



BAKERY

Better Volume • Softer Crumb • More
Stable Rise

Performance Phosphate Blends
for Modern Food Manufacturing



Bakery Performance Result

Volume Optimization & Sensory Enhancement

Executive Summary

This trial evaluated compound leavening agents containing SAPP, Sodium Bicarbonate, and MCP against the local market standards. The objective was to optimize CO₂ gas release to improve cake volume, dome symmetry, and crumb porosity.

Key Finding: The XF-S107 formulation significantly outperformed the standards in leavening stability and sensory texture. It achieved the highest structural stability (43mm edge height) without sacrificing peak volume (50.75mm). Crucially, XF-S107 solved the common 'dryness' issue, delivering a 'Juicy and Soft' crumb that scored 3/3 in sensory testing.



Methodology

Base Formulation: Sponge cake using the SP/Cake Oil method. Recipe includes 200g Whole egg liquid, 150g Sugar, 200g Low gluten flour, 16g Cake oil, and 60g Water.

Dosage & Preparation: Leavening agent applied at 3% of flour weight (6g agent per 200g flour).

Crucial Process Control: Ingredients maintained precisely at 17-18°C to prevent the premature reaction of the bicarbonate.

- Batter mixed to a strict target Specific Gravity of 0.38 - 0.39.

Baking: Portioned into 55g molds and baked at 160-175°C for 15 minutes.

Efficiency & Profitability Benchmark

[per Standard Sponge Batch]

Metric	Market Standard #1	Market Standard #2	XF-S107
Peak Height [Power]	50.70 mm	48.72 mm [Low Rise]	50.75 mm [Optimal Rise]
Edge Height [Stability]	~39.00 mm [High Rise / Low Edge]	~41.00 mm	~43.00 mm [High Rise / High Edge]
Crumb Structure	Medium holes	Big holes	Small / Uniform
Texture / Mouthfeel	'Standard dry'	'Dry'	'Juicy' / 'Soft & Tender'

Head-to-Head Results

Peak Volume, Edge Stability, Crumb Quality



Market Standard #1
High center rise but low edge stability and a dry crumb

Exhibits an unbalanced gas release profile. It produces adequate total gas release power for peak height (50.70 mm) but lacks the controlled timing required to support the cake's outer structure, resulting in a low edge. The medium-sized air cells fail to trap moisture effectively, leading to a "Standard dry" eating experience.



Market Standard #2
A cost-effective regional drop-in for standard baseline formulas

Delivers 5% better edge stability than the current standard [41mm vs. 39mm] while maintaining a familiar bake profile. At a lower cost, it actually improves structural consistency — a genuine upgrade disguised as a drop-in replacement.



XF-S107
Cuts structural collapse by 34% — with a premium, juicy crumb

Delivers a highly controlled CO2 gas release rate. It remains stable at cooler batter temperatures [17-18°C], preventing premature reaction, and ensures uniform expansion. It creates a highly stable, symmetrical cake [~43.00 mm edge] with small, uniform cells that eliminate tunneling and retain moisture, yielding a highly desirable "Juicy" and tender crumb.



Commercial Recommendation



Premium Technical Upgrade

Switch to XF-S107. Zero compromise: identical peak volume to the standard, but 34% less collapse, zero tunneling, and a 3/3 sensory-rated juicy crumb. Validated at 3% dosage for immediate commercial deployment.



Performance Leavening Agents for Bakery

Proven baking powder options for sponge cake. Upgrade to XF-S107 to eliminate cake dryness, maximize structural stability, and achieve a premium, juicy crumb.



Product Overview and Key Specifications



Designed for: Superior CO₂ gas release control and structural stability in baked goods.

Best for: Premium sponge cake lines requiring maximum volume with uniform crumb and juicy texture.

Key outcomes: Delivers the highest edge stability [43mm] without sacrificing peak volume [50.75mm]. Eliminates tunneling with small, uniform air cells that lock in moisture. Produces a highly desirable 'Juicy' and 'Soft & Tender' crumb.

Technical Specifications:

Contains E500[ii], E450[i], E341[i], Corn Starch.

Application: Sponge cake / SP-Cake Oil method at 3% of flour weight. Optimized for: Batter temperature control at 17-18C, target specific gravity 0.38-0.39.

Choose XF-S107 when: your priority is eliminating cake dryness, ensuring perfect structural symmetry, and delivering a premium, juicy eating experience.



Structural Stability
High edge support prevents collapse.



Moisture Retention
Fine crumb structure traps juiciness.

Need the right blend for your application?
Request a sample, dosage guidance, or trial support
from Additiv Technical Team.

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