



# Akucell<sup>®</sup> Cellulose Gum for the food and beverage industry

**AKUCCELL<sup>®</sup>**  
CELLULOSE GUM

**Nouryon**

# Akucell Cellulose Gum

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Nouryon's Akucell product line is a full range of high-performance cellulose gums that meet the demands of various food and beverage applications. These products are produced to strict quality standards at our modern facility located in the Netherlands.

## The right ingredients

Food and beverage markets develop quickly, with new brands and trends constantly evolving in the global marketplace. Clean-label, health-promoting and disease-preventing functional foods are well-known market segments with low-fat and zero-sugar products pushing the limits of food formulations. Stabilizers play an essential role in these formulations and selecting the right ingredients will provide the optimal mix of properties in every product. We are continuously improving our Akucell cellulose gum product range to meet the demands of this ever-changing food and beverage market.

## Reliable and cost-effective

Akucell cellulose gum is a versatile, functional ingredient in the food and beverage industry. Our products deliver high-performance at extremely low dose rates. In many formulations, the addition of only 0.1 % Akucell can give a longer shelf life, better stability, improved sensory properties and even lower calories in some formulations. This makes Akucell one of the most cost-effective ingredients available.

## Sustainability

Sustainability is used in our standard business processes and integrated in our strategy and

management tools. The entire value chain, from raw material extraction to disposal or recycling of end-products is managed with sustainability goals and targets in mind.

Renewable cellulose pulp is a raw material in our Akucell products and we use only cellulose pulp from reliable and approved sources. Our internal auditing team ensures that this renewable resource is being managed responsibly. Sustainability is a key issue for the cellulose pulp industry and all of our suppliers meet standards set by the Forest Stewardship Council (FSC) and Program for Endorsement of Forest Certification (PEFC).

## Quality standards

Akucell cellulose gums satisfy all standards established by the FAO/WHO Expert Committee on Food Additives (UN), The European Community and The US Food Chemical Codex. In Europe, cellulose gums are given the designation E466 and can be used in all processed food, also with the label Cellulose Gum. The FDA in the USA has assigned GRAS status (Generally Recognized As Safe) to cellulose gum (FDA 21 CFR 128.1745). Akucell Cellulose Gum is produced in The Netherlands according to ISO 140001 & 9001, FSSC 22000 and QHSAS 18001 Quality Certification.



## Key properties

We supply Akucell cellulose gum in high, medium and low viscosity grades. Our Akucell products are high-purity and have minimum cellulose gum content greater than 99.5%.

## Viscosity

Akucell cellulose gums increase the viscosity of water solutions at a variety of concentrations. Viscosities can be below 100 and above 10,000 mPas for 1% solutions depending on the grade. Special Akucell products can be selected that maintain viscosity in NaCl or CaCl<sub>2</sub> brines.

## Water Absorption

In food systems such as meat, dairy and bakery water absorption and retention have a major impact on the final properties of the product. Akucell cellulose gum absorbs and retains water inside many food products and can improve

texture and consistency. It can reduce syneresis and prolong product freshness as well. Akucell cellulose gum has a higher water absorption capacity than other gums. Our thixotropic Akucell grades are able to absorb up to 250 times their own weight in water.

## Heat stability

The viscosity of an Akucell solution will decrease with increasing temperature and the original viscosity is recovered even after the solution is held at 90°C for two hours.

## Acid stability

Stability is critical in low pH formulations. The addition of citric acid to an Akucell cellulose gum solution has minimal effect on the viscosity. The pH of a solution of Akucell can be decreased to four with no adverse effects.



# Featured applications

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Akucell cellulose gum will improve the quality of numerous food and beverage products in many applications. With years of experience serving the industry, we make choosing the right Akucell product is easy.

## Desserts

### Ice cream, milkshakes, puddings

- Improves mouth feel
- Gels and thickens
- Improves syneresis
- Stabilizes proteins
- Prevents the formation of ice and lactose crystals
- Imparts silky smooth texture

### Syrups, toppings and icings

- Thickens
- Improves flow control
- Prevents sugar crystallization
- Inhibits topping migration into pancakes, waffles and toast
- Improves mouth feel

### Instant/quick cook cereals

#### Pasta, noodles

- Strengthens gluten network
- Prolongs freshness / shelf life
- Reduces oil uptake during frying
- Prevents soggy noodles and cereals

### Diet foods

- Improved mouth feel
- Prevents syneresis
- Thickens without adding calories
- Simulates texture of fats/oils

## Dairy

### Yoghurt, milk beverages, processed cheese, spreadable cheese

- Prevents casein precipitation at low pH and high temperatures
- Introduces improved mouth feel of instant cappuccino and chocolate drink powders
- Stabilizes milk proteins
- Binds proteins in processed cheeses
- Reduces syneresis

## Supplements

### Energy and protein drink

- Milk, fruit and diet drinks
- Improves mouth feel
- Adds body
- Stabilizes proteins
- Suspends solids
- Enhances flavors

## Fruit preparation

### Drinks, preserves

- Disperses fruit pulp
- Stabilizes proteins
- Releases flavor
- Imparts texture through gel properties

## Gluten free

- Replaces gluten network
- Increases volume
- Retains moisture

## Bakery

### Donuts, dough products, meringues, tortillas

- Controls batter viscosity
- Increases volume
- Prevents oil absorption
- Retains moisture
- Prolongs freshness
- Improves freeze / thaw stability
- Inhibits syneresis in meringues
- Improves process efficiency

## Beverages

### Hot chocolate, cappuccino, breakfast, fruit-flavored drinks, squashes

- Improves mouth feel
- Adds body
- Enhances flavors
- Prevents oil-ring formation

## Soups and sauces

- Improves mouth feel
- Adds body
- Suspends solids
- Improves temperature stability

## Processed meat

### Sausages, hot dogs, hams, hamburgers

- Improves yield
- Improves bite
- Reduces syneresis

# Product overview

The Akucell line has products with viscosities between 10 and 10,000 mPas, particle sizes in granular to extra fine forms and with tailored hydration properties to meet the needs of your processing equipment and formulation. We can develop customized Akucell products upon request at our state-of-the-art research facility.

## Akucell cellulose gum - product range

Akucell	Viscosity range (mPas)*	Category
AF 3265	5,000 - 10,000	Thixotropic
AF 3275	3,000 - 7,000	
AF 2905W	4,000 - 5,500	High viscosity
AF 2805W	2,500 - 4,500	
AF 2785W	1,500 - 2,500	
AF 2405	800 - 1,200	Medium viscosity
AF2 205	300 - 500	
AF 2085	200 - 400	
AF 1985	110 - 200	
AF 1705	70 - 110	Low viscosity
AF 1505	40 - 70	
AF 0305	10 - 15	

\* in 1% solution, Brookfield LV, 30 rpm, 25 °C

## Nutrition facts

	Amount per 100 gram
Calories	0
Fat	0
Cholesterol	0
Sodium	approx 9.5 g
Calcium	max 5 mg
Iron	max 1 mg
Carbohydrate	0
Dietary fiber	min 85.0 g
Soluble fiber	min 85.0 g
Insoluble fiber	max 0.1 g
Protein	0
Vitamins	0
Food Code	E466

## Typical specifications of Akucell grades

	Specification
Viscosity (depending on type grade)	10 - 10,000 mPas
Particle size (depending on type grade)	0.1 mm - 1.0 mm
Degree of substitution (DS)	0.70 - 0.95
Sodium CMC content	min 99.5%
Salt (NaCl and Na glycolate)	max 0.5%
Moisture content	max 8%
pH of 1% solution	6.5 - 8.5
Heavy metals	max 10 ppm



For more detailed product information, samples, technical service and further information, please visit our website at [akucell.com](http://akucell.com) or send an e-mail to [akucell@nouryon.com](mailto:akucell@nouryon.com).

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#### About Nouryon

We are a global specialty chemicals leader. Markets worldwide rely on our essential chemistry in the manufacture of everyday products such as paper, plastics, building materials, food, pharmaceuticals, and personal care items. Building on our nearly 400-year history, the dedication of our 10,000 employees, and our shared commitment to business growth, strong financial performance, safety, sustainability, and innovation, we have established a world-class business and built strong partnerships with our customers. We operate in over 80 countries around the world and our portfolio of industry-leading brands includes Eka, Dissolvine, Trigonox, and Berol.

For more information visit [nouryon.com](http://nouryon.com).

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