

## Kappagel

### Ingredients

Carrageenan (E407) – Dextrose

### Culinary data

Kappagel is a gelling agent.

It enables:

- to gel preparations (foamy or not) serve at cold or hot temperatures ( $T^{\circ}\text{C} < 80^{\circ}\text{C}$ )
- to gel preparations that gelatin can't gel such as pineapple, kiwi or papaya,
- to coat foods,
- to prepare hot foams,
- to increase the stability of whipped cream.

### Technological data

#### Dissolution

The preparation of Kappagel starts with the dissolution of the Kappagel powder in water. This is obtained only if water is heated above  $70^{\circ}\text{C}$ . To improve the solubility of the kappagel, it is recommended to disperse it in cold water, before heating the mixture. The amount usually used ranges from 0.2 to 0.5g for 100g of final preparation in the case of dairy products, and from 0.5 to 1.5g for 100g of final preparation in the case of aqueous preparations.

#### Gel setting

The gel sets when the preparation is cooled down to temperatures close to  $40^{\circ}\text{C}$ . The formed gels withstand to temperatures up to  $50-60^{\circ}\text{C}$  and melt above. The gels set again as the temperature is decreased again to temperatures close to  $40^{\circ}\text{C}$ . The gel setting is very fast. It's advised to let the preparation gel at room temperature. When the preparation is placed in the fridge, the gel becomes more brittle and less soft.

#### Effect of the acidity

Carrageenans are sensible to acidity. It is advised to add the acidic ingredients after heating.



#### Effect of ions

Kappagel is sensitive to potassium ions presence in the medium because these ions contribute to the gel network setting.

#### Sensory properties

Gels made of Kappagel are firm, brittle and transparent. Gels have a neutral taste.

#### Preservation

The gels made of Kappagel lose water during storage.

#### Freezing

Gels made of Kappagel are sensitive to freezing, causing them to become destructured.

#### Storage

Store in a closed hermetic packaging, in a cool and dry place.

### Toxicological data

- No acceptable daily intake level.
- The used quantity shouldn't exceed the concentrations used to obtain the desired effect

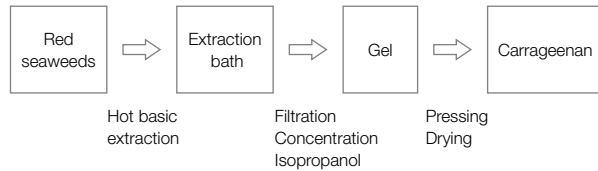
# Scientific data

## Origin

Carrageenans are a family of products extracted from red seaweeds displaying gelling properties.

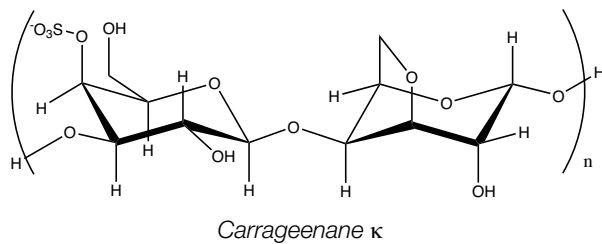
The seaweeds varieties are essentially from the genus *Solieriaceae*, *Gigartinaceae*, *Furcellariaceae*, *Hypneaceae*, *Rhabdoniaceae* et *Rhodophyllidaceae*.

In nature, they serve as structural material to the seaweeds: soft and resistant, they allow adapting to the constant changed of the marine streams.



## Chemical composition

Carrageenans are a family of polymers (long molecules made by attaching one after the other a large number from one or several small molecules) made of carbohydrates (i.e. sugars in chemistry's words, with a meaning not restricted to table sugar). Several sorts exist that vary by the density of negative charges they carry, and as a consequence, their solubility. The ions accompanying these negatives charges, and specifically the potassium and calcium ions, are playing an important role in the gel setting of carrageenans.



## History

Carrageenans have been used as thickener for centuries, the earliest record of it being in Ireland, boiled with milk.

Informations from Stanley N. F. in *Food Gels* (ed. P. Harris), Elsevier 1990, 79-119.