

PEKTOS CARROT FIBER KF 15 C

Functional Carrot Fiber

Instant & Strong Swelling plus high WBC



CARROT FIBER KF 15 C *-facts*

- ❖ 100% pure Carrot Fiber, produced from carrot pulp after juice processing.
- ❖ The expanded fiber matrix and the juicing process provide enhanced functionality.
- ❖ **CARROT FIBER KF 15 C**: fine particle size, 250 micron (60 Mesh)
- ❖ Produced in Germany.
- ❖ PEKTOS CARROT FIBER KF 15 C disperses instantly and lump-free into water, no agitation necessary.
- ❖ CARROT FIBER KF 15 C takes up water instantly. Dispersions of CARROT FIBER KF 15 C in water, after only minimal mixing or stirring, have a pasty, fibrous, apple-paste like texture, it is non-flowing with little syneresis. The mouth-feel is smooth and slightly fibrous.
- ❖ High dietary fiber content (min. 60%), high ratio of approx. 18% soluble fiber (=pectin).
- ❖ Clean-label, E-No. free. Labelled as vegetable fiber, plant fiber or similar.
- ❖ Fine, light-yellowish powder, with a slightly sweet taste.
- ❖ Gluten-free (< 3ppm)
- ❖ Non-GMO
- ❖ GRAS
- ❖ Kosher, Halal

CARROT FIBER KF 15 C - *functionality*

Water Binding Capacity.

- ❖ WBC: min 15* (1g fiber binds 15 g water), in aqueous dispersion with little mixing. *PEKTOS method
- ❖ WBC increases strongly to WBC 25* and higher, through higher shear forces (high-speed mixer), creating a pasty, non-flowing, fibrous, apple-paste like texture, with only little syneresis and a smooth mouth-feel.
- ❖ Water binding capacity comparable to water holding capacity, strong affinity of the fiber to water.

Quick hydration, **STRONG** and **HIGH SWELLING CAPACITY**

- ❖ **CARROT FIBER KF 15 C** has a unique and outstanding wetting ability, starts hydrating immediately after contact with and rapidly absorbs water, without forming lumps.
- ❖ The fiber matrix expands rapidly on contact with water and occupies a large space, without the need to apply strong mechanical treatment like shearing or mixing.

Oil binding capacity.

- ❖ OBC = 4 (1g fiber binds 4 g of oil).

Texture, structure, viscosity enhancement.

- ❖ **CARROT FIBER KF 15 C** has a relatively low viscosity in water, which strongly increases in dispersions of 2% or higher.
- ❖ Produces viscosity and body, a smooth, rich texture and structure and stabilises the water in various food systems.

Process stability: **CARROT FIBER KF 15 C** has excellent heat, pH, salt, shear and freeze/thaw stability in food products.

CARROT FIBER KF 15 C

Uniquely high SWELLING CAPACITY together with a high WBC

Water Binding Capacity.

- ❖ WBC: min 15* *PEKTOS method
- ❖ *WBC is tested in an 8% aqueous dispersion with negligible mixing and resting time of 24h, then centrifuged at 3,000rpm for 10 minutes.*

Swelling Capacity.

- ❖ SC = min. 30ml*. Swelling capacity is expressed as ml per gram of sample. *PEKTOS Method
- ❖ *SC is tested according to the modified method of Rosell, Santos & Collar (2009). 1g of sample is added with negligible agitation to 40 ml of distilled water and allowed to hydrate for 24 h at 25°C. The volume of the sample (the space the fiber occupies in the measuring cylinder) is recorded after 24 h.*
- ❖ The swelling capacity of CARROT FIBER KF 15 C is significantly higher compared to most other pure plant fibers currently available.
- ❖ CARROT FIBER KF 15 C starts hydrating immediately after contact with moisture and rapidly absorbs water, without lumping, facilitated by the absence of hydrophobic substances like fats and oils (e.g. citrus oils in citrus fiber).
- ❖ CARROT FIBER KF 15 C expands rapidly after contact with water, occupying a large space, without strong mechanical treatment/shearing/mixing, facilitated by the very open fiber structure due to the juicing process the carrots have undergone.

• Benefits for the user

- ❖ Very economical in use even without shearing or high-speed mixing necessary to maximize the water binding like with most other plant fibers.
- ❖ The strong, instant and shear-independent swelling combined with the high WBC makes this a commercially viable fiber even when used without separate high-speed mixing and strong shearing.
- ❖ Sustainable, natural, good availability cause there is plenty of raw material.

CARROT FIBER KF 15 C

Benefits of a high **SWELLING CAPACITY**

- No strong shearing or mechanical treatment necessary to ‘activate’ the fiber to a high degree of its potential (acceptable cost-in-use), like necessary for many of the modern functional plant fibers.
- Constant results and high viscosity/firm texture achievable without particular high-speed mixing of the fiber dispersion and without careful attention to mixing parameters.
- No specialised high-speed mixing equipment needed or homogenizers, but possible if maximization of WBC is a priority.
- Easy to activate, quick hydration, no lumping.
- **High SC compensates for lower WBC in terms of firmness and viscosity.**
- No direct correlation between WBC and SC, but the following trend can be seen which most likely is depending on origin and fiber structure, process and processing parameters:
 - ❖ Fibers like apple or pear fiber with low WBC (3 -5) usually show also a low SC.
 - ❖ Fibers like sugar beet or some citrus fibers with medium WBC (8 - 12) usually show a low SC.
 - ❖ Most fibers with a high WBC (>15) like carrot or citrus fiber only show a medium SC at best, whereas PEKTOS CARROT FIBER KF 15 C has a uniquely high Swelling Capacity.

PDS

Please note:

The PDS shown in this presentation is not subject to the QM update service, and therefore may not be the latest version.

Please visit our website to view or download the latest version.

<https://www.pektos.ch/products-services/pektos-kf/>

PRODUCT DATA SHEET



PEKTOS CARROT FIBER KF 15 C

Origin, Raw Material, Production

PEKTOS CARROT FIBER KF 15 C is

- Functional Carrot Fiber.
- Pure, undiluted, 100% Carrot Fiber.
- Produced from carrot pulp after juice processing.
- Produced (milling, sifting, standardization) and packed in Germany.

Features, properties, functionality

Dietary fiber is the edible part of plants or analogous carbohydrates resistant to digestion and absorption in the human small intestine with complete or partial fermentation in the large intestine.

Dietary fiber includes polysaccharides, oligosaccharides, lignin, and associated plant substances. Functional fibers consist of isolated, non-digestible carbohydrates that benefit humans.

PEKTOS CARROT FIBER KF 15 C is natural, gluten-free (EU limit < 20ppm), clean label, and multi-functional dietary fiber suitable for a variety of food products through its high fiber content, the excellent water-binding and moisture retention capacity as well as the texture it creates and provides

PEKTOS CARROT FIBER KF 15 C is a fine powder, beige/yellowish in colour, and with a weak sweet note.

PEKTOS CARROT FIBER KF 15 C:

Fine particle size, min. 70% < 250 micron.

Total dietary fiber content:	> 60 %
of which soluble:	> 18 %
of which insoluble:	> 40 %

February 2023, v3

The carrot juicing process and subsequent carrot pomace purification process loosens the strong bonds between the hemicellulose, pectin, proteins, and sugars. That creates enhanced functionality through the expanded fiber matrix, leading to a unique and exceptional swelling capacity (SC) and water binding capacity (WBC).

The water binding capacity of PEKTOS CARROT FIBER KF 15 C is approx. 15g water/1g fiber with only little mixing (for instance, by stirring it into water), and up to 20 - 25g water/1g fiber with higher shear forces applied. The unique and strong swelling capacity lets the fiber expand instantly and strongly, occupying a large space after contact with water and without mechanical treatment / mixing / shearing. Oil binding capacity is approximately 4 g oil/1g of fiber.

PEKTOS CARROT FIBER KF 15 C dispersions in water display a pasty, fibrous, non-flowing apple paste-like texture with little syneresis and a smooth fibrous mouth-feel after slight mixing or a short and vigorous stirring.

In food systems with free water, PEKTOS CARROT FIBER KF 15 C creates viscosity, texture, and body; it stabilizes the water and shows excellent process stability (heat, pH, salt, shear, freeze/thaw stability). It is a good substitute for gelling and thickening agents, stabilizers, and emulsifiers.

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PRODUCT DATA SHEET



Applications and benefits

- **Pasta Fillings**
 - Yield increase
 - Moisture management
 - Texture optimization
- **Bakery products**
 - Gluten-free bread and cakes
 - Yield increase and freshness prolongation
 - Egg and fat replacement.
- **Processed meat**
 - Texture improvement
 - Moisture retainment
 - Yield increase
 - Emulsion stabilizer
- **Ice cream and frozen food**
 - Ice crystal size-reduction
 - Heat shock and melting behaviour improvement
 - Suckability improvement
- **Sauces, marinades, dressings**
 - Thickener, binder, texture provider
 - Tomato paste replacer
 - Fat replacement
- **Fruit preparations**
 - Pectin extension and replacement
 - Texture and mouth-feel optimization
 - Thickening
- **Dairy products**
 - Thickening and texture improvement
 - Syneresis reduction
 - Anti-caking agent for grated cheese

- **Beverages**
 - Mouth-feel, texture, body supplier
 - Fruit extension or replacement
- **Nutraceuticals & Supplements**
 - Fiber supplement
 - Soluble and insoluble fiber source
 - Slimming and weight management
 - Digestion improvement

To our best knowledge, the information contained herein is true and accurate. Still, all recommendations or suggestions are made without guarantee since we can neither anticipate nor control the different conditions under which this information and our products are used. Therefore, each manufacturer should evaluate its final products to determine compliance with all relevant federal, state, and local regulations. Further, we can disclaim all liability concerning its customers' infringement of third-party intellectual property, including, but not limited to, patents.



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Technical Data Sheet



PEKTOS CARROT FIBER KF 15 C

Description	PEKTOS CARROT FIBER KF 15 C is a dietary vegetable fiber for the food industry produced from fresh, ripe, de-juiced carrots.
Declaration	Vegetable fiber (carrot fiber)
Applications	Clean-label food for structure, water binding, and freshness
Sensory	Appearance: free-flowing powder Colour: beige-orange Flavour: typical for dried carrot – neutral
Physical/Chemical	Moisture: < 10 % Water binding: ~ 15 g / g fiber Ash: ≤ 5 % Particle size: min 70 % < 0.250 mm
Microbiology	Total plate count: < 5,000 cfu/g Moulds: < 250 cfu/g Yeast: < 250 cfu/g E. Coli: < 10 cfu/g Salmonella: neg. in 25 g
Nutritionals	Energy: ~ 975 KJ / 240 kcal Fat: ~ 1 % Protein: ~ 5 % Carbohydrates: ~ 22 % Dietary Fiber: ~ 60 % Sodium: ~ 0.2 %
Packaging	In 12.5 kg multilayer paper bags with inner PE liner.
Storage	Keep in a dry and cool place (rel. humidity < 65 %), protected from direct light.
Shelf life	24 months from the production date in unopened packaging.

Version 1 – August 2022

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Technical Data Sheet



PEKTOS CARROT FIBER KF 15 C

Country of Origin	Germany
HS Code	0712.9089
Purity / Compliance	
Heavy metals	Contents of heavy metals comply with Regulation 1881/2006/EC setting max levels of certain contaminants in foodstuff.
Pesticides	Residues of pesticides comply with the requirements of Regulation 396/2005/EC on max residue levels of pesticides in or on food of plant origin.
GMO	PEKTOS CARROT FIBER KF 15 C does not contain or consist of genetically modified organisms and is not produced from genetically modified raw materials as defined in Regulations (EC) 1829/2003 and 1830/2003.
Allergens	The product does not contain allergens listed in Annex II of Regulation (EC) 1169/2011 and its current amendments.
Irradiation	The product is processed without the use of irradiation.
General	PEKTOS CARROT FIBRE KF 15 C complies with the EU Food Regulations and Swiss Food Laws, and EC Regulations on the hygiene of foodstuffs. Please consult your country's laws and food regulations before using the product.

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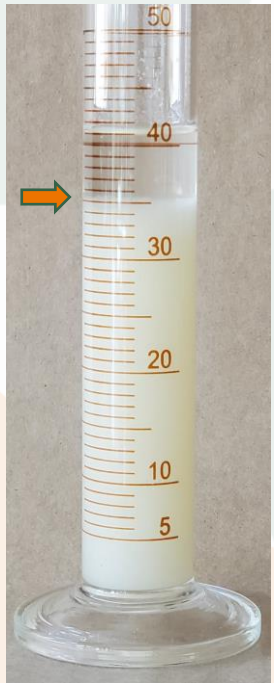
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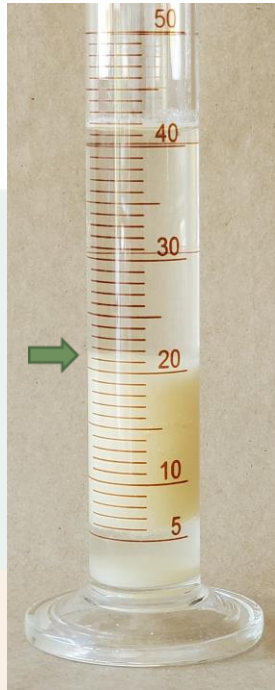
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SWELLING Capacity of various commercial fibers

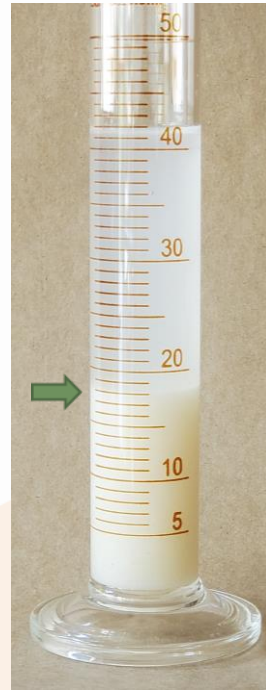
PEKTOS
CARROT FIBER KF 15 C



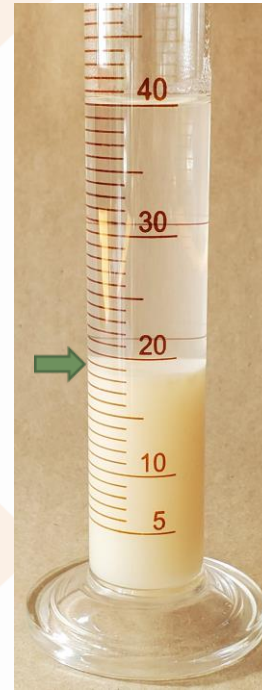
Other Carrot
Fibre



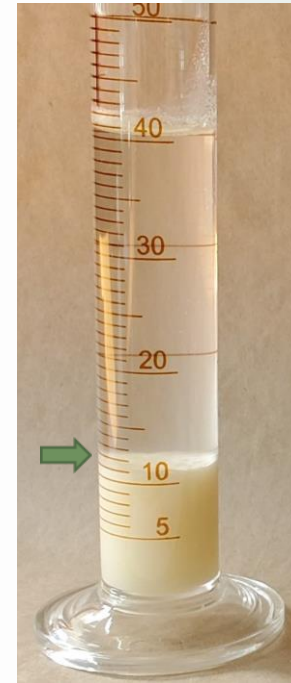
PEKTOS
CITRUS FIBER CF 1525 C



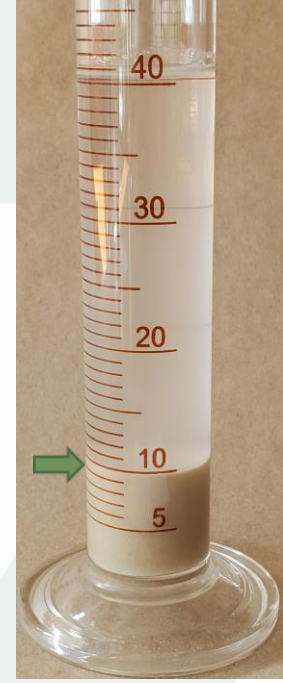
Other Citrus Fiber



Other Citrus Fiber

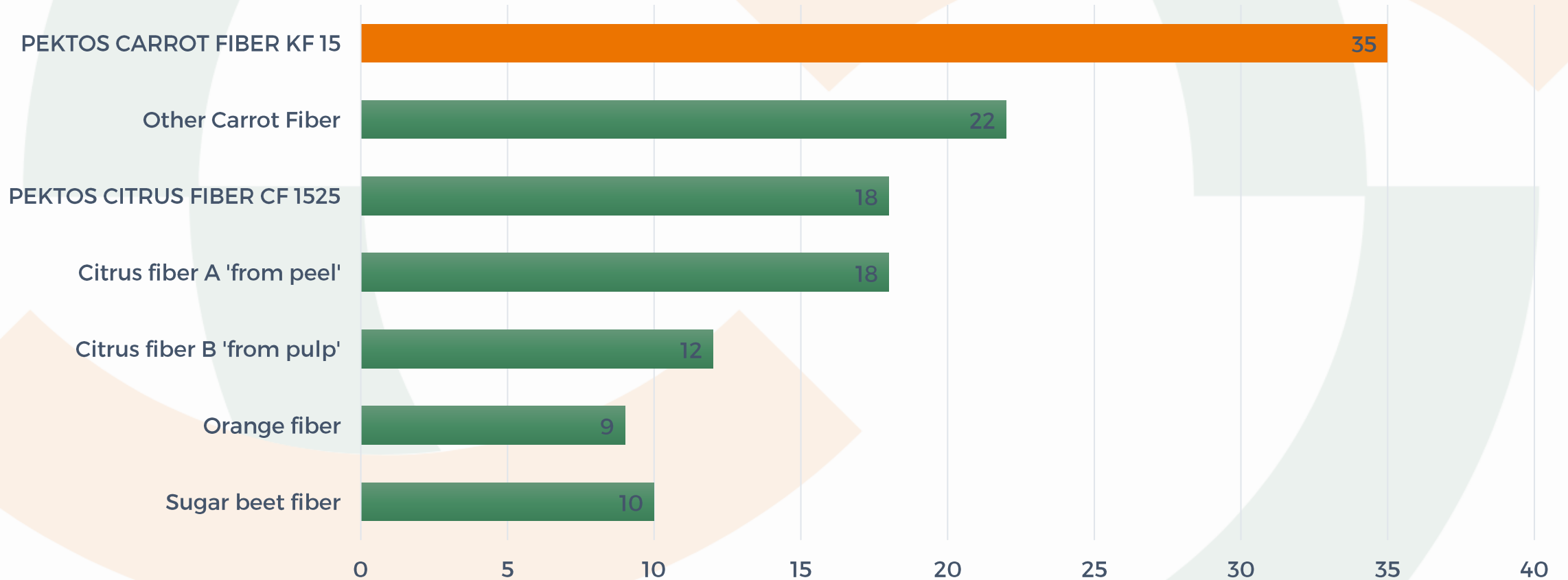


Sugarbeet Fiber



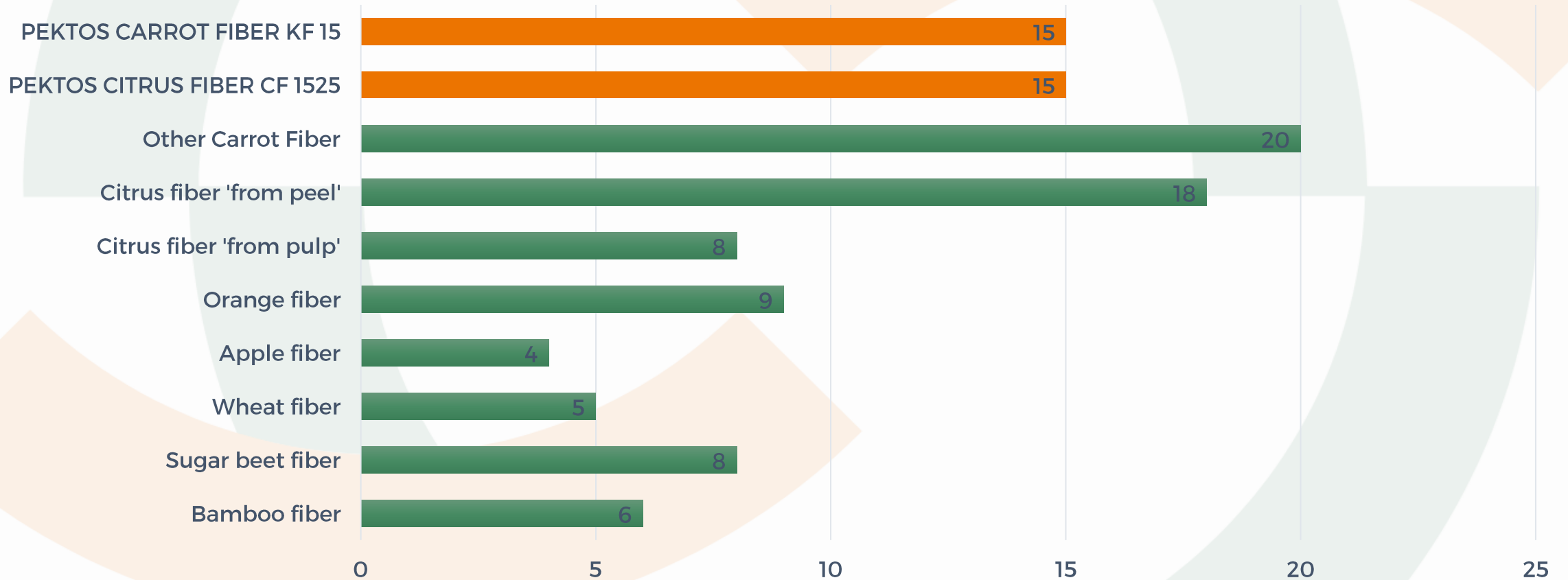
SWELLING Capacity of various commercial fibers

Swelling Capacity in ml, average value from several analyses



Water Binding Capacity of various commercial fibers

WBC in g of water/g of fiber, average value from various tests and methods



CARROT FIBER KF 15 C Texture vs Shear Rate

Stick Blender after 30 seconds

3.5% PEKTOS CARROT
FIBER KF 15 C



5.0% other Carrot Fiber



5.0% Citrus Fiber A from peel



CARROT FIBER KF 15 *Applications & Functions*

Pasta Fillings

Yield improvement, texture optimisation, moisture management.

Bakery

Gluten-free, freshness extension, fat reduction, egg reduction, yield increase.

Fruit preps

Thickening, gelling, texture, mouth-feel, syneresis control.

Ice cream, ice lollies *Ice crystal size reduction, melting improvement, mouth-feel optimisation.*

Dairy

Thickener, syneresis reduction, grated cheese anti-caking agent.

Sauces, dressings

Thickener, texture provider, emulsion stabilization, fat reduction.

Beverages

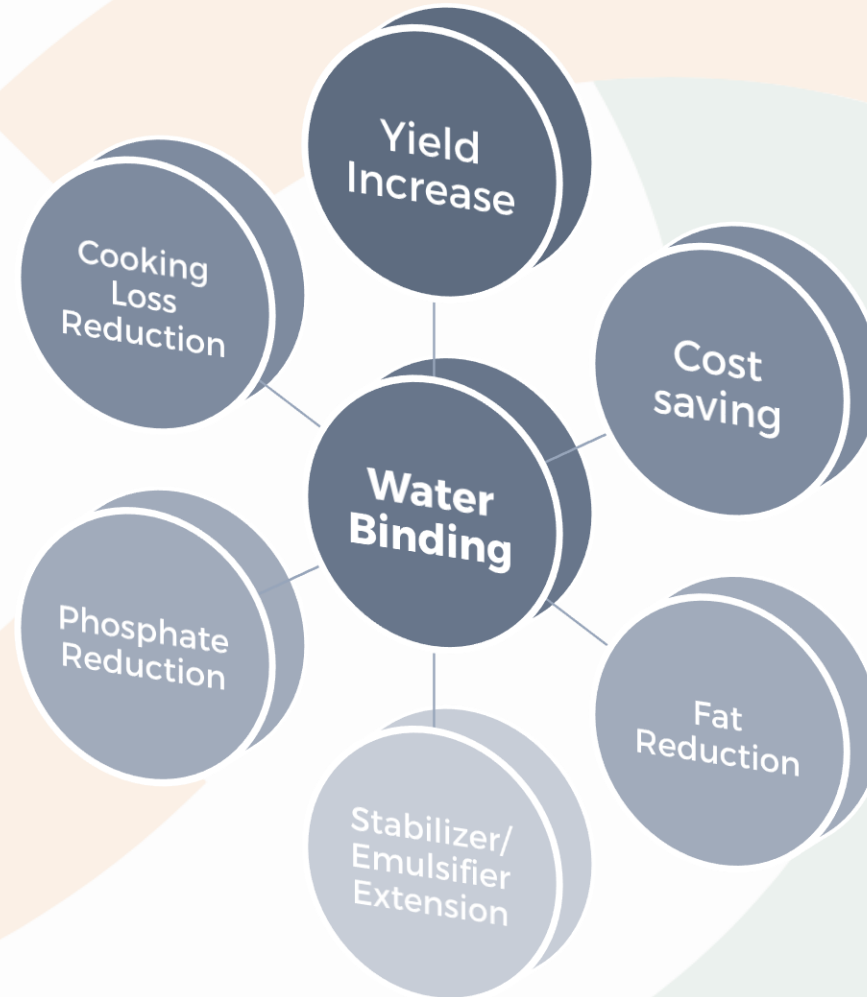
Mouth-feel, body, texture, fruit extension, thickener.

Health Food

Insoluble & soluble fibre source.

CARROT FIBER KF 15 C *Processed Meat*

Cooked Sausages
Marinades
Canned Meat & Fish
Beef Patties
Fillings
Pasta Fillings
Meatballs
Cured Meats
Coatings



CARROT FIBER KF 15 C *Fruit Preparations*

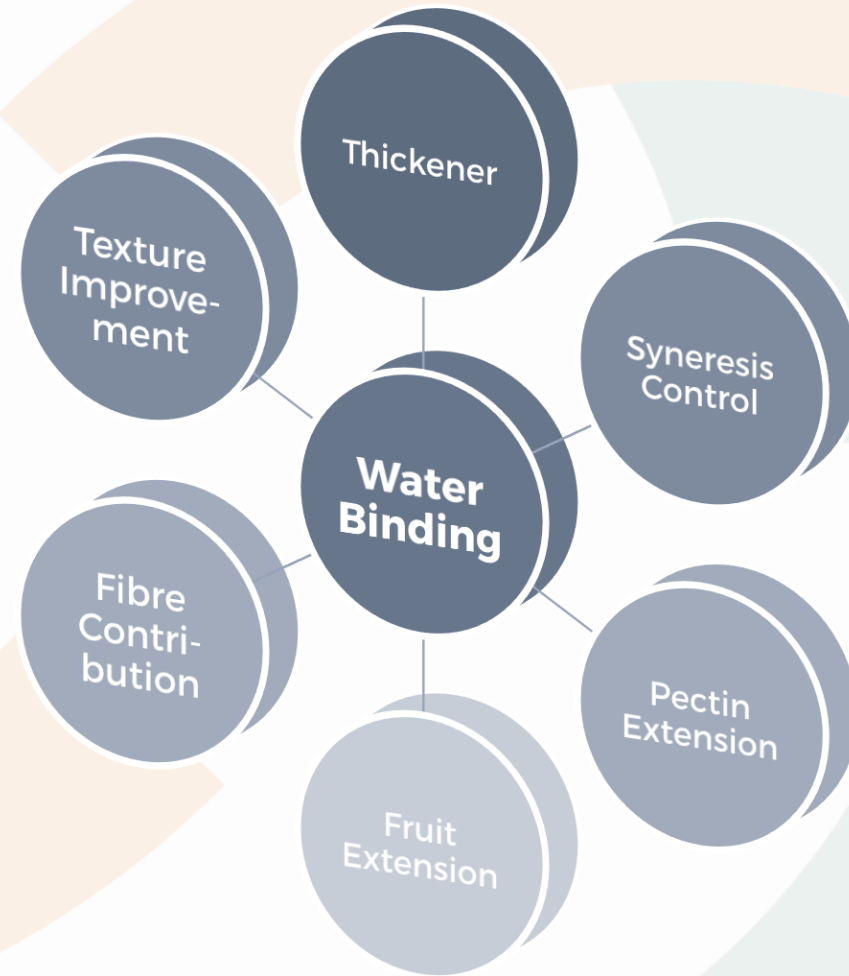
Bakery Fillings

- - Post bake
- - Pre-bake

Injection Jams

Ice Ripples

Yogurt Fruit Preparations



CARROT FIBER KF 15 C *Sauces, Condiments*

Dressings

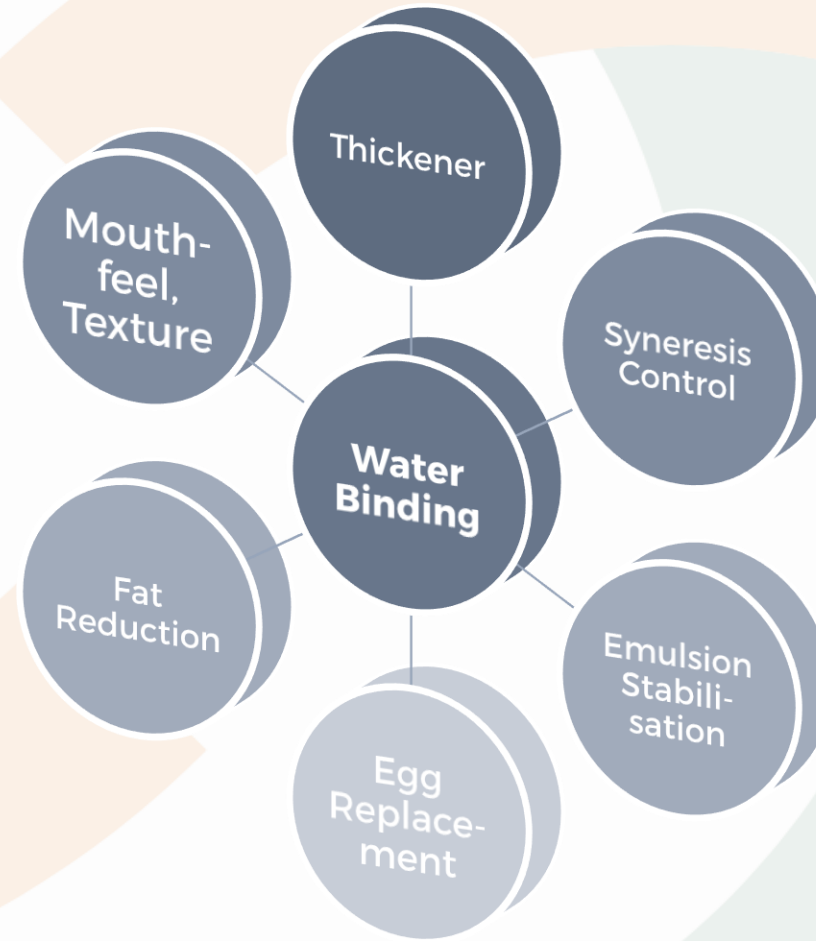
Sauces

Marinades

Soups

Instant Soups

Mayonnaise



CARROT FIBER KF 15 C *Frozen Food*

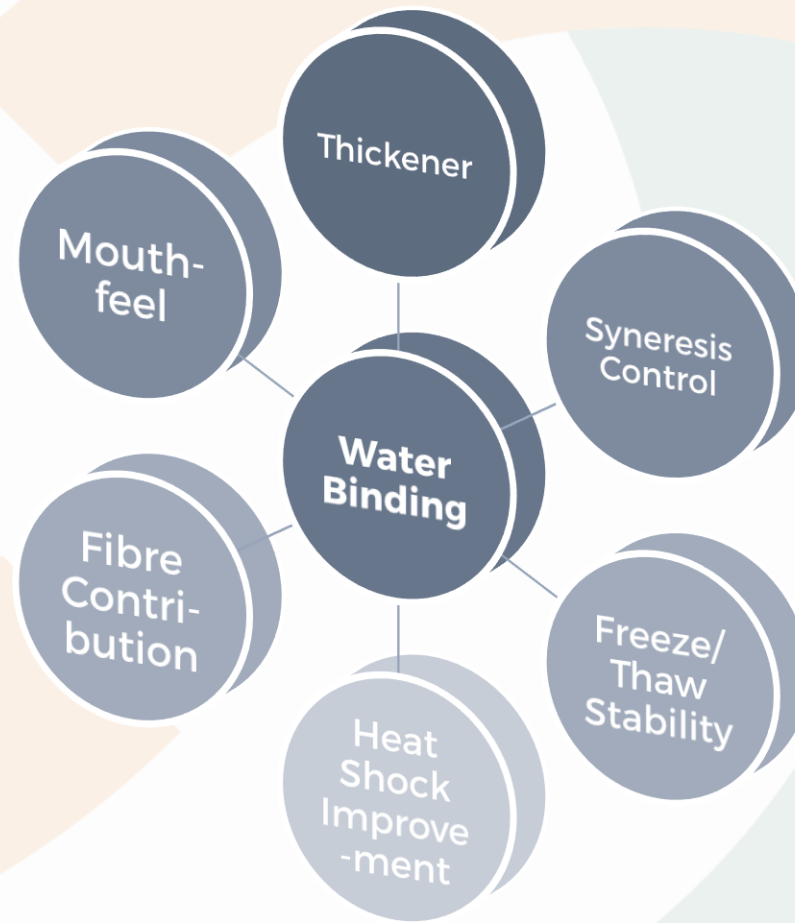
Ice Cream

Sorbets

Ice Lollies

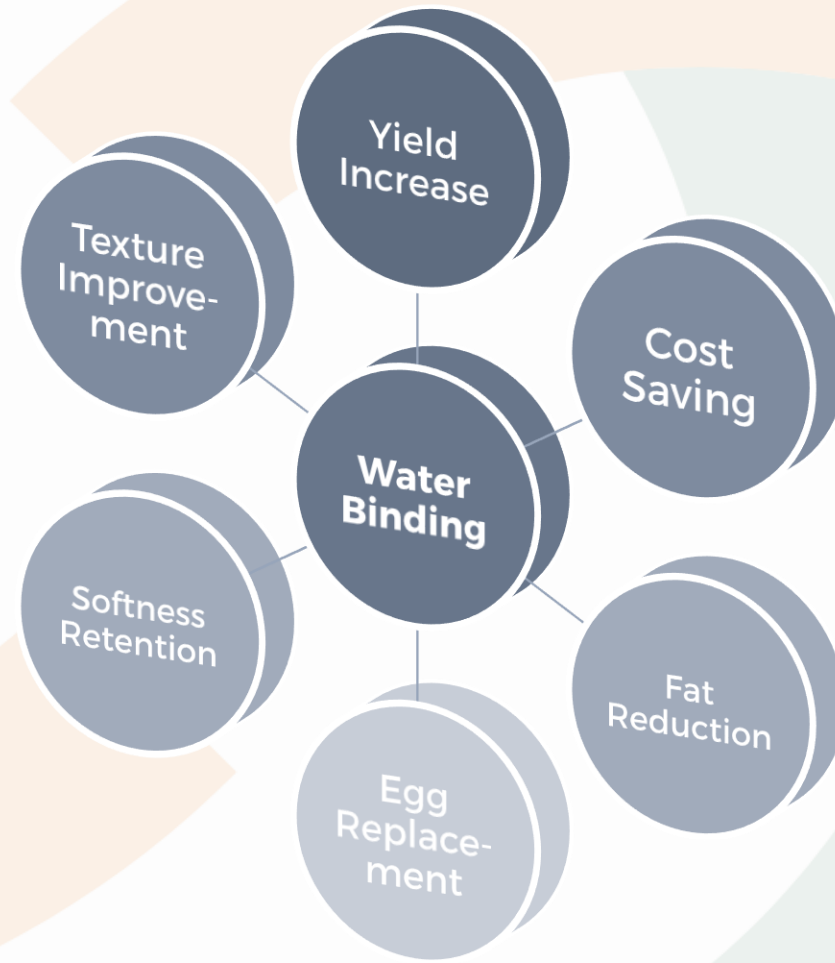
Frozen Dough

Pizza Toppings



CARROT FIBER KF 15 C *Bakery, Snacks*

Bread & Buns
High Fibre Bread
Cakes, Muffins
Nutritional Bars
Crackers
Gluten-free Bread



CARROT FIBER KF 15 C Dairy

Yoghurts

Cooking Cream

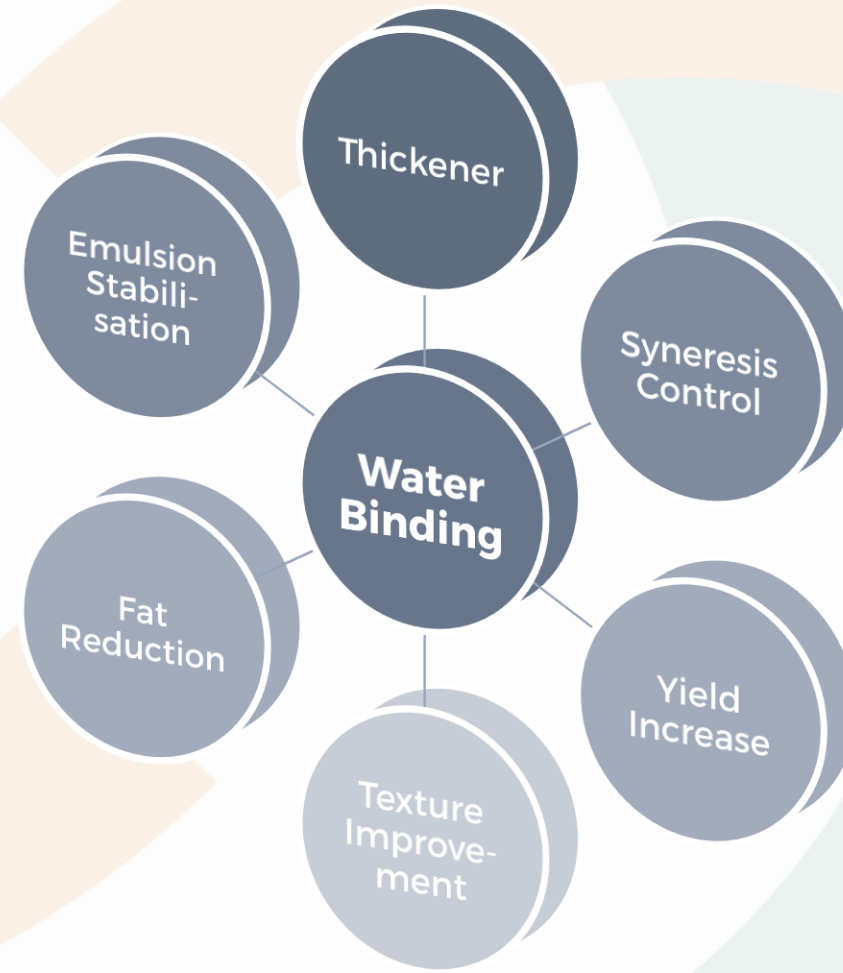
Cream Cheese

Spreads

Quark/Cottage Cheese

Sour Cream/Schmand

Butter Spread



CARROT FIBER KF 15 C *Beverages*

'Near water' Drinks
Fibre Drinks
Liquid Breakfasts
Juice Drinks
Smoothies
Meal Replacement
Beverages
Instant Beverages

