



Akucell[®] Cellulose Gum



For food and beverage

AKUCCELL[®]
CELLULOSE GUM

Nouryon

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Our 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, healthpromoting 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

Cellulose gums are water soluble polymers which is characterized by degree of polymerization, degree of substitution (of carboxymethyl groups) and uniformity of substitution. We offer Akucell® cellulose gum in thixotropic, high, medium, low and very low viscosity grades. Our Akucell® products are highly purified with minimum cellulose gum content of 99.5%.

Viscosity

Akucell® cellulose gums increase the viscosity of water solutions which can range from 10 mPa.s or to 15,000 mPa.s for 1% solutions, depending on the grade. Because cellulose gums are highly ionic, viscosity in solution is impacted by salts, acids and temperatures. Certain Akucell® grades can be selected that maintain viscosity even in NaCl or CaCl₂ brines.

Water absorption

Most foods and beverages contain a substantial amount of water and therefore the ability to manipulate water is an important

ability of cellulose gums. Akucell® cellulose gum, particularly thixotropic grades, have a superior ability to absorb and re-tain water which improves texture and consistency. Our thixotropic Akucell® grades are able to absorb up to 250 times their own weight in water. It also reduces syneresis (water leaking) which prolongs product freshness and shelf life. Akucell cellulose gum has a higher water absorption capacity than other comparable gums.

Heat stability

The viscosity of an Akucell® solution will decrease with increasing temperature; however, the original viscosity can be 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 3-4 with no adverse effects on the final application.



Featured applications

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
- Holds gel structure
- Prevents water loss
- Stabilizes proteins
- Prevents the formation of ice and lactose crystals
- Imparts silky smooth texture

Confectionery

Fillings, syrups, creams, jellies and marmalades

- Builds structure
- Improves flow control
- Prevents sugar crystallization
- Disperses fruit evenly
- Creamy / silky mouth feel
- Easy spreadability

Cereals

Pasta, noodles, batter

- Strengthens gluten network
- Prolongs freshness / shelf life
- Reduces oil uptake during frying
- Consistency during mixing

Specialty applications

Food packaging, coatings

- Ideal for ice packs and meat pads requiring food grade thickener
- Great film forming properties for fruits, vegetables and meat sausage casings
- Freeze / thaw stable

Dairy

Cream cheese and spreads, condensed milk, vegan cheese, liquid creamers

- Cost effective way to thicken, stabilize and structure both solids and liquid dairy / dairy alternative products
- Binds proteins in cheeses
- Promotes consistent quality and freshness for extra shelf life

Protein beverages

Flavored milk, directly acidified milk, fermented yoghurts, smoothies

- Thickens and makes drinks more creamy and full bodied
- Stabilizes proteins in low pH conditions and under high temperatures, with or without added viscosity
- Suspends solids
- Enhances flavors

Non-protein beverages

Fruit and vegetable juices, iced teas, energy and sports drinks

- Disperses fruit pulp
- Prevents formation of oil ring
- Adds extra body for low sugar drinks
- Releases flavor
- Prevents sedimentation

Bakery

Cakes, donuts, tortillas, flat-breads, pastries, flour mix

- Controls batter viscosity
- Increases volume and weight
- Prevents oil absorption
- Retains moisture
- Anti-staling effect
- Replaces gluten

Beverages mixes

Hot chocolate, cocoa and cappuccino, instant coffee

- Interacts well with proteins
- Fast hydration in cold or hot
- Instant flavor release

Condiments

Sauces, dressings, marinades

- Thickens to exact desired level
- Adds emulsification power
- Suspends solids
- Improves temperature stability

Processed meat

Sausages, hot dogs, hams, hamburgers patties

- Improves yield
- Improves bite texture
- Reduces syneresis

Pet food

Dry and wet

- Hydrates quickly for consistent gravies
- Pellet binder

Product overview

The Akucell® product line has a range of viscosities between 10 and 15,000 mPa.s, and comes in particle sizes from granular to extra fine forms. Each grade will provide additional properties to serve your every formulation need.

We are here to help you select just the right one.

Akucell® cellulose gum - product range

Akucell®	Viscosity range (mPa.s)*	Category
AF 3285	10,000 - 15,000	Thixotropic
AF 3265	5,000 - 12,000	
AF 3275	3,000 - 9,000	
AF 2985	4,500 - 9,000	High viscosity
AF 2905W	4,000 - 5,500	Medium viscosity
AF 2805W	2,500 - 4,500	
AF 2785W	1,500 - 2,500	
AF 2405	800 - 1,200	
AF 2205	300 - 500	
AF 2085	200 - 400	
AF 1985	110 - 200	
AF 1705	70 - 110	Very 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	148 kcal
Fat	0
Cholesterol	0
Sodium	8000 mg
Calcium	max 1 mg
Iron	max 2 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 - 15,000 mPa.s
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



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Nouryon

Nouryon is a global, specialty chemicals leader. Markets and consumers worldwide rely on our essential solutions to manufacture everyday products, such as personal care, cleaning goods, paints and coatings, agriculture and food, pharmaceuticals, and building products. Furthermore, the dedication of more than 7,900 employees with a shared commitment to our customers, business growth, safety, sustainability and innovation has resulted in a consistently strong financial performance. We operate in over 80 countries around the world with a portfolio of industry-leading brands. Visit our website and follow us @Nouryon and on LinkedIn.

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