



FACTS ABOUT CARRAGEENAN

- Carrageenan is a soluble fiber derived from red seaweed and a natural food ingredient that has been used for hundreds of years in the West and probably hundreds of years earlier in Asia.
- Red seaweed is a naturally occurring, sustainable aquaculture grown and harvested in warm waters by an estimated more than 30,000 family farms on five continents. Most of the seaweed used by global carrageenan producers is sourced from family farms in Southeast Asia (primarily Indonesia and the Philippines) and Tanzania in East Africa.
- Seaweed farming provides the primary economic base for thousands of coastal communities and family-owned farms around the globe and plays an important role in sustaining their families and communities.
- The farmed seaweed industry estimates that 210,000 metric tons of seaweed is harvested globally every year at a value over \$250 million.
- Carrageenan also enables the export of countless products by preserving their texture, structure and stability.
- Carrageenan is a high molecular weight polysaccharide consisting of galactose sulfate and anhydrogalactose sulfate units. It is a naturally occurring, non-synthetic substance.
- There are three types of carrageenan, identified by the number and distribution of sulfate groups on the macromolecule, which confer a large variety of properties in terms of solubility and texture.

ONE OF NATURE'S PERFECT STABILIZERS

- Carrageenan is a versatile product, used in a variety of foods, personal care products, pharmaceutical products and dietary supplements. It is used in such products as ice cream and other dairy products, syrups, toothpaste, lotions and hair products.
- When carrageenan is added to foods, it safely and efficiently stabilizes food.
 - It enables foods to be produced with lower levels of fats and sugars.
 - It enables processes that extend shelf life without loss of quality, and it reduces food waste.
 - It enables recipes that eliminate the need for refrigeration, reducing consumption of electricity and fossil fuels during transportation and while on the store shelves.
- It is often used as a thickening agent much in the same way ingredients such as flour, cornstarch and tapioca are used to thicken or bind other ingredients. Carrageenan has been used in the kitchens of Ireland for more than 600 years.



- Carrageenan is halal-, kosher- and vegan-approved. It is used in place of chemically produced additives or animal-based products, like gelatin, which is extracted from animal byproducts.
- When carrageenan is added to foods, it contributes to the efficient use of protein.
 - It enables the use of vegetable and animal protein to make products that taste good and are affordable in a world with an increasing demand for protein.
- Carrageenan is a product from red seaweed and requires no fresh water or arable land to cultivate, does not require fertilizers or pesticides and contributes to fish habitats. Carrageenan's minimal processing and sustainable raw materials make it an ideal ingredient for organic foods.
 - It enables organic food producers to leverage technology and increase availability of their products.
 - It enables organic food producers to take advantage of the economic benefits of a safe and efficient stabilizer to make organic foods more available to people.

CARRAGEENAN SAFETY

- Overwhelming data from dietary studies, particularly long-term oral feeding studies, on the consumption of carrageenan for the past 40 years has shown carrageenan is a safe ingredient.
- The process for making carrageenan is mild and preserves the functionality already in the seaweed. Seventy to ninety-five percent of the rearrangement of the carrageenan backbone occurs in the seaweed during its lifecycle. The effect of processing only increases the rearrangement already occurring in the plant to at least ninety percent and allows carrageenan to be processed economically and with minimal waste.
- Carrageenan is derived from red seaweed that is cultivated in an environmentally friendly and sustainable manner. Most red seaweed is produced in Southeast Asia by small family farms without the need for fertilizer, pesticides or fresh water.
- Regulatory authorities in every region of the world including the United States, Europe, China, Japan and Brazil have found carrageenan safe for use in food.
- These groups have determined there is no need to set an upper limit on the amount of carrageenan a human can safely consume when carrageenan is used at the level needed to achieve its intended effect in food (i.e. stabilizer, thickener).
- The International Agency for Research on Cancer has found carrageenan to be non-carcinogenic.
- Carrageenan and poligeenan are not the same.
- Poligeenan is not a food additive and has no functionality in food.

Marinalg

INTERNATIONAL

- Carrageenan does not turn into poligeenan during digestion, as the conditions necessary for poligeenan production -- low pH, temperatures in excess of 175°F, extended timeframe -- do not exist in the human digestive tract.
 - The Joint FAO/WHO Expert Committee on Food Additives (JECFA) concluded that if carrageenan did turn into poligeenan during digestion, “This would be detected in (animal) feeding studies” – yet no such effect has been detected.
- Carrageenan does not cause inflammation of the digestive tract (colitis, Crohn’s disease, etc.), and studies that assert a connection between ingesting carrageenan and gastrointestinal inflammation have been misinterpreted due to flawed methodology and comparisons.
- Used for more than 600 years, carrageenan is essential to meeting the global demand for nutritious food.

Carrageenan has a long history as a safe food stabilizer that thickens and extends shelf-life efficiency, helping to provide healthy and nutritious food to a hungry world.