

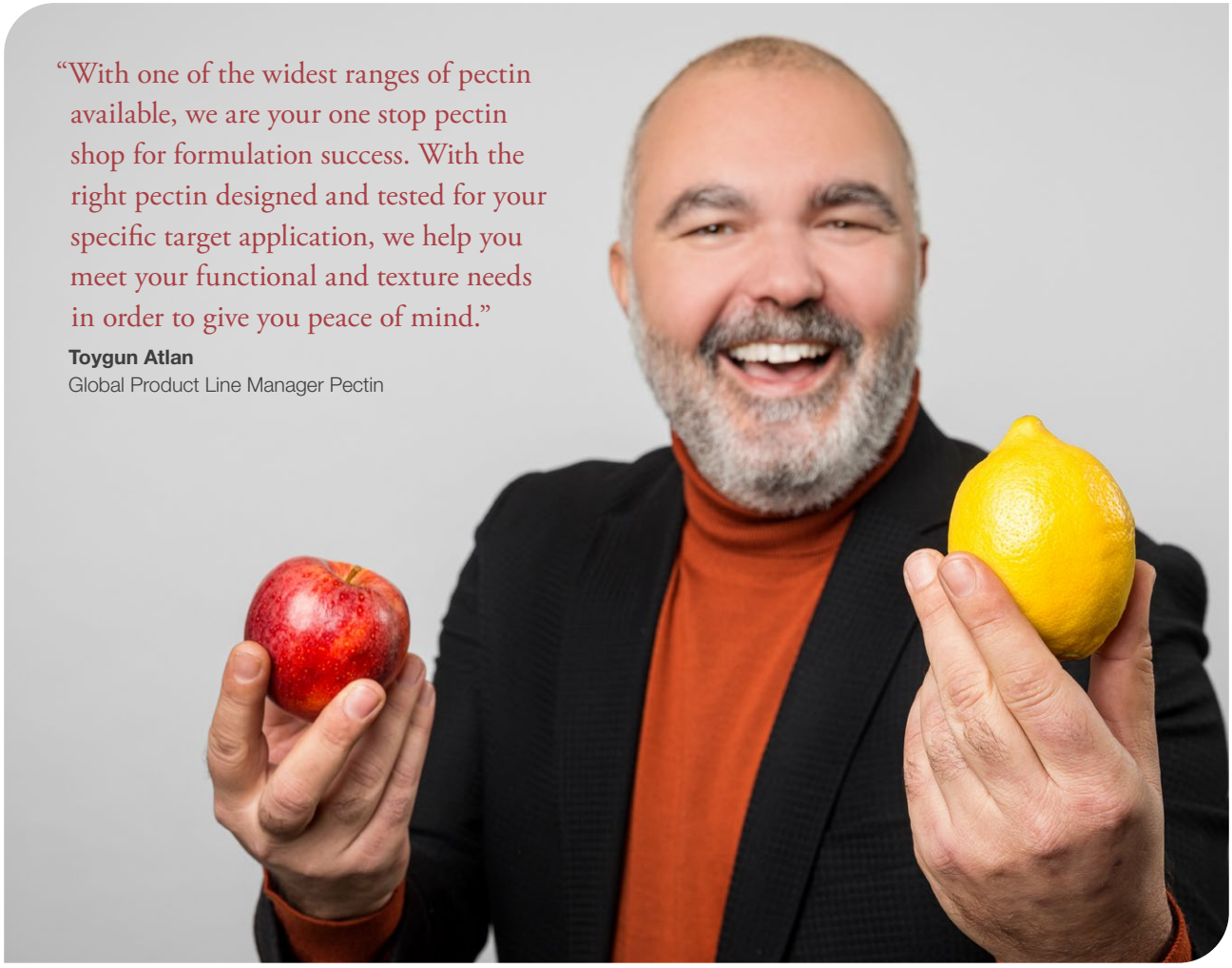
UniPECTINE®

High-quality pectin solutions: Uniquely perfected for you

Cargill®

In an era when consumers gravitate toward **familiar, plant-sourced ingredients**, pectin is enjoying a renaissance moment. It's only fitting that Cargill, the company that first pioneered commercial-scale pectin production in 1948, continues to lead the way with tailormade solutions for an array of applications.

Sourced from citrus peels and apple pomace, **nature-derived pectin offers plenty of label-friendly appeal.** The unique, water-soluble texturizer is also highly functional, with great gelling, stabilizing and thickening properties.



"With one of the widest ranges of pectin available, we are your one stop pectin shop for formulation success. With the right pectin designed and tested for your specific target application, we help you meet your functional and texture needs in order to give you peace of mind."

Toygun Atlan
Global Product Line Manager Pectin



Elodie Dupire
Application Lead Fruit



Anne-Laure Rouger
Application Lead Dairy

- **Label-friendly**
- **Plant-based**
- **Sugar reduction**
- **Vegan/vegetarian**

Together, we will peel back the layers to extract the best UniPECTINE® solution for you.

To help solve your most complex formulation challenges, our passionate application and technical experts dedicate themselves to unlocking the best of pectin, for and with you, in our lab and pilot scale testing facilities.

Which type of Pectin do I need?

Typical application:	• Fruit preparations • Jams with reduced sugar • Yogurts • Bakery fillings • Neutral desserts	• Jams • Bakery • Confectionery • Acid dairy drinks • Beverages • Long shelf life fermented dairy • Ostomy
Specificity:	Calcium sensitivity: • Low • Medium • High	• Rapid Set (RS) • Medium Rapid Set (MRS) • Slow Set (SS) • Slow Set buffered
Type:	**LM Pectin**	**HM Pectin**

Different pectin for different settings

For maximum versatility, Cargill's UniPECTINE® portfolio includes high methoxyl and low methoxyl pectin solutions. Enabling for acid and neutral environments, low and high sugar concentrations, as well as high-temperature processing.

High methoxyl (HM) pectins are defined as those with a degree of esterification equal to or above 50, while low methoxyl (LM) pectins have a DE of less than 50. LM pectins can be either amidated (LMA) or non-amidated (LMC). The percentage level of substitution of the amide group is defined as the "degree of amidation" (DA value) and is very important to the performance of a pectin. DE and DA provide a good classification of pectins, and while these values can help identify the expected behavior of a pectin, additional characteristics are more suited to define its functionality, e.g. SAG, setting temperature and viscosity. LM pectins can provide a wide range of textures and rheological properties, depending on the calcium concentration and the calcium reactivity of the pectin chosen. Amidated LM pectins are generally thermoreversible, whereas non-amidated LM pectins can form thermostable gels.

Applications

As a nature-derived product with acknowledged benefits, pectin is in high demand. Label-friendly and suitable for vegetarian and vegan options, pectin is receiving wide-spread interest from the food and beverage industry. As a result, we continue to explore and discover new applications for this versatile, plant-based ingredient, which is even finding a place in pharmaceutical and cosmetic applications.

Meeting customers' needs

In response, Cargill's pectin portfolio is in constant evolution, as we develop solutions that help meet evolving customers' needs. We take the time to understand specific requirements in order to provide solutions, not just products. We partner with you to find a pectin solution '*Uniquely perfected for you'.*

"Whether you are looking for specific gelation, setting speed, viscosity, mouthfeel or stabilization, there is a UniPECTINE® solution that has undergone extensive testing and will deliver full controllability and contribute to consistent process performance."

Béatrice Merleau
Product Specialist Pectin



Axel Konz
Account Manager



Nicolas Marie
Supply Supervisor
Pectin



Today, the most significant applications for pectin include:

Fruit applications
HM UniPECTINE®
UniPECTINE® OF, OB, OG and OH series

The complete range exists of HM, LMA and LMC pectin solutions for all types of jam varying in pH and fruit inclusions: specialties suitable for standard, reduced sugar and/or organic jams, and to cover a whole range of specifications with regards to reactivity, pH, calcium content of fruit, filling temperature and more. These pectin solutions enable great fruit suspension and help to ensure consistent, stable texture in conventional and sugar-reduced applications.

We help fruit preparation manufacturers in their aim to achieve a stable, homogeneous fruit preparation in containers.

Our UniPECTINE® solutions specifically designed for use in bakery products aim to provide the right texture with or without baking stability and can be used for a wide range of fillings or coatings.

Example application areas

- Standard jams and reduced sugar jams
- Gelling sugars for home made jam
- Fruit preparations for yogurts
- Water jellies
- Bakery fillings (post-bake & bake-stable)
- Glazes and decorations
- Fruit chips and fruit snacks



HM UniPECTINE®
Jams & Jellies

UniPECTINE® **OG series**
Glazes & Decorations

UniPECTINE® **OB series**
Bakery Fillings

UniPECTINE® **OF series**
Jams & Fruit Preparations

Dairy & Plant-based dairy
UniPECTINE® ADF, AMP, AYD and AYS series

Combining dairy products rich in protein, or yogurt with fruit ingredients, offers a wide variety of product options. Viscosity and firmness in set and stirred products is key. Including pectin in dairy products can help control syneresis. LM pectin is used to help provide a gelled or creamy texture in acidic (including fermented) and neutral dairy & plant-based dairy products. HM pectin is used to protect the proteins in acidic conditions and provide a pleasant mouthfeel.

Example application areas:

- Dairy desserts
- Acid dairy drinks
- Yogurts and sour creams
- Long shelf life yogurts & creams
- Plant-based dairy products

Confectionery
HM UniPECTINE®
UniPECTINE® PG series

Our UniPECTINE® solutions for confectionery provide great texture and flavor release, especially in jellies & gummies. HM pectin can be used in high sugar acid jellies (coated or not) and offers excellent firmness and flavor release, and a smooth and brittle texture. LM pectin can be used in non acidic conditions and provides a tender texture. Pectin delivers a firm first bite, and hence a new eating experience that surprises the consumer palate and can help to improve shelf-life quality of end products and can be used for certain vegan/ vegetarian formulations.

Example application areas:

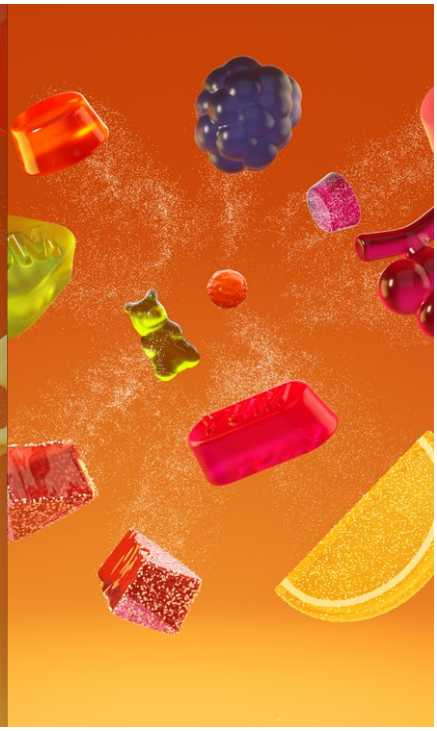
- Soft candies: Gums and jellies, toffees, caramels, fudge, chewy candy, aerated products
- Gelled candies
- Fruit paste & fillings



UniPECTINE® **ADF & AMP series**
Dairy Desserts



UniPECTINE® **AYD series**
Acid Dairy Drinks



UniPECTINE® **PG series**
Confectionery

Beverages

UniPECTINE® Q series

Our UniPECTINE® Q series consists of label-friendly solutions with thickening, viscosifying properties, making them suitable for a wide variety of beverages. The Q series delivers good acid stability. In soft drinks, pectin builds a similar mouthfeel to that of fruit juices, and is therefore also useful in juice drinks and in low calorie or diet drinks. Supports the reduction of sugars as it successfully replicates the viscosity and mouthfeel that can occur in sugar reduced beverages.

Example application areas

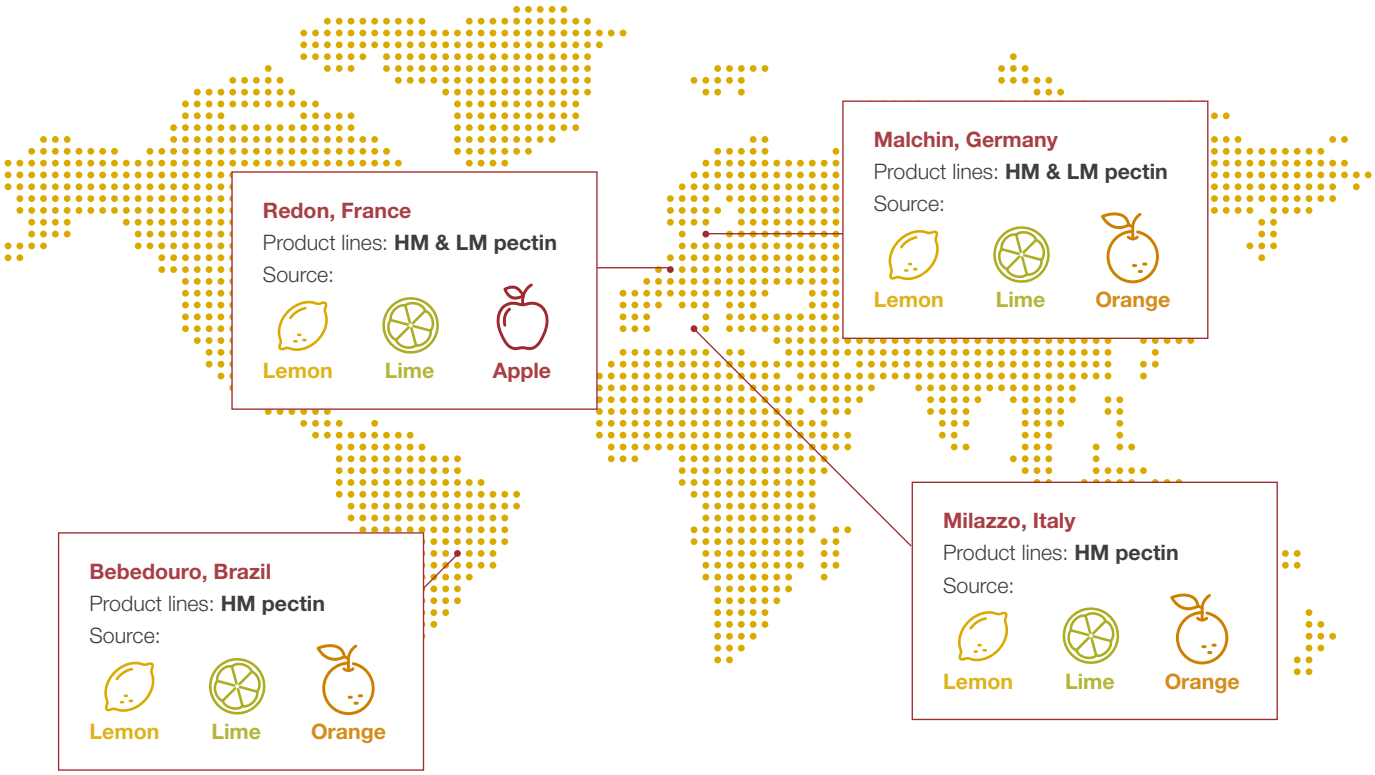
- Soft, diet & fruit juices
- Juice drink concentrates
- Nutritional fruit drinks
- Flavored waters



Combining our texturizing (pectin) and sweetening expertise leads to solutions that support sugars & calorie reduction, while maintaining mouthfeel and texture in fruit-based applications, confectionery, beverages, glazings and fillings.

Quality testing

Our quality experts work with well-defined, proven methods to confirm our product functionalities. We use test protocols to help ensure consistent quality and verify the actual performance of batches we produce in relevant applications. Pectin is evaluated and controlled in its final application, a pragmatic approach that helps offer peace of mind for our customers.



Reliable global pectin production

Reliable supply is crucial to business growth. We select the best apple pomace and source citrus fruit peels from accredited farmers. To enable efficient production and faster, more flexible response to customers' requirements, we continually invest in state-of-the-art facilities. Our factories promote sustainable production. With the recent addition in Bebedouro, Brazil to our 3 facilities in Europe, we further strenghten our position as a reliable pectin supplier and significantly expand our ability to meet growing global demand for this label-friendly ingredient.

Regulatory status worldwide

Pectin is recognized as a safe food substance. Its composition and use are regulated under the food additives Regulation in the EU, and it is FDA GRAS-affirmed in the USA. Pectin has been given an Acceptable Daily Intake (ADI) of "not specified" by the FAO/WHO* Joint Expert Committee on Food Additives (JECFA) and is listed on that basis in the Codex Alimentarius General Standard for Food Additives.

The Cargill advantage

As a global ingredient leader, Cargill's broad portfolio of pectin solutions, suitable for a wide variety of applications, is backed by world-class formulation expertise and supply chain reliability. We can help you meet the most challenging application goals and marketplace demands, Whether you are creating an entirely new product or reformulating existing ones.

UniPECTINE® is part of Cargill's wider texturizers portfolio. Please be aware that the offering may differ per region. Contact your local Cargill representative for tailored support.

*FAO: Food and Agriculture Organization of the United Nations

WHO: World Health Organization



"By partnering with Cargill we can help you take your product even further. Combining our technical and application expertise and our broad ingredient portfolio, you will have the best support at hand.

Sébastien Baray
Business Development Manager Hydrocolloids



Mike Baumber
Technical Account Manager



James Ede
Global Sustainability Lead

Cargill® Helping the world *thrive*



"Do you want to find out how we can help perfect your products? Reach out to one of our UniPECTINE perfectionists!"

Karin Jenniskens
Marketing Manager Pectin

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