

INTERNATIONAL CELLULOSICS ASSOCIATION



ICA

# CELLULOSE AND CELLULOSE DERIVATIVES\*

## IN A NUTSHELL

\* when used as ingredients



## What are cellulose and cellulose derivatives?

Cellulose and cellulose derivatives are ingredients of natural origin sourced from plants. Their backbone is natural cellulose that is the main component of all plant cell walls, being the most abundant organic molecule on earth.

Cellulose can either be further processed into edible fibres or be transformed into cellulose derivatives.

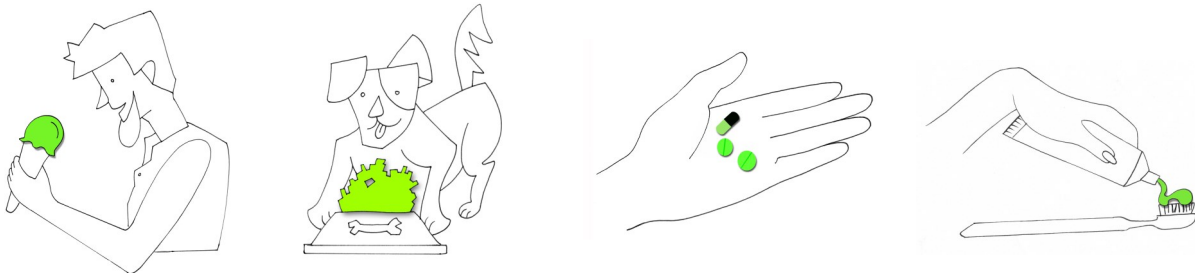
Cellulose that generate edible plant fibres with high nutritional tolerance are made available in a wide range of formats including gel, (micro-) crystals and powder.

Cellulose derivatives are a subsequent intelligent modification of cellulose to generate new functionality (e.g. water solubility) whereas cellulose is not soluble in water.

Typically cellulose and cellulose derivatives are not sold directly to consumers, nonetheless consumers find them as an ingredient in a wide variety of products of daily life.

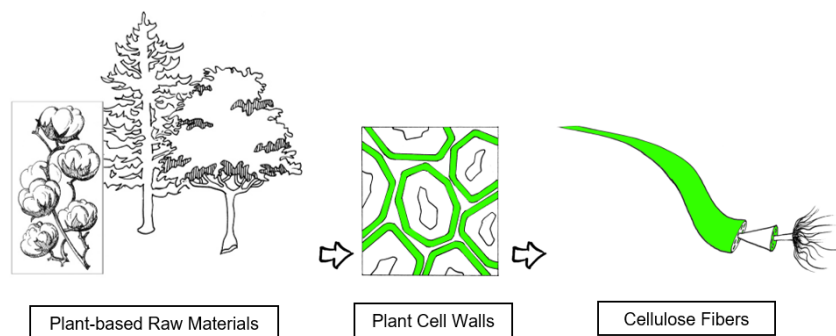
## In which products are cellulose and cellulose derivatives used?

Cellulose and cellulose derivatives are essential in a variety of applications in the field of **foodstuff, feedstuff, pharmaceutical products, personal care** as well as other applications.



## How are they produced?

Cellulose is an ingredient of natural origin, obtained from fibrous plant derived materials that is further purified. The purified cellulose is the basis for the production of edible fibers and water soluble cellulose derivatives to create naturally derived compounds with various different properties, tailored for the relevant applications.



## What are the benefits of cellulose and cellulose derivatives?

Cellulose and cellulose derivatives have multiple functional and technological benefits, which made their popularity for use in many products of the daily life.

**In food and feedstuffs**, cellulose and cellulose derivatives help make the products more enjoyable, preserve their consistency and enhance the safety of food and feed. Common uses include:

- Help thickening products such as jellies, jams, desserts, yogurts, candies
- Add texture when reducing fat or sugar in food and drinks
- Stabilise a solution, mixture or suspension of ingredients or nutrients
- Create structure and textures in vegetarian recipes
- Generate easy-to-use dosage form for feeding animals, e.g. granules, pellets
- Allow a good free-flowability, e.g. as an anticaking for cheese application

**In pharmaceutical products**, they play important roles as multifunctional excipients, which can be used as:

- Create the coating to extend and delay the release of the pharmaceutical formulation
- Enhance the compressibility and stability of tablets and pills
- Help thickening and stabilising liquid dosage form products
- Provide binding in granules and tablets and gelling in semi-solid preparations

**In personal care products**, they primarily function as a thickener and stabiliser e.g. in toothpaste.

With their specific variety of technological benefits for all mentioned applications, cellulose and cellulose derivatives make every diet more enjoyable, enhance product safety and improve product sustainability.

## Are cellulose and cellulose derivatives safe?

Cellulose and cellulose derivatives are not digested or accumulate by the human body, and are released via the intestinal tract. In addition, they do not contain any calories.

Cellulose and cellulose derivatives are considered safe and are approved by the authorities for use in all three categories around the world: food/feed, pharma and personal care globally. Extensive research is put into development of products that are in compliance with quality and safety requirements.

The safety of cellulose and cellulose derivatives as **food additives** has been extensively evaluated by regulatory bodies around the world. Positive opinions on the safe use of cellulose and its derivatives for human consumption have been issued by the European Food Safety Authority (EFSA), the WHO/FAO Joint Expert Committee on Food Additives (JECFA), the US Food and Drug Administration (FDA), Health Canada and the Food Standard Australia and New Zealand (FSANZ), just to mention some food safety authorities.

Cellulose and cellulose derivatives have been used as **pharmaceutical excipients** for several decades demonstrating safe and effective application in medical treatment of humans. The safety of cellulose and cellulose derivatives as excipients has been comprehensively evaluated by regulatory bodies (such as US Food and Drug Administration FDA, European Medicine Agency EMA) for various administration routes and formulations.

The Cosmetic Ingredient Review (CIR) Expert Panel has reviewed the available toxicological data on cellulose and cellulose derivatives and concluded they are safe when used as **cosmetic ingredients**.

Cellulose and cellulose derivatives have a long history of use in many different products with no known side effects. This corroborates the safe use and consumption of cellulose and cellulose derivatives for humans and animals.

### How do I know if cellulose and cellulose derivatives are present in a product?

Cellulose and cellulose derivatives must be listed on the label when they are used in food or drinks, in animal feed products, in pharma products or personal care products, specifying their function and name and appearing on the ingredient list.

### Additional information

For more information on cellulose and cellulose derivatives, please visit <https://www.ofca.eu/>, the website of the producers of cellulose and cellulose derivatives, which are represented by OFCA (Organisation des Fabricants de Produits Cellulosiques Alimentaires), recently renamed to International Cellulosics Association (ICA). OFCA/ICA is the global non-profit association for the regulated grades of cellulose derivatives used in food, feed, pharmaceuticals, personal care and other applications.

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