxidase (MPO) activity and the levels of prostaglandin (PGE(2)) and leukotriene (LTB(4)) in the inflamed tissues. These anti-inflammatory effects of PC can be due to its scavenging properties toward oxygen reactive species (ROS) and its inhibitory effects on cyclooxygenase 2 (COX-2) activity and on Hi release from mast cells. Pc also reduced the levels of tumor necrosis factor (TNF-alpha) in the blood serum of mice treated with endotoxin and it showed neuroprotective effects in rat cerebellar granule cell cultures and in kainate-induced brain injury in rats. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 0 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |
| **Signal word** | **Not Applicable** |

**Page 1 continued...**

**Hazard statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

| CAS No | %[weight] | Name |
|---|---|---|
| 223751-80-2 | >98 | spirulina platensis extract |
| Not Available | | contains |
| 11016-15-2 | | phycocyanin |
| 7235-40-7 | | beta-carotene |
| 506-26-3 | | gamma-linolenic acid |
| Not Available | | protein |

**Mixtures**

See section above for composition of Substances

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with eyes:<br>▸ Wash out immediately with water.<br>▸ If irritation continues, seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin contact occurs:<br>▸ Immediately remove all contaminated clothing, including footwear.<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area.<br>▸ Other measures are usually unnecessary. |
| **Ingestion** | ▸ Immediately give a glass of water.<br>▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion. |

**Continued...**

| | |
|---|---|
| | Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>hydrogen cyanide<br>nitrogen oxides (NOx)<br>other pyrolysis products typical of burning organic material.<br>May emit poisonous fumes.<br>May emit corrosive fumes. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Clean up all spills immediately.<br>▸ Avoid breathing dust and contact with skin and eyes.<br>▸ Wear protective clothing, gloves, safety glasses and dust respirator.<br>▸ Use dry clean up procedures and avoid generating dust. |
| **Major Spills** | Moderate hazard.<br>▸ **CAUTION**: Advise personnel in area.<br>▸ Alert Emergency Services and tell them location and nature of hazard.<br>▸ Control personal contact by wearing protective clothing. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | ▸ Avoid all personal contact, including inhalation.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Prevent concentration in hollows and sumps.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Polyethylene or polypropylene container.<br>▸ Check all containers are clearly labelled and free from leaks. |
| **Storage incompatibility** | It is suggested that crystalline proteins are explosive as evidenced by the easily induced shattering of microcrystals. This may be a consequence of the implosive collapse of a metastable ordering of molecules (Bretherick's Handbook of Reactive Chemical Hazards).<br>A study was performed to obtain quantitative data on the nature and yields of oxidation products formed by a prototypic oxidant system ($HO^{\bullet}$ /$O_2$) on small peptides, including Val-Gly-Val-Ala-Pro-Gly. Study results indicated that hydroperoxide formation occurred nonrandomly (Pro > Val > Ala > Gly) and that the formation of hydroperoxide was inversely related to carbonyl yields (both peptide-bound and released).<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| SPIRULINA PLATENSIS EXTRACT | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| spirulina platensis extract | Not Available | Not Available |
| phycocyanin | Not Available | Not Available |
| beta-carotene | Not Available | Not Available |
| gamma-linolenic acid | Not Available | Not Available |

**Continued...**

**Occupational Exposure Banding**

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|---|---|---|
| beta-carotene | E | ≤ 0.01 mg/m³ |
| ***Notes:*** | *Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.* | |

## Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |
| **Eye and face protection** | ▸ Safety glasses with side shields.<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | **NOTE:**<br>▸ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.<br>▸ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.<br>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ P.V.C apron.<br>▸ Barrier cream.<br>▸ Skin cleansing cream. |

## Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

| Required minimum protection factor | Maximum gas/vapour concentration present in air p.p.m. (by volume) | Half-face Respirator | Full-Face Respirator |
|---|---|---|---|
| up to 10 | 1000 | A-AUS / Class1 P2 | - |
| up to 50 | 1000 | - | A-AUS / Class 1 P2 |
| up to 50 | 5000 | Airline * | - |
| up to 100 | 5000 | - | A-2 P2 |
| up to 100 | 10000 | - | A-3 P2 |
| 100+ | | | Airline** |

* - Continuous Flow ** - Continuous-flow or positive pressure demand
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

# SECTION 9 Physical and chemical properties

## Information on basic physical and chemical properties

**Continued...**

| | |
|---|---|
| **Appearance** | Blue powder; mixes with water. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not Available |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not Available |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not Available |
| **Melting point / freezing point (°C)** | Not Available | **Viscosity (cSt)** | Not Applicable |
| **Initial boiling point and boiling range (°C)** | Not Applicable | **Molecular weight (g/mol)** | Not Applicable |
| **Flash point (°C)** | Not Available | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Available | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Negligible |
| **Vapour pressure (kPa)** | Negligible | **Gas group** | Not Available |
| **Solubility in water** | Miscible | **pH as a solution (1%)** | Not Available |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | ▸ Unstable in the presence of incompatible materials.<br>▸ Product is considered stable.<br>▸ Hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives 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.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result<br>in excessive exposures. |
| **Ingestion** | The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>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. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| **Chronic** | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.<br>There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.<br>There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.<br>Dusts produced by proteins can sometimes sensitise workers like other foreign bodies. Symptoms include asthma appearing soon after exposure, with wheezing, narrowing of the airways and breathing difficulties. |

| | | |
|---|---|---|
| **spirulina platensis extract** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **phycocyanin** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |

**Continued...**

| | | |
|---|---|---|
| **beta-carotene** | **TOXICITY** | **IRRITATION** |
| | Oral (rat) LD50: >2000 mg/kg[1] | Eye: adverse effect observed (irritating)[1] |
| | | Skin: no adverse effect observed (not irritating)[1] |
| **gamma-linolenic acid** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **BETA-CAROTENE** | Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis). |
| **GAMMA-LINOLENIC ACID** | For omega 6 fatty acids and deriavtives:<br>Some medical research suggests that excessive levels of certain omega-6 fatty acids relative to certain omega-3 fatty acids may increase the probability of a number of diseases.<br>Modern Western diets typically have ratios of omega-6 to omega-3 in excess of 10 to 1, some as high as 30 to 1; the average ratio of omega-6 to omega-3 in the Western diet is 15:1–16.7:1. Humans are thought to have evolved with a diet of a 1-to-1 ratio of omega-6 to omega-3 and the optimal ratio is thought to be 4 to 1 or lower although some sources suggest ratios as low as 1:1). A ratio of 2–3:1 omega 6 to omega 3 helped reduce inflammation in patients with rheumatoid arthritis. A ratio of 5:1 had a beneficial effect on patients with asthma but a 10:1 ratio had a negative effect.<br>A high consumption of oxidised polyunsaturated fatty acids (PUFAs), which are found in most types of vegetable oil, may increase the likelihood that postmenopausal women will develop breast cancer. Similar effect was observed on prostate cancer, but the study was performed on mice<br>Another "analysis suggested an inverse association between total polyunsaturated fatty acids and breast cancer risk, but individual polyunsaturated fatty acids behaved differently [from each other]. [...] a 20:2 derivative of linoleic acid [...] was inversely associated with the risk of breast cancer"<br>PUFAs are prone to spontaneous oxidation/ peroxidation. The feeding of lipid oxidation products and oxidised fats has been reported to cause adverse biological effects on laboratory animals, including growth retardation, teratogenicity, tissue damage and increased liver and kidney weights, as well as cellular damage to the testes and epididymes, increased peroxidation of membrane and tissue lipids and induction of cytochrome P450 activities in the colon and liver.<br>The propensity for PUFAs to oxidise leads to the generation of free radicals and eventually to rancidity.<br>Culinary oils, when heated, undergo important chemical reaction involving self-sustaining, free radical-mediated oxidative deterioration of PUFAs.<br>For polyunsaturated fatty acids and oils (triglycerides):<br>Animal studies have shown a link between polyunsaturated fat and the incidence of tumours, which increased with increasing intake of polyunsaturated fats. This may be partly due to the propensity for polyunsaturated fats to oxidize, leading to generation of free radicals.<br>Research evidence shows that consuming high amounts of polyunsaturated fat may increase the risk of cancer spreading.<br>Culinary oils, when heated, leads to self-sustaining oxidation f polyunsaturated fatty acids (PUFAs), which may produce oxidation products that are toxic to the cell and reproduction and which may cause mutations and chronic disease.<br>Samples of repeatedly used oils collected from fast-food retail outlets and restaurants have confirmed the production of aldehydic lipid oxidation products (LOPs) during frying. Volatile emissions from heated culinary oils used in Chinese-style cooking may cause mutations; exposure to such indoor air pollution may make humans more susceptible to contracting lung or other cancers, together with inflammation of the nose, and reduced lung function. |
| **SPIRULINA PLATENSIS EXTRACT & GAMMA-LINOLENIC ACID** | No significant acute toxicological data identified in literature search. |
| **SPIRULINA PLATENSIS EXTRACT & PHYCOCYANIN** | Although the effective dosage range of phycocyanin in various animal models of inflammation was from 25 to 300 mg/kg p.o, the safety of the phycobiliprotein is good. The measured LD50 values were estimated to be greater than 3 g/kg for rats and mice. No mortality was induced even at the highest dose of phycocyanin (PC) tested (3 g/kg p.o). However, further preclinical pharmacological and toxicological studies are required to determine the safety of PC as potential drug. No changes in behavior or histopathology were observed, nor were there any statistically significant effects on body weight changes. Another acute toxicity study and a subchronic toxicity study of phycocyanin has been reported. Phycocyanin from A. platensis was the test article. For the acute toxicity study, groups of adult male and female Wistar rats were administered a single dose of phycocyanin at 0 (control), 250, 500, 1000, 2000, and 5000 mg phycocyanin/kg bw by mixing with basal diet. In a subchronic study groups of adult male and female Wistar rats were administered 0 (control), 500, 1000, 2000, and 4000 mg phycocyanin/kg of diet/day for 14 weeks. Daily food intake and body weights were recorded. After 14 weeks, the rats were necropsied. Liver, lung, heart, kidney, spleen, brain, adrenal glands and gonads were collected, organ weights were recorded and histopathological examination was performed. Haematological and serum chemistry analyses were also performed. There were no significant differences between control and treatment groups in terms of food intake, body weight gain, organ weights, haematological or serum chemistry measurements. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | | | | | |
|---|---|---|---|---|---|
| **spirulina platensis extract** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| **phycocyanin** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |

**Continued...**

| | | | | | |
|---|---|---|---|---|---|
| **beta-carotene** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | EC50 | 48 | Crustacea | >100mg/L | 2 |
| | EC50 | 72 | Algae or other aquatic plants | 81mg/L | 2 |
| | NOEC | 72 | Algae or other aquatic plants | <10mg/L | 2 |
| **gamma-linolenic acid** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* | | | | |

Proteins are generally easily biodegradable.
**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| beta-carotene | HIGH | HIGH |
| gamma-linolenic acid | LOW | LOW |

### Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|---|
| beta-carotene | LOW (LogKOW = 17.623) |
| gamma-linolenic acid | LOW (LogKOW = 7.2994) |

### Mobility in soil

| Ingredient | Mobility |
|---|---|
| beta-carotene | LOW (KOC = 10000000000) |
| gamma-linolenic acid | LOW (KOC = 11670) |

## SECTION 13 Disposal considerations

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority. |

## SECTION 14 Transport information

### Labels Required

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

### Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

**spirulina platensis extract is found on the following regulatory lists**

Not Applicable

**phycocyanin is found on the following regulatory lists**

Not Applicable

**Continued...**

**beta-carotene is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

**gamma-linolenic acid is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

### National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC | No (spirulina platensis extract; phycocyanin) |
| Australia Non-Industrial Use | No (spirulina platensis extract; phycocyanin; beta-carotene; gamma-linolenic acid) |
| Canada - DSL | No (spirulina platensis extract; phycocyanin) |
| Canada - NDSL | No (spirulina platensis extract; phycocyanin; beta-carotene; gamma-linolenic acid) |
| China - IECSC | No (spirulina platensis extract; phycocyanin; gamma-linolenic acid) |
| Europe - EINEC / ELINCS / NLP | No (spirulina platensis extract; gamma-linolenic acid) |
| Japan - ENCS | No (spirulina platensis extract; phycocyanin) |
| Korea - KECI | No (spirulina platensis extract; phycocyanin; gamma-linolenic acid) |
| New Zealand - NZIoC | No (spirulina platensis extract; phycocyanin) |
| Philippines - PICCS | No (spirulina platensis extract; phycocyanin; gamma-linolenic acid) |
| USA - TSCA | No (spirulina platensis extract; phycocyanin; gamma-linolenic acid) |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | No (spirulina platensis extract; phycocyanin) |
| Vietnam - NCI | No (phycocyanin) |
| Russia - ARIPS | No (spirulina platensis extract; phycocyanin; beta-carotene; gamma-linolenic acid) |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 23/12/2016 |
| **Initial Date** | Not Available |

### Other information

Classification of the preparation 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.

The 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.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

# GLYCERYL DIBEHENATE
## ChemWatch Review SDS

Chemwatch Hazard Alert Code: **1**

Chemwatch: **4145-61**
Version No: **5.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **07/04/2017**
Print Date: **31/08/2020**
S.GHS.AUS.EN

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

### Product Identifier

| | |
|---|---|
| **Product name** | GLYCERYL DIBEHENATE |
| **Chemical Name** | glyceryl dibehenate |
| **Synonyms** | C47-H92-O5; glyceryl benenate; dibehenoyl glycerol; 2-hydroxypropane-1,3-diyl didocosanoate; docosanoic acid, diester with glycerol; tabletting aid tablet excipient/ emollient |
| **Chemical formula** | C47-H92-O5 |
| **Other means of identification** | Not Available |
| **CAS number** | 94201-62-4 |

### Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| **Relevant identified uses** | Excipient for tablets. Lubricating agent for tablet and capsule formulations. Lipophilic matrix for sustained release tablets and hard shell capsules. At low concentrations has no effect on active drug dissociation kinetics. |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| **Registered company name** | **ChemWatch** |
| **Address** | Australia |
| **Telephone** | Not Available |
| **Fax** | Not Available |
| **Website** | Not Available |
| **Email** | Not Available |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Not Available** |
| **Emergency telephone numbers** | Not Available |
| **Other emergency telephone numbers** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

**ChemWatch Hazard Ratings**

| | Min | Max |
|---|---|---|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 0 | |
| Reactivity | 1 | |
| Chronic | 0 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

| | |
|---|---|
| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Not Applicable |

### Label elements

| | |
|---|---|
| **Hazard pictogram(s)** | Not Applicable |
| **Signal word** | **Not Applicable** |

### Hazard statement(s)

Not Applicable

### Precautionary statement(s) Prevention

Not Applicable

**Page 1 continued...**

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

## SECTION 3 Composition / information on ingredients

**Substances**

| CAS No | %[weight] | Name |
|---|---|---|
| 94201-62-4 | >98 | glyceryl dibehenate |

**Mixtures**

See section above for composition of Substances

## SECTION 4 First aid measures

**Description of first aid measures**

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with eyes:<br>▸ Wash out immediately with water.<br>▸ If irritation continues, seek medical attention.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Seek medical attention in event of irritation. |
| **Inhalation** | ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area.<br>▸ Other measures are usually unnecessary. |
| **Ingestion** | ▸ Immediately give a glass of water.<br>▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 Firefighting measures

**Extinguishing media**

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

**Special hazards arising from the substrate or mixture**

| | |
|---|---|
| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

| | |
|---|---|
| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>Combustion products include:<br>carbon monoxide (CO)<br>carbon dioxide ($CO_2$)<br>acrolein<br>other pyrolysis products typical of burning organic material.<br>May emit poisonous fumes. |
| **HAZCHEM** | Not Applicable |

## SECTION 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

See section 8

**Continued...**

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

| | |
|---|---|
| **Minor Spills** | ▸ Clean up all spills immediately.<br>▸ Avoid breathing dust and contact with skin and eyes.<br>▸ Wear protective clothing, gloves, safety glasses and dust respirator.<br>▸ Use dry clean up procedures and avoid generating dust. |
| **Major Spills** | Moderate hazard.<br>▸ **CAUTION**: Advise personnel in area.<br>▸ Alert Emergency Services and tell them location and nature of hazard.<br>▸ Control personal contact by wearing protective clothing. |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | Rags wet / soaked with unsaturated hydrocarbons / drying oils may auto-oxidise; generate heat and, in-time, smoulder and ignite. This is especially the case where oil-soaked materials are folded, bunched, compressed, or piled together - this allows the heat to accumulate or even accelerate the reaction<br><br>Oily cleaning rags should be collected regularly and immersed in water, or spread to dry in safe-place away from direct sunlight or stored, immersed, in solvents in suitably closed containers.<br>▸ Avoid all personal contact, including inhalation.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Prevent concentration in hollows and sumps.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ Glass container is suitable for laboratory quantities<br>▸ Polyethylene or polypropylene container.<br>▸ Check all containers are clearly labelled and free from leaks. |
| **Storage incompatibility** | ·Materials soaked with plant/ vegetable derived (and rarely, animal) oils may undergo spontaneous combustion<br>·The more unsaturated is the fatty acid component, the more susceptible is the oil to oxidation and spontaneous combustion.<br>· Many vegetable and animal oils absorb oxygen from the air to form oxidation products. This oxidation process produces heat and the resultant increase in temperature accelerates the oxidation process.<br>·Drying oils such as linseed, tung, poppy and sunflower oils and semi-drying oils such as soya bean, tall oil, corn, cotton and castor oils all absorb oxygen readily and thus experience the self-heating process.<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Not Available

**Emergency Limits**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| GLYCERYL DIBEHENATE | Not Available | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| glyceryl dibehenate | Not Available | Not Available |

### Exposure controls

| | |
|---|---|
| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| **Personal protection** | |

**Continued...**

| | |
|---|---|
| **Eye and face protection** | ▸ Safety glasses with side shields<br>▸ Chemical goggles.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>▸ polychloroprene.<br>▸ nitrile rubber.<br>▸ butyl rubber. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ P.V.C apron.<br>▸ Barrier cream.<br>▸ Skin cleansing cream. |

### Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | Fine creamy white powder with faint fatty odour; does not mix with water. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | <0.91 |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | >200 |
| **pH (as supplied)** | Not Applicable | **Decomposition temperature** | Not available. |
| **Melting point / freezing point (°C)** | Not Available | **Viscosity (cSt)** | Not Available |
| **Initial boiling point and boiling range (°C)** | Not Available | **Molecular weight (g/mol)** | 737.22 |
| **Flash point (°C)** | >150 | **Taste** | Not Available |
| **Evaporation rate** | Not Applicable | **Explosive properties** | Not Available |
| **Flammability** | Not Applicable | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not available. | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Negligible |
| **Vapour pressure (kPa)** | Negligible | **Gas group** | Not Available |
| **Solubility in water** | Immiscible | **pH as a solution (1%)** | Not Applicable |
| **Vapour density (Air = 1)** | Not Applicable | **VOC g/L** | Not Available |

**Continued...**

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | ▸ Unstable in the presence of incompatible materials.<br>▸ Product is considered stable.<br>▸ Hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

### Information on toxicological effects

| | |
|---|---|
| **Inhaled** | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives 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.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.<br><br>Fine mists generated from plant/ vegetable (or more rarely from animal) oils may be hazardous. Extreme heating for prolonged periods, at high temperatures, may generate breakdown products which include acrolein and acrolein-like substances. |
| **Ingestion** | The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.<br>Ingestion of large quantities may cause nausea, diarrhoea and vomiting. |
| **Skin Contact** | The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives 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.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>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. |
| **Eye** | Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. |
| **Chronic** | There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.<br>Common side effects of treatment with HIV-I protease inhibitors (PI) include diarrhoea, nausea, vomiting, gastrointestinal discomfort, headache, weakness, fatigue and taste disturbances. Renal stones are seen occasionally. |

| | | |
|---|---|---|
| **glyceryl dibehenate** | **TOXICITY** | **IRRITATION** |
| | Oral (mouse) LD50: 5000 mg/kg[2] | Not Available |
| ***Legend:*** | *1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances* | |

| | |
|---|---|
| **GLYCERYL DIBEHENATE** | For group E aliphatic esters (polyol esters):<br>The polyol esters, including trimethylolpropane (TMP). Pentaerythritol (PE) and dipentaerythritol (diPE) are unique in their chemical characteristics since they lack beta-tertiary hydrogen atoms, thus leading to stability against oxidation and elimination. Therefore their esters with C5-C10 fatty acids have applications as artificial lubricants. Because of their stability at high temperatures, they are also used in high temperature applications such as industrial oven chain oils, high temperature greases, fire resistant transformer coolants and turbine engines.<br>Polyol esters that are extensively esterified also have greater polarity, less volatility and enhanced lubricating properties.<br>Acute toxicity: Animal studies show relatively low toxicity by swallowing. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✗ | **Carcinogenicity** | ✗ |
| **Skin Irritation/Corrosion** | ✗ | **Reproductivity** | ✗ |
| **Serious Eye Damage/Irritation** | ✗ | **STOT - Single Exposure** | ✗ |
| **Respiratory or Skin sensitisation** | ✗ | **STOT - Repeated Exposure** | ✗ |
| **Mutagenicity** | ✗ | **Aspiration Hazard** | ✗ |

***Legend:*** ✗ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

## SECTION 12 Ecological information

### Toxicity

| | | | | | |
|---|---|---|---|---|---|
| **glyceryl dibehenate** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
| | Not Available | Not Available | Not Available | Not Available | Not Available |
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite* | | | | |

**Continued...**

| | |
|---|---|
| | *V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data* |

For Group E Aliphatic Esters (Poly Esters):
Environmental Fate: In general, the polyol esters have molecular weights of greater than 400, have high boiling points greater than >400 C and are expected to be relatively non-volatile, lipophilic (log P > 7) and are relatively water-insoluble.
Biodegradability: Polyol esters show extensive biodegradation during standard testing which leads to the generation of the corresponding fatty acids as well as the polyol alcohols. Pentaerythritol is readily biodegradable (84% biodegradation in 28 days).
Aquatic Fate: Polyol esters have very limited water solubility and these materials are probably not likely to cause toxicity at their maximum water solubility.
For aliphatic fatty acids and alcohols:
Environmental fate:
Saturated fatty acids are very stable in air, whereas unsaturated (C=C bonds) fatty acids are susceptible to oxidation.
Unsaturation increases the rate of metabolism although the degree of unsaturation and positioning of double bonds is not highly significant.
The available data indicate all fatty acid salt chain lengths up to and including C18 can be metabolised under aerobic conditions and can be considered to be readily biodegradable
All tests showed that fatty acids and lipids are readily biodegradable
The aliphatic acids are of similar very weak acid strength (approximately pKa 5), i.e., partially dissociate in aqueous solution; the salts of the aliphatic acids are highly dissociated in water solution such that the anion is the same for homologous salts and acids.
Slight (although inconsistent) effects on the trend for decreasing vapour pressure are also are also observed with the mono-, di-and tri-unsaturated substances as compared to the corresponding saturated substances.
**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| | No Data available for all ingredients | No Data available for all ingredients |

### Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|---|
| | No Data available for all ingredients |

### Mobility in soil

| Ingredient | Mobility |
|---|---|
| | No Data available for all ingredients |

## SECTION 13 Disposal considerations

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority. |

## SECTION 14 Transport information

### Labels Required

| | |
|---|---|
| **Marine Pollutant** | NO |
| **HAZCHEM** | Not Applicable |

### Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

### Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

**glyceryl dibehenate is found on the following regulatory lists**

Not Applicable

### National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC | No (glyceryl dibehenate) |
| Australia Non-Industrial Use | No (glyceryl dibehenate) |

**Continued...**

| National Inventory | Status |
|---|---|
| Canada - DSL | No (glyceryl dibehenate) |
| Canada - NDSL | No (glyceryl dibehenate) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | No (glyceryl dibehenate) |
| Korea - KECI | No (glyceryl dibehenate) |
| New Zealand - NZIoC | No (glyceryl dibehenate) |
| Philippines - PICCS | No (glyceryl dibehenate) |
| USA - TSCA | No (glyceryl dibehenate) |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | No (glyceryl dibehenate) |
| Vietnam - NCI | Yes |
| Russia - ARIPS | No (glyceryl dibehenate) |
| ***Legend:*** | *Yes = All CAS declared ingredients are on the inventory*<br>*No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)* |

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 07/04/2017 |
| **Initial Date** | Not Available |

### SDS Version Summary

| Version | Issue Date | Sections Updated |
|---|---|---|
| 4.1.1.1 | 22/11/2010 | Acute Health (inhaled), Acute Health (skin), Chronic Health, Classification, Disposal, Environmental, Exposure Standard, Fire Fighter (fire/explosion hazard), Handling Procedure, Personal Protection (Respirator), Physical Properties, Storage (storage incompatibility), Toxicity and Irritation (Other) |
| 5.1.1.1 | 07/04/2017 | Chronic Health, Disposal, Environmental |

### Other information

Classification of the preparation 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.

The 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.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index