MOCHIDA

Sea Matrix®

low endotoxin
Sodium alginate

Sea Matrix®

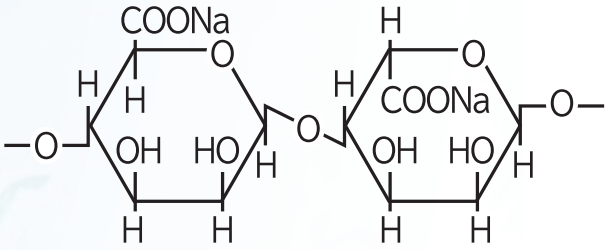
RESEARCH REAGENTS

Alginate

Alginate is a natural polysaccharide found in brown algae, such as kombu kelp and wakame seaweed. Sodium alginate, one of its salts, is widely used in everyday products, including foods, cosmetics, and pharmaceuticals.

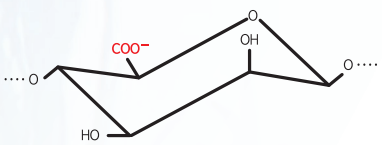
Sodium alginate chemical formula

$(NaC_6H_7O_6)_n$

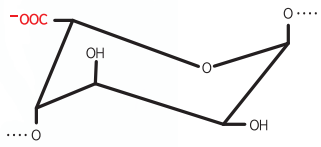


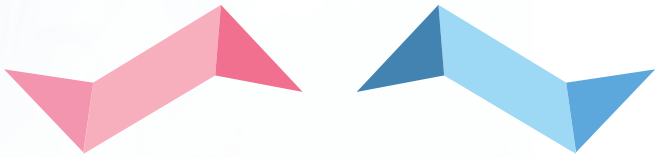
Alginate consists of two types of uronic acids: mannuronic acid and guluronic acid. Each of these uronic acids contains one carboxyl group and carries a negative charge. As a result, alginate exhibits properties such as cation-dependent gelation and non-cell adhesion.

D - mannuronic acid



L - guluronic acid

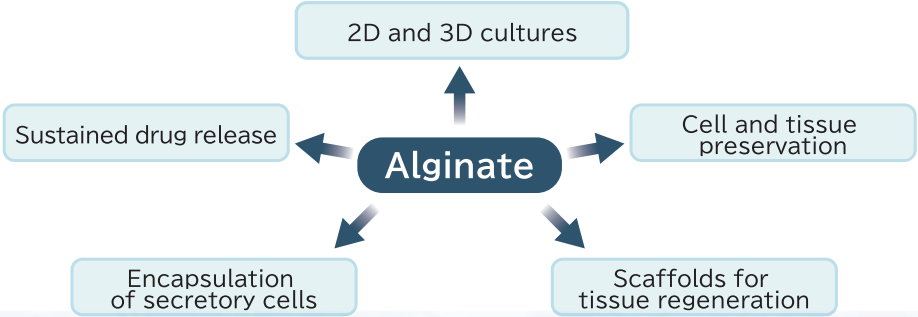




Cutting-edge technology research using alginate in the bio

Medical field (examples)

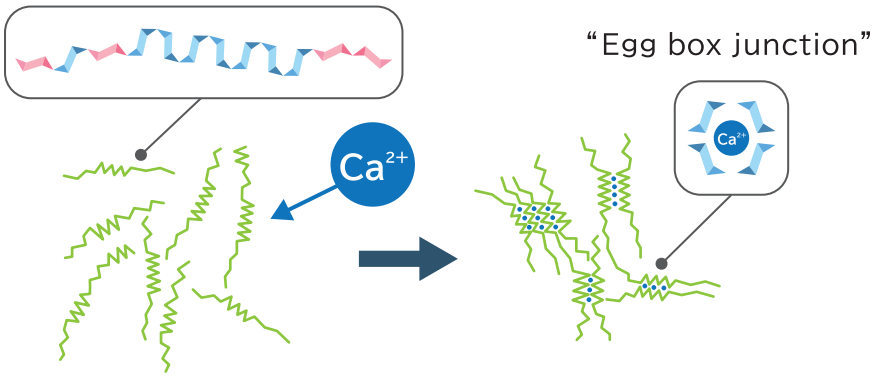
Taking advantage of these properties, technologies are being developed using sodium alginate in various fields.
Research in the biotechnological and medical fields is being actively conducted. Applications of alginate in 2D and 3D culture, cell and tissue preservation, scaffolds for tissue regeneration, encapsulation of secretory cells, and sustained drug release are attracting attention.



Characteristics of alginate

Mechanism of alginate gelation

Alginate and Ca^{2+} ion form a salt with two negatively charged alginate molecules through ionic crosslinking with carboxyl groups, forming a crosslinked structure called an egg box junction.

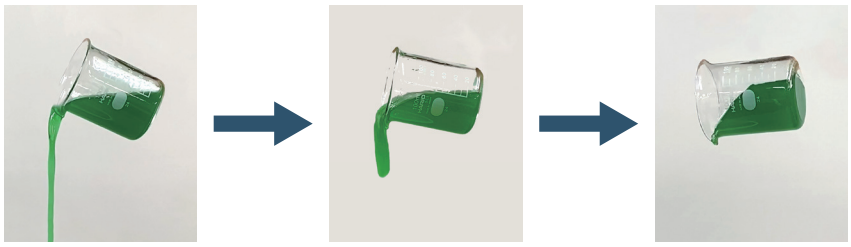


Properties of alginate gel

Easy to form gel of alginate with Ca^{2+} ion

This cross-linking reaction occurs throughout the aqueous solution, reversibly forming an insoluble gel.

＊Colored for easy viewing.



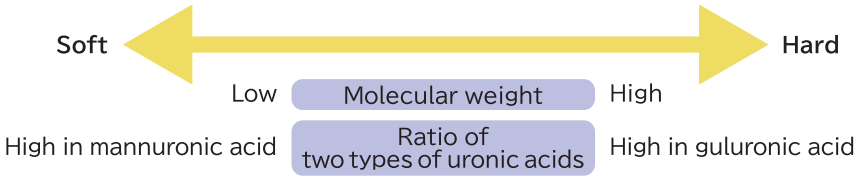
Very smooth aqueous solution

High viscosity paste-like solution

Non-flowing jelly state

Adjustable gel properties based on different application

The three-dimensional structures of the two types of uronic acids is different.
The hardness of the gel can be adjusted with different molecular weight and the ratio of the two types of uronic acids.

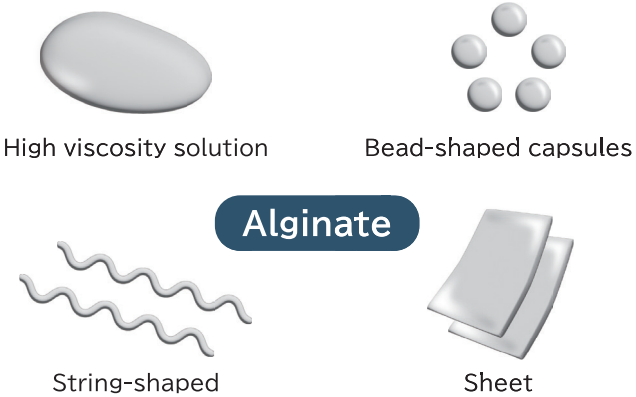


Alginate gel is highly transparent and does not interfere with the observation of embedded cells

Usage Example

Various forms of sodium alginate (examples)

An aqueous solution prepared by dissolving sodium alginate is highly viscous. When calcium ions are added, it forms a gel.
It can be processed into various shapes, such as bead-shaped capsules, strings, and sheets.



High viscosity solution

Bead-shaped capsules

String-shaped

Sheet

Mochida Pharmaceutical Co.,Ltd.

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Sodium alginate

Sea Matrix®

**Sea Matrix® is available in four different viscosity grades.
Endotoxin levels were reduced to the level which is suitable for use in living organisms.
Please note that this product is not intended use in humans.
We also offer products that comply with GMP for active ingredients.
If you are interested, please feel free to contact us.**

Low endotoxin (50 EU/g or less) *
The form is a white powder. One vial contains 1g.

For more details, please use this 2D barcode
or search for "Mochida Pharmaceutical Sea Matrix."

Title of specification	Viscosity (1% aqueous solution, anhydrous equivalent)
SM20	20～100mPa・s
SM100	100～200mPa・s
SM200	200～400mPa・s
SM400	400～600mPa・s

* Based on a colorimetric method in the Japanese Pharmacopoeia.
Note : This product cannot be used on humans as it is a research reagent.

For inquiries, please contact the following:

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