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Carrageenan

What is it?

Carrageenan is a hydrocolloid derived from red seaweed, used as thermo-reversible gelling agents and thickening agents, to control syneresis, used as a binding agent and to improve texture and mouthfeel. There are three main types of carrageenan: kappa, iota, and lambda, each with distinct properties and uses.

Kappa carrageenan forms strong, rigid gels in the presence of potassium ions and is often used in dairy products.

Iota carrageenan produces soft gels and is frequently used in dessert gels and sauces.

Lambda carrageenan does not gel but acts as a thickener, making it suitable for use in products like salad dressings and sauces.

Where is it used?

Carrageenan is primarily used as a thickening agent, an emulsifier and a stabilizer. It is commonly used in:

Dairy Products: helps maintain the creamy texture of ice cream and prevents the separation of ingredients in yogurt. It is also used to give mouthfeel and suspension of ingredients like cocoa in chocolate milk and plant-based beverages.

Meat Products: improves the water-holding capacity of processed meats, enhancing their juiciness and tenderness.

Meat alternatives: provides texture and binding in plant-based products, and is suitable for use in vegetarian and vegan products due to its plant-based origin unlike alternatives such as gelatin.

Prepared foods: as a thickener in soups, sauces, dressings and gravies

Desserts: provides texture in desserts such as flans, mousses, water gels and milk gels.

Variations and Selection Criteria

The primary function of carrageenan in your product is important - is it intended to thicken, stabilize, gel, or provide a combination of these functions? Consider the texture, viscosity, and mouthfeel you want to achieve in your product. Different types of carrageenan can be non-gelling or create soft elastic gels to strong rigid gels. The availability of calcium for gelling is an important consideration. Processing conditions such as temperature, shear and pH will help determine the appropriate product for your formulation.

Conclusion

Carrageenan has unique properties as a thickening agent, emulsifier, and stabilizer which make it a versatile ingredient that can enhance the texture, taste, and shelf-life of a wide range of food products. Blendtek can help you select the best option for your specific food or beverage.

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