



Akucell[®] Cellulose Gum for the Food and Beverage Industry

AKUCCELL[®]
CELLULOSE GUM

Nouryon

Akucell Cellulose Gum

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 at Nouryon 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

Nouryon supplies 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 CaCl₂ 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

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. Nouryon 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
AF3265	5,000 - 10,000	Thixotropic
AF3275	3,000 - 7,000	
AF2805W	2,500 - 4,500	High viscosity
AF2785W	1,500 - 2,500	
AF2405	800 - 1,200	Medium Viscosity
AF2205	300 - 500	
AF2085	200 - 400	
AF1985	110 - 200	
AF1705	70 - 110	
AF1505	40 - 70	Low Viscosity
AF0305	10 - 15	

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

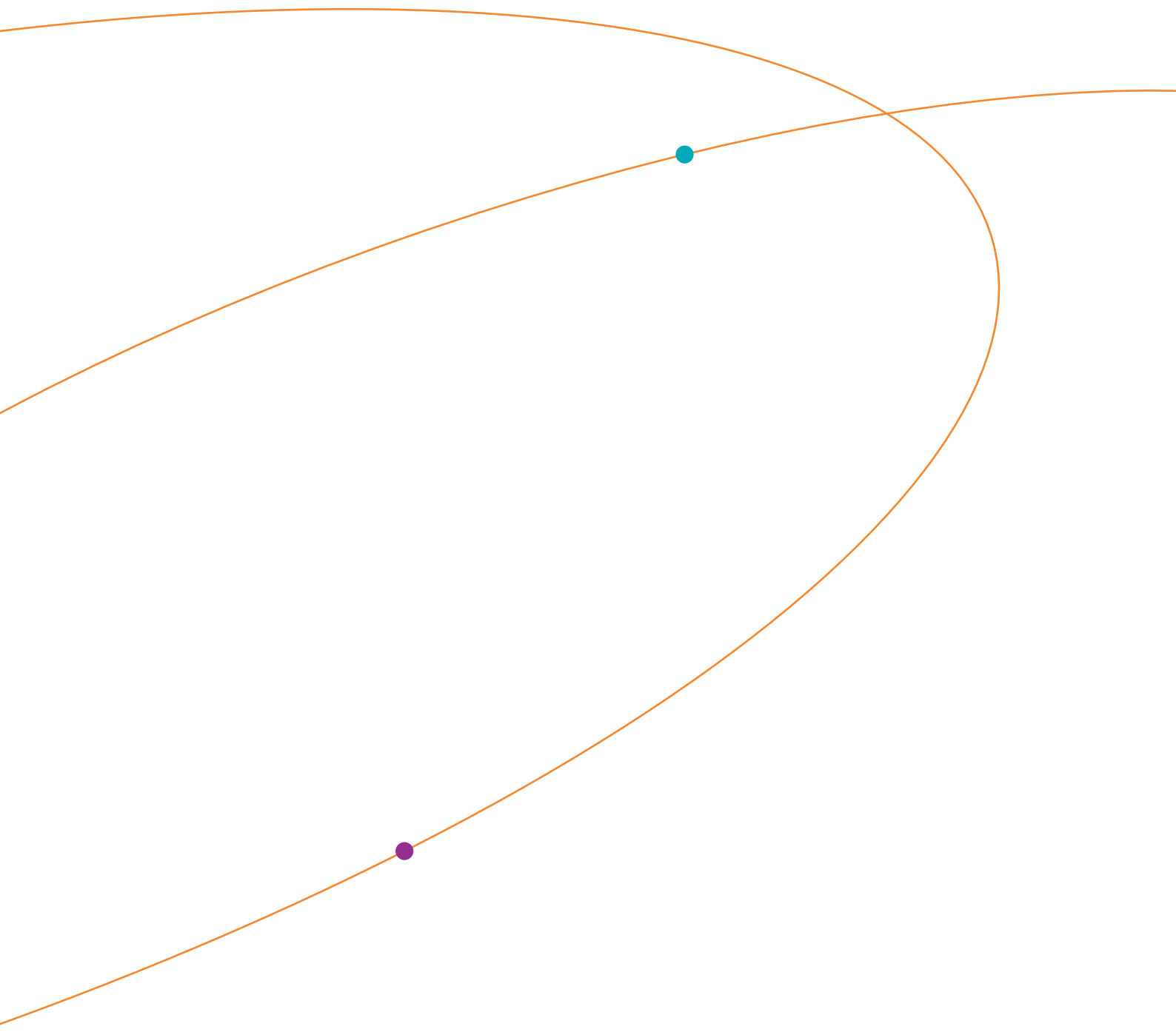
Typical Specifications of Akucell Grades

	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

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





Nouryon

We create ingredients for the manufacture of life's essentials.
You'll find our products all around you, in things like food, buildings,
and everyday items like your children's toys.

Nouryon Chemicals AG, PO Box 5544, 6802 EM Arnhem,
The Netherlands, +31 26 3651108, email: akucell@nouryon.com,
www.akucell.com

nouryon.com