

SimPure®
Label-friendly starches

UniPECTINE®
Uniquely perfected for you



BAKE STABLE FRUIT FILLING:

Why label-friendly texturizers deliver great bake stable filling synergies and help to enable cost savings

As consumer preferences shift towards simpler labels and more familiar sources, bakery manufacturers are facing new technical challenges to deliver label-friendly formulations, without sacrificing on the organoleptic qualities that consumers crave.

With all the buzz about healthfulness, we must not forget that taste is key, and texture is also critically important, as consumers look to engage all their senses, and find solace in indulgent foods. It means opportunity for on trend European baked goods manufacturers as they reassess their formulations to ensure that they are still in line with evolving consumer texture preferences towards label friendliness.

All the while, bakers are being faced with unprecedented market challenges due to the pressures of rising energy, labor and raw material cost.

But functionality must remain front and center. After all, any adjustments to an industrial bakery production process will require some adaptation of the texturizers need e.g. filling at lowers temperature to reduce cooling time, or ensuring that the texturizer functions properly in an automatic depositing system.

This is especially the case when it comes to formulating label-friendly bakery fillings, such as jam. After all, the creation of industrial baking jam presents a number of challenges:

- Spreadability & easy depositing.
- Syneresis control (of a broken gel).
- Bake stability.

Pectin and starches as jam workhorses

It is well known that pectin is the traditional texturizing ingredient in jam making. Less well known is what influences pectin choice, particularly in products using bake stable jam fillings.

In these cases, a low methoxyl (LM) pectin system is generally favored to bring spreadability and bake stability. However, LM pectin often comes at a higher cost and dosage than the more readily available high methoxyl (HM) pectin. Conversely, HM pectin on its own generally does not fit industrial filling requirements, since it typically results in a broken gel form that carries a much higher syneresis risk.

Another solution that may be used for baking stability in jam is starch. The problem here is that starch requires ample water for gelatinization to take place. Since high brix and low water availability are typical of most industrial jam formulations, it means that the desired gelatinization and set of the bakery jam is simply not possible using starch on its own.

But what if the benefits of pectin and starch could be combined together for optimal performance?



1 + 1 = 3

Cargill application teams set out to discover what would happen when two functional ingredients from our portfolio were combined in bake stable filling applications.

UniPECTINE® (pectin) and SimPure® (functional starch) are two label-friendly solutions that contribute to final baking jam characteristics. UniPECTINE® HM stabilizes the filling, and helps to give gelled texture and baking stability, while SimPure® 99405 imparts viscosity and a smooth texture. Their work showed that by combining the two ingredients, the limitations of using them as individual ingredients can be overcome.

Our application work has shown that SimPure® balances the challenging characteristic of HM pectin (excessive gelled texture and syneresis risk). If a lower starch dosage does not bring the complete baking stability, the association with a HM pectin network will complete it. Furthermore, the presence of starch granules among the HM pectin network allows for a good spreadability, without the risk of syneresis.

The combination of the two ingredients provides different textures and mouthfeel when compared to the LM pectin stabilized jams. Importantly, however, it addresses the two main characteristics of spreadability and baking stability that industrial bakers are seeking. Furthermore, the combination requires a lower dosage, and delivers the texture stability at a lower cost than LM pectin.

Beside the potential cost saving that may be realized by making the transition to this texturizer system, this combination shows more flexibility than a single pectin stabilization system. This is because the starch presence will “buffer” the possible reactivity variation of pectin. However, it is important to note that the use of HM pectin does require attention on pH control to get the optimal result. A higher or lower pH target may require the use of different pectin reactivity e.g. slow set UniPECTINE® HM 64030 or rapid set UniPECTINE® HM 64010.

Getting out of a jam through great synergies

In summary, we aim to support fruit preparation suppliers to the baking sector with a solution that helps meet the consumer desire for indulgent texture, while it may help reducing cost for manufacturers. This is why a combination of label-friendly UniPECTINE® (pectin) and SimPure® products is the perfect alternative to using LM pectin for bake stable fillings.

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BENEFITS

to final product characteristics

Combining UniPECTINE® HM pectin and SimPure® functional label-friendly starch delivers a solution that fits industrial requirements (pumpability, no syneresis & bake stability). Additional benefits are:

- Lower dosage needed versus LM pectin (0.4% HM UniPECTINE® +2.5% SimPure® 99405 versus 1.2% LM pectin.
- The ratio of pectin/starch can be modified in the limit of available water to adjust the texture/mouthfeel.
- Solution at lower cost in use versus LM pectin.
- These label-friendly, plant-based ingredients are fully in line with today's consumer trends.

65 brix baking jam recipe

Recipe in %	
Sucrose	38%
C☆Sweet glucose syrup	25%
Fruit puree	25%
SimPure® 99405	2-3%
Citric acid	q.s. pH 3.0/3.2 (2-5%)
UniPECTINE® HM 64020	0.4-0.6%
Water (after concentration)	approx. 5-8%
TOTAL	100.00

Preparation guidelines

- Make a pre-solution UniPECTINE® HM 64020 mixed with 2/3% sucrose dispersed in hot water under stirring,
- Keep stirring until you have a pectin dissolution
- Add the sucrose mixed with starch SimPure® 99405 , glucose syrup and fruit puree
- Heat to 90°C
- Add pectin solution
- Concentrate to the final 65 brix
- Add citric acid (in 50% solution)
- Cool to 60/70°C and fill

