

PEKTOS TOMATO FIBER TF 25 E in Tomato-Based Sauces

Tomato sauce/ketchup and other tomato-based sauces are among the most popular and essential ingredients in many dishes. Some are made without texturising ingredients, and the consistency and firmness come from the tomatoes themselves, their cell wall components being responsible for water binding and structure. The raw material for those products is double- or triple-concentrated tomato paste.

Non-premium, cheaper products with lower tomato paste content often contain hydrocolloids such as modified starch, locust bean gum, xanthan gum, and pectin as texturising or binding agents.

PEKTOS TOMATO FIBER TF 25 E can replace tomato paste or serve as a texturising ingredient to compensate for the sauce's reduced firmness and viscosity, similar to the natural consistency-building effect of tomato paste.



The resulting viscosity is highly stable against heating, acidity, pumping and mixing forces. Therefore, naturally occurring fluctuations in the water content or firmness of tomato paste can be easily compensated for by evaporation without increasing the solids content.

TOMATO FIBER TF 25 is available in 2 grades:

- **TOMATO FIBER TF 25 C**
Fine grade, 150 micron
- **TOMATO FIBER TF 25 E**
Coarse grade, 500 micron

PEKTOS TOMATO FIBER TF 25 E is a coarse powder easily added to a hot or cold product batch. It does not tend to form lumps; it distributes quickly and then swells slowly by binding a portion of the available water.

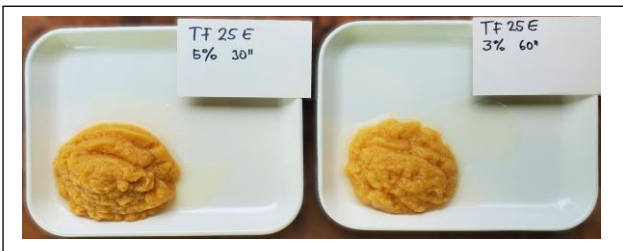
To maximise water absorption and achieve the maximum viscosity and texture impact of TOMATO FIBER TF 25 E, it is recommended to high-speed mix (e.g., Thermomix, Ultra-Turrax, Silverson, etc.) the tomato fiber separately as a 3 or 5% suspension.

See below for details and the effect of high-speed mixing.

APPLICATION DATA SHEET

5% suspension high-speed mixing (or 3% if viscosity development is too strong and fast to handle with the equipment in place).

TOMATO FIBER TF 25 E, coarse grade



- TOMATO FIBER TF 25 E** absorbs water quickly, easily under shear, and promptly develops a paste-like consistency. There is virtually no difference between a 3% suspension sheared for 60 seconds and a 5% suspension sheared for 30 seconds. The texture of the paste reminds of apple paste/sauce. It is soft and fibrous, without any sandiness, and shows some syneresis.
- Colour of the paste: medium reddish-brown with a notable yellow tinge.
- A few black spots are visible.
- Odour: fruity.
- Taste: Slightly sweet and sour with an umami note.

Influence of Tomato Paste on the Firmness

There are two types of tomato paste—**hot break** and **cold break**—and they are used to make different end products. To make hot break (HB) paste, fresh tomatoes are processed at higher temperatures (85-100°C) after crushing. For cold break (CB) paste, the fresh, crushed tomatoes are heated to a lower temperature (65-75°C). HB paste is cheaper to produce, makes a thicker, more stable paste and is typically used

for ketchup and various types of industrial, large-scale tomato sauces that require a Brix of 28-30°, while CB paste with its natural flavour, aroma and brighter red colour is mainly used in premium products e.g. triple-concentrated paste with 36-38° Brix, packaged for home use and gourmet pasta sauces.

The firmness of tomato paste is mainly due to the tomato cell wall components. Samples with varying ratios of supermarket available tomato paste were prepared and evaluated.

Test Recipe	
HB Tomato Paste double concentrated (28% solids)	20 – 35 %
Sugar	15 %
Salt	2 %
Vinegar (25 % acetic acid)	1.2 %
Water	61.3 – 45.8 %
TOMATO FIBER TF 25 E	0.5 – 1.0 %

The results showed that the higher the tomato paste content, the firmer and more textured the products are. Penetrometers are suitable for characterising the firmness of tomato sauce by measuring the force required to push the stamp into the sample. The results correlated with the percentage of tomato paste used.

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In our tests, approximately every 3 % tomato paste (double concentrated) increases the firmness by one penetrometer unit (1 g on ½ "stamp at 20 mm penetration depth).

Adding starches or hydrocolloids such as xanthan gum or guar gum increases the firmness and viscosity of tomato sauce. Still, the typical pasty appearance of products with high tomato paste content, caused by the fruit fibers in tomato paste, is compromised. Instead, the products have a gummy or slimy, long texture, and the typical appearance is lost.

That is different from **TOMATO FIBER TF 25 E**, where firmness and texture are caused by the fibers, just like tomato paste.

Compared with the above-discussed correlation between firmness and tomato paste content, we have found that adding 1 % **TOMATO FIBER TF 25 E** increases firmness as much as 8 - 10 % tomato paste does.



Country-specific product identity standards can make it challenging to substitute for tomato paste. In Germany, for example, the dry solids in ketchup must be at least 74%, which requires the use of 24.1% double-concentrated tomato paste (28/30% ss).

Please see our start-point recipe on the next page.

TOMATO FIBER TF 25 E

TOMATO FIBER TF 25 E has an intense red colour, a tomato-typical flavour profile and sweetness and creates a pasty, fibrous texture, which appears to be better suited for tomato-based sauces than other fruit or vegetable fibers.

Water binding capacity

- WBC = approx. 12 - 15 (1g fiber binds 12 - 15 g water) in an aqueous dispersion with little mixing.
- WBC increases to WBC = 20 or higher under higher shear forces (high-speed mixer, homogeniser), creating a pasty, fibrous, apple-paste-like texture, non-flowing, with little syneresis and a smooth mouthfeel.
- The water binding capacity is comparable to the water holding capacity due to the strong affinity of the fiber to water.

Quick hydration

- **TOMATO FIBER TF 25 E** starts hydrating immediately after contact with moisture and rapidly absorbs water.

Viscosity, texture, and structure enhancement

- **TOMATO FIBER TF 25 E** has a relatively low viscosity in water, which strongly increases in 3% or higher dispersions.
- It imparts viscosity and body, with a smooth, rich texture and structure in products, and stabilises water in various food systems.

Process stability

TOMATO FIBER TF 25 E demonstrates good heat, pH, salt and shear stability in food products.

Perfect Pizza Sauce

CF002-02.25

PEKTOS TOMATO FIBER TF 25 E

	[g or ml]	approx. [%]
PEKTOS Tomato Fiber TF 25 E	11	1.03
Tomato pulp, canned	630	59.17
Tomato diced, canned	230	21.60
Water	180	16.91
Salt	7.5	0.70
Oregano, dry	0.5	0.05
Rosemary, dry	0.3	0.03
Onion powder	0.4	0.04
Olive oil	5	0.47
TOTAL	1,064	100.00
Yield approx.	1,050	

Process:

1. Use a Thermomix®. Add water and **PEKTOS Tomato Fiber TF 25 E**.
2. Mix at 3,100 rpm for 3 - 5 minutes until the tomato fiber is activated (evident by the high viscosity).
3. Blend the dry ingredients in a bowl.
4. Add the liquid ingredients to the Thermomix®.
5. Mix at 500 rpm for 1 minute.
6. Add dry ingredients to the Thermomix® bowl, keep mixing at 300 - 500 rpm until well incorporated.
7. Mix at 3,000 rpm for 2 minutes to combine the ingredients well.
8. Pasteurise the pizza sauce at 90°C for 10 - 15 minutes at 300 rpm, with the lid on.



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The described formulation serves as a recommendation and was developed and tested in the laboratory of the PEKTOS AG. Since the product preparation can vary a lot between customers, we do not guarantee the applicability of this information or the suitability of our products in each situation. Sometimes, it may be necessary to adapt instructions. Compliance with the food law is the responsibility of the customer.

[CF002-02.25-Perfect-Pizza-Sauce-Tomato-Fiber-TF-25-E-1.pdf](#)

To our best knowledge, the information contained herein is true and accurate. Still, all recommendations or suggestions are made without guarantee, as we cannot anticipate or control the various 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 for our customers' infringement of third-party intellectual property, including, but not limited to, patents.