



## Texture Systems for Bakery Fruit Fillings

### FMC Texturizing System

Bakery fruit fillings can vary substantially in their levels of solids, pH and consistency. In common, they usually contain fruit, sugar, corn syrup, starch and water and are adjusted to a pH of 3.7 - 4.5. However, the final formulation is often a trade-off between the desired taste and texture and the manufacturing process.

The choice of texturizing ingredients depends on such factors as whether the process is hot or cold, the pH, the solids level, the desired firmness of the gel, whether freeze-thaw stability is required and the targeted shelf-life.

### Desired Performance

Generally desired performance characteristic of a texturizer for fruit fillings are:

- Hot or cold processing
- Medium to firm gel strength
- Bake stable (gels not thermally reversible)
- Functional at low pH
- No flavor masking
- Excellent mouthfeel

A number of systems have been specifically developed by FMC that provide excellent taste and mouthfeel for various types of fruit fillings while providing the characteristics needed for efficient processing.

their application and, as the example below, sold as individual products. However, they are generally customized to match customers requirements while minimizing cost.

### Systems of Choice

The system of choice depends on the type of bakery filling. Generally, the following systems are used in the described filling types.

Filling Parameters/Characteristics	Product
High solids (>60%), firmer texture	Manugel® JKB Manugel® PTJ Textureze™ BF 310
High solids (>60%), softer texture	Manucol® JKT Textureze™ BF 320
Low to medium solid (<60%), pH 4.5, or use of slowly soluble acids (adipic, GDL)	Manugel® PTJ Manugel® PTB
Low to medium solids (<60%), pH 4	Manugel® PTB
Low calorie fillings	Textureze™ BF 100



## Example - High Solids Fruit Filling

The benefits of FMC bakery filling systems include:

- Hot or cold processing
- Heat stable gels (less boil-out)
- Improve flavor, color and clarity
- Increase shelf life by reducing moisture loss
- Medium to high gel strength
- Freeze-thaw stability
- Use in reduced sugar and calorie fillings

Ingredients	Grams	(%)
High fructose corn syrup	105.0	21.0
Water	90.0	18.0
Glycerol	25.0	5.0
Manugel® PTJ	5.0	1.0
Pre-gelatinized starch	7.5	1.5
Sucrose	36.5	27.3
Fructose	100.0	20.0
Fruit concentrate	25.0	5.0
Trisodium citrate	2.5	0.5
Adipic acid	3.5	0.7
<b>Total</b>	<b>500.0g</b>	<b>100.00%</b>

## Procedure

1. Combine water and fructose corn syrup.
2. Slurry Manugel® PTJ and starch in glycerol. Add to water-syrup with mixing, then add sucrose and fructose with mixing until dissolved.
3. Add sodium citrate to fruit concentrate, add to the mix followed by addition of adipic acid.
4. Mix rapidly, deposit and allow to gel. Firm gel can be sheared to obtain depositing viscosity.



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