

CARRAGEENAN

GHS Safety Data Sheet

Version No:2.1.1.1
Page 1 of 7

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
CARRAGEENAN

OTHER NAMES

"3, 6-anhydro-D-galactan", "polygalactose, sulfated", polysaccharide, carrageenin, carragheanin, carragheen, carragheenan, kappa-carrageenan, "Chondrus crispus extract", "carrageenan (sic)", "Aubygel GS", "Aubygum DM", "Burtonite V-40-E", Carastay, "Colloid 775", Coreine, "Eucheuma Spinosum Gum", "Flanogen ELA", Galazone, Genu, "Genugel CJ, RLV", "Genuvisco J", "Gum Chon 2", "Gum Chond", "Gum Chond", "Irish Moss Extract, Gelose", Killeen, "Lygomme CDS", Pearlpuss, Pellugel, Pencogel, Pig-Wrack, "Satiagel GS350", "Satiagum 3", "Satiagum Standard", "Seakem Caeeageenin", "Seakem 3&LM", "Seaspen PF", Seatrem, "Self Rock Moss", Viscarin, "Visacrin 402 & TP-4", "Gelcarin® PC 379 Carrageenan", "Viscarin PC 209 carrageenan"

PRODUCT USE

Structural polysaccharide of red sea-weed (Rhodophyceae). Consists of alternating polymers of beta-(1-3)-d-galactose and (1-4)-3, 6-anhydro-D- or L-galactose. Several members of the family have been characterised and differ in the amount of sulfate ester and/or substituent groups the carry in side linkages. Iota-carrageenan is the most highly sulfated. Both iota- and kappa- forms are double helixes. Used in gelling, as an emulsifying aid and stabilising agent. Finds application as a viscosity builder in foods and non-foods. The development of colonic tumors in experimental animals has lead to strong agreement that its use as a food stabiliser should be reconsidered. Degraded carrageenan was formerly used to treat ulcerative colitis and peptic ulceration. The development of cancerous tumors in experimental animals has dictated that the practice be largely discontinued. Therapeutically has been used as a demulcent.

SUPPLIER

Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V.Ind.Estate,
248, Worli Road,
Mumbai- 400030, India
www.sdfine.com
Telephone: 91- 22 24959898/99
Fax: 91- 22 2493 7232
Email: technical@sdfine.com

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Carcinogen Category 2



EMERGENCY OVERVIEW

HAZARD
WARNING

Determined by using GHS criteria
H351 Suspected of causing cancer.

PRECAUTIONARY STATEMENTS

Prevention

Code

P201

P202

Phrase

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

continued...

CARRAGEENAN

GHS Safety Data Sheet

Version No:2.1.1.1

Page 2 of 7

Section 2 - HAZARDS IDENTIFICATION

P281	Use personal protective equipment as required.
Response Code	Phrase
P308+P313	IF exposed or concerned: Get medical advice/attention.
Storage Code	Phrase
P405	Store locked up.
Disposal Code	Phrase
P501	Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
carrageenan	9000-07-1	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

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

EYE

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

SKIN

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

INHALED

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- 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.
- 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).
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture

continued...

CARRAGEENAN

GHS Safety Data Sheet

Version No:2.1.1.1

Page 3 of 7

Section 5 - FIRE FIGHTING MEASURES

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.

- In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC).

Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

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

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.

MAJOR SPILLS

- Moderate hazard.
- CAUTION: Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- 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)
- Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.
- Establish good housekeeping practices.
- Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.

SUITABLE CONTAINER

- Glass container is suitable for laboratory quantities.
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- Avoid reaction with oxidising agents.
- Undergoes depolymerisation in acid solutions.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- carrageenan: CAS:9000- 07- 1 CAS:11114- 20- 8 CAS:9062- 07- 1 CAS:9064- 57- 7

MATERIAL DATA**CARRAGEENAN:**

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

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience).

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

PERSONAL PROTECTION**RESPIRATOR**

- Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens 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. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- The selection of the 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.

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.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:.

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

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocautchouc.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

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.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

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.

CARRAGEENAN

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Yellowish/white course or fine powder; mixes with water. Slight marine odour.

PHYSICAL PROPERTIES

Solid.

Mixes with water.

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

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

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

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

Section 11 - TOXICOLOGICAL INFORMATION

Health hazard summary table:

Acute toxicity	Not applicable
Skin corrosion/irritation	Not applicable
Serious eye damage/irritation	Not applicable
Respiratory or skin sensitization	Not applicable
Germ cell mutagenicity	Not applicable
Carcinogenicity	Carc. 2
Reproductive toxicity	Not applicable
STOT- single exposure	Not applicable
STOT- repeated exposure	Not applicable
Aspiration hazard	Not applicable

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ 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.

■ Polysaccharides are not easily absorbed from the digestive tract, but may produce a laxative effect.

Larger doses may produce intestinal or stomach blockage.

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.

SKIN

■ 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.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ 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.

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CARRAGEENAN

GHS Safety Data Sheet

Version No:2.1.1.1

Page 6 of 7

Section 11 - TOXICOLOGICAL INFORMATION

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.
- 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.
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.
- Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

- There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray. Studies indicate that diets containing large amounts of non-absorbable polysaccharides, such as cellulose, might decrease absorption of calcium, magnesium, zinc and phosphorus.
Oral administration of the substance to rats produced colon tumours.
Administration of the degraded product resulted in identifiable cancerous growths in the colon and the development of Hodgkins Disease lymphomas.
Other experimental work has also demonstrated adverse immunological effects and liver damage.

TOXICITY AND IRRITATION

- The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.
WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

CARCINOGEN

carrageenan	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3	Not classifiable as to its carcinogenicity to humans
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Section 12 - ECOLOGICAL INFORMATION

No data

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
carrageenan	No Data Available	No Data Available	No Data Available	No Data Available

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
 - Return to supplier for reuse/ recycling if possible.
 - Otherwise:
 - 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.
 - Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.
- A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction.
 - DO NOT allow wash water from cleaning or process equipment to enter drains.
 - It may be necessary to collect all wash water for treatment before disposal.
 - In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
 - Where in doubt contact the responsible authority.
 - Recycle wherever possible.

continued...

CARRAGEENAN

GHS Safety Data Sheet

Version No:2.1.1.1

Page 7 of 7

Section 13 - DISPOSAL CONSIDERATIONS

- 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.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

None

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

Section 15 - REGULATORY INFORMATION

REGULATIONS

carrageenan (CAS: 9000-07-1,11114-20-8,9062-07-1,9064-57-7) is found on the following regulatory lists;

"CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "International Numbering System for Food Additives", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-Aldrich Transport Information"

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name
carrageenan

CAS
9000- 07- 1, 11114- 20- 8, 9062- 07- 1, 9064- 57- 7

- Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.
- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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