



Nature based Clean Label-Friendly Solutions for the Dairy Industry

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 **CP Kelco** **Unlocking Nature-Powered Success**
A HUBER COMPANY

Presentation content

What is clean label?

Clean label perception

CP Kelco answering the label friendly trend

- Case: Neutral Dairy dessert
- Other new developments

CP Kelco - What We Do

Our unique portfolio of nature-based ingredients is derived from renewable raw materials with minimal modification to preserve nature's amazing functionality.

Key product lines for Food include:

Pectin, gellan gum, xanthan gum, carrageenan, refined locust bean gum, microparticulated whey protein concentrate, and citrus fiber, as our newest innovative ingredient.

Our products serve multiple functions:

- Gelling
- Stabilizing
- Suspending
- Thickening
- Modifying Viscosity

Many of our ingredients can modify texture, which enables our customers to more easily reduce fat, sugar and salt.





What is Clean Label?

What does clean label mean to you?

Still a broad and subjective definition that represents different, but related claims globally under the categories of Free From, Sustainability, and Simple

Reformulation technical challenges

Reducing sugar, replacing ingredients, creating free from products...

Manufacturers have to reformulate their product to meet consumer demands without affecting taste and texture

What is next?

- Innovative new ingredients and processing techniques
- Educate customers and consumers about new clean label ingredients

Source: Global data



CP Kelco's Top Consumer Trends for 2020



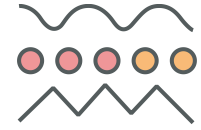
Education & Awareness

Consumer Education & Awareness is becoming more important to build a differentiated and sustainable brand.



Power of the Plant

Plant-based products continue to grow in popularity and evolve into new segments.



Texture is Trending

Consumers want new and novel experiences from their foods and beverages, and texture is key.



Good for Me

From probiotics, to prebiotics and fiber, consumers are asking for products which provide “good for me” benefits.



Value Redefined

Today's global society defines value in many different ways. This ranges from affordability, to price based on value provided. It's all about Value Creation and Value Delivered.



Tackling Food Waste

Sustainability is a global issue which needs to be addressed. A subset of this epidemic is food waste. It is estimated that 1/3 of the global food production is wasted.

Developing a new product to answer market needs

Specific market need

- France is the biggest dessert market - Indulgence still a market
- Substitution of Gelatin (vegan solution), starch or Carrageenan
- Consumers are looking for premium products, made with real, natural ingredients and cleaner labels.

A new ingredient - similar process and product

- Suitable for both hot and cold-filled processes
- Standardized for dessert applications with neutral pH
- No extra handling in standard process



GENU® Explorer Pectin ND-200 for Neutral Desserts

A label friendly solution

- Nature based solution extracted from citrus fruit peels
- Widely accepted and recognizable ingredient amongst consumers

A new Pectin type optimized for neutral dairy dessert applications

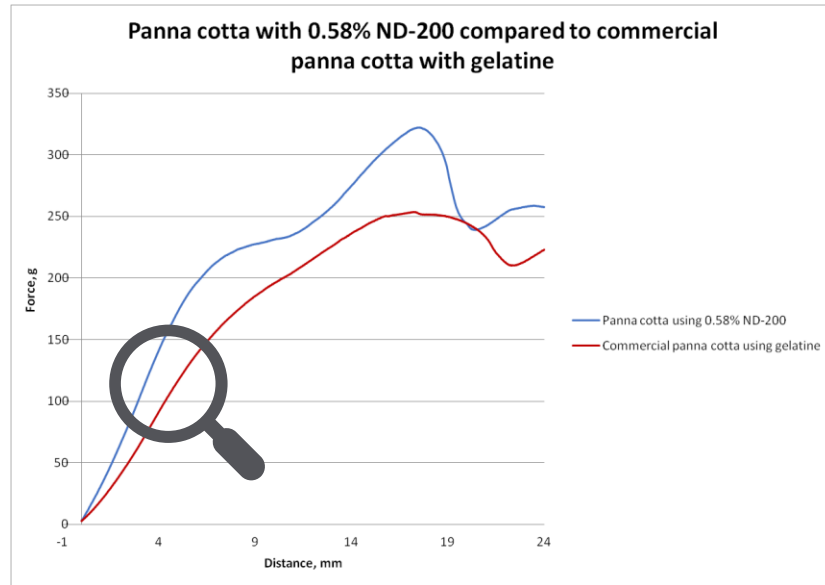
- Standardized for neutral pH products (control method = final application)
- Developed for an optimal hydration and gel strength



No changes required on traditional process

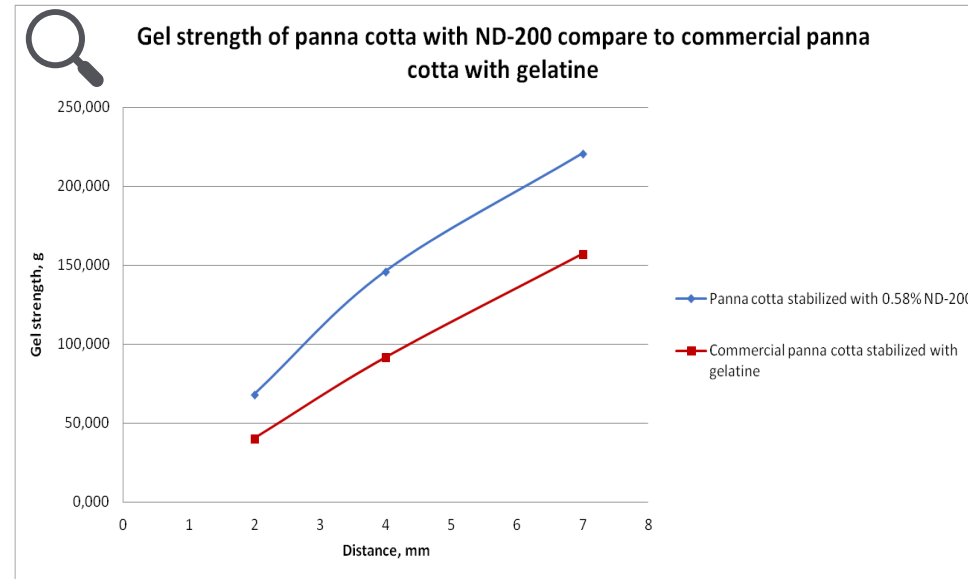
- Suitable for both hot and cold-filled processes
- No need to prepare a Pectin solution
- Improved tolerance towards variations in dry matter and processing parameters compared to traditional LM-Pectin

Obtain similar texture and mouthfeel to the Panna Cotta with gelatin



TA.XTPlus force profile measurements

Measurement on D+1



TA.XTPlus gel strength measurement at 2, 4 and 7 mm

GENU Explorer Pectin ND-200 benefits

- Similar texture profile with Pectin ND-200 compared to gelatin.
- Higher force/firmness required to provide similar eating experience

Obtain indulgent appearance, very close to the gelatin-based recipe



Commercial Panna Cotta stabilized with gelatine

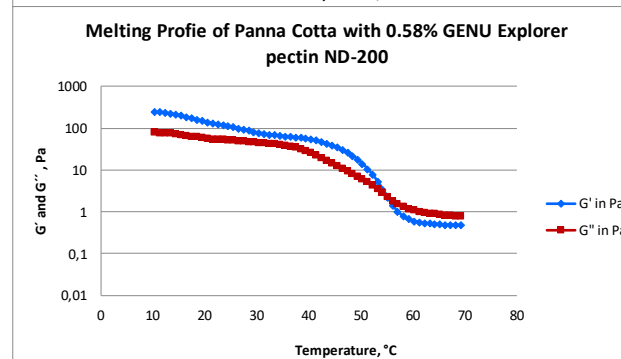
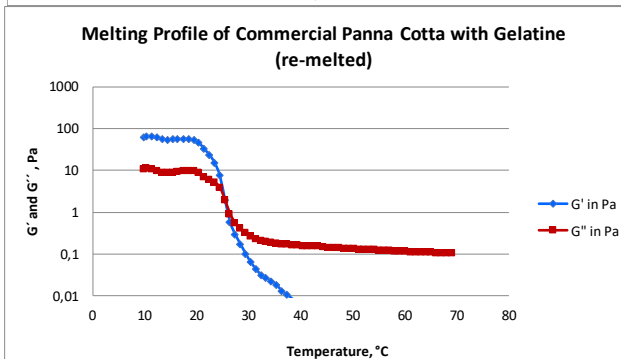
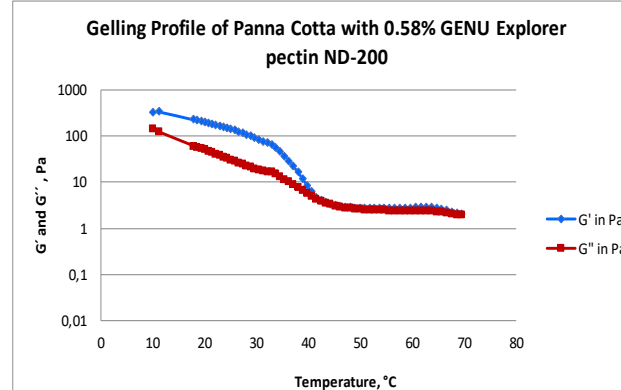
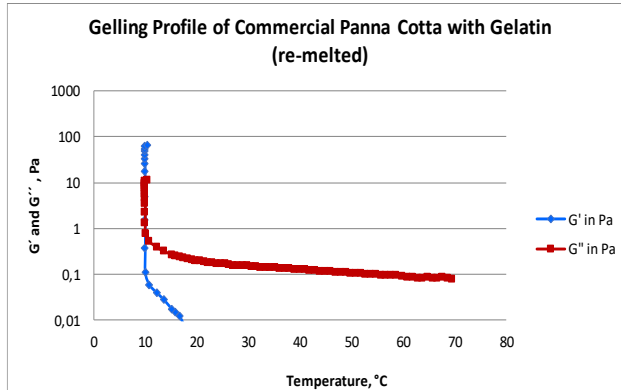


Panna Cotta stabilized with GENU Explorer Pectin ND-200

GENU Explorer Pectin ND-200 benefits

- Appearance very similar to the traditional gelatin-based Panna Cotta
- Provides a firm texture and an indulgent creamy, full bodied mouthfeel
- Depending on use level the texture becomes soft to firmly gelled

Check gelling/melting profiles - GENU® Explorer Pectin ND-200



Gelling T °C	Approx. T °C
Gelatin	<10 °C
Pectin ND-200	45 °C

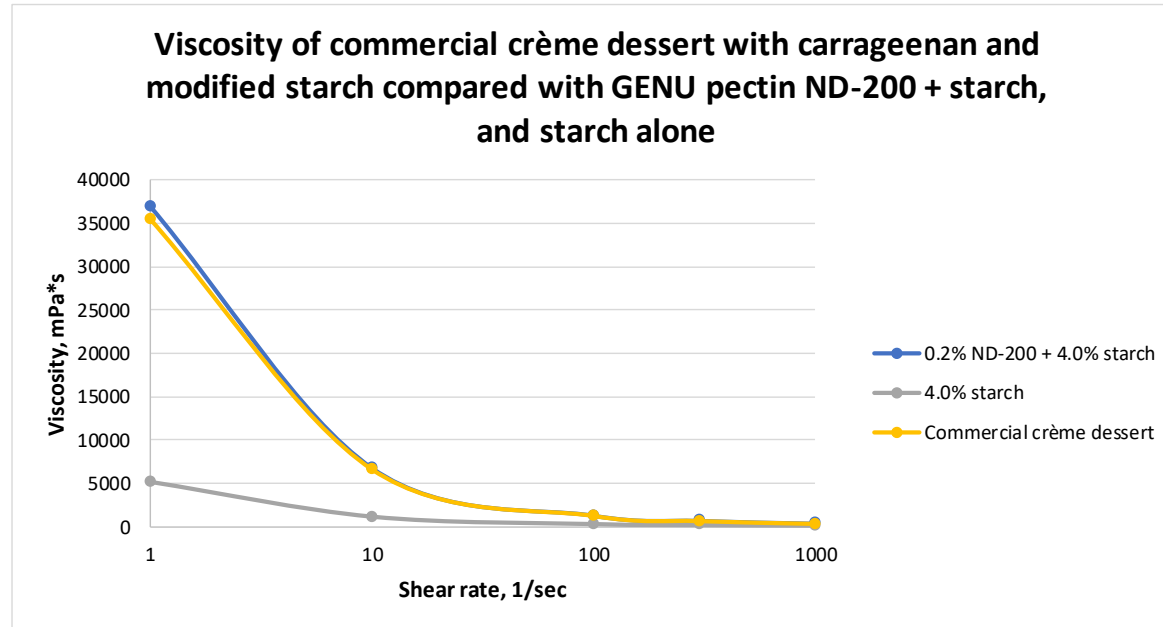
Melting T °C	Approx. T °C
Gelatin	25 °C
Pectin ND-200	55 °C

GENU Explorer Pectin ND-200 benefits

- Shorter processing time
- Flexible towards filling temperature, between 50-80 ° C
- Quick gel setting during cooling
- No need for further storage time before handling
- Higher melting temperature provides stability at ambient temperature, e.g. hot climate

Note: Cross over point ($G' = G''$) defined as the gelling/melting temperature (T_g), G' : elastic modulus, G'' : viscous modulus

Similar viscosity profile to the crème dessert with Carrageenan and modified starch



Shear rate, 1/sec	0.2% ND-200 + 4.0% starch	4.0% starch	Commercial crème dessert
1	36967	5152	35433
10	6833	1185	6635
100	1337	341	1268
300	737	224	676
1000	419	160	354

Measurement on Anton Paar Physica MCR 101 (Day+4)

GENU Explorer Pectin ND-200 benefits in combination with starch

- Comparable viscosity profile with Pectin ND-200 and starch compared to carrageenan and modified starch.
- Shear thinning behavior and partly recovery when shear is reduced for both solutions

An indulgent appearance, very close to the carrageenan-based recipe

Commercial crème dessert with carrageenan and modified starch E 1442



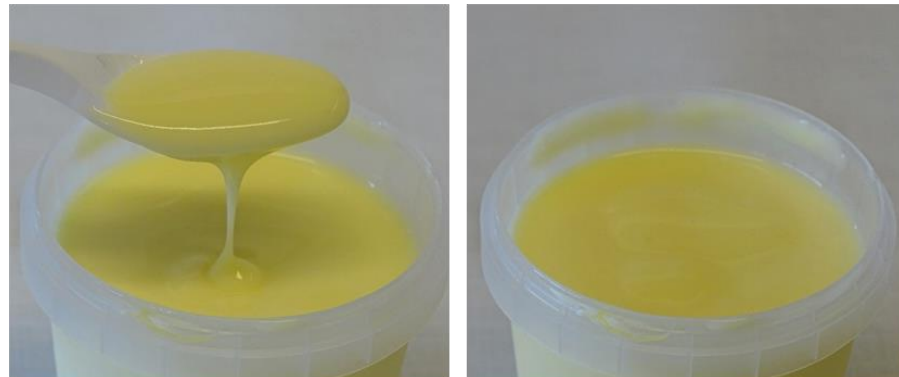
Crème Dessert stabilized with 0.2% GENU Explorer Pectin ND-200 & 4% starch



GENU Explorer Pectin ND-200 benefits in combination with starch

- Provides a smooth appearance, and a full bodied mouthfeel
- Crème dessert with 4% starch only has too low viscosity, lacks texture and no spoonability

Crème Dessert with 4% starch only



Chocolate crème dessert : Addition of cocoa powder does not significantly impact the firmness of the dessert, as can be the case using carrageenan



Other label friendly solutions for the dairy industry

GENU[®] Pectin YM-FP-2100, the new Dual Function pectin

A clean label-friendly and affordable pectin to stabilize yogurt drinks through the fruit preparation, so no other stabilizer is required in the final yogurt.

This new pectin in the fruit preparation carries over stability into the yogurt drink throughout its expected shelf life, offers simplified processing due to less ingredients, and provides superior flavor release.



1 additive only



No whey separation through shelf life



Medium to higher viscosity



Smooth texture/mouthfeel



GENU® Explorer Pectin NUC, A new nature-based stabilizer for creating organic, low-sugar fruit preparations with great texture and mouthfeel

GENU® Explorer Pectin NUC is a nature-based ingredient specifically designed for varying levels of soluble solids and lower sugar fruit preparations. This is an ideal stabilizer for formulators seeking consumer-friendly ingredients for better-tasting organic yogurts that require fruit prep.



Organic-Compliant. Can be used instead of amidated pectin



Label-Friendly. Responsibly sourced from citrus peels, pectin is a nature-based ingredient that is widely recognized by consumers.



Ingredients Reduction, Gels without calcium addition



NUTRAVA™ Citrus Fiber fruta

A consumer-friendly and affordable solution delivering clean label benefits and functional requirements for producers of yogurt fruit preparations and related applications.



Unique food ingredient solution



Clean label solution



Supports dietary fiber intake



Excellent sensory profile



Controls syneresis over shelf life





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