



MARINATED PORK

Higher Yield • Better Juiciness •
Consistent Texture

Performance Phosphate Blends
for Modern Food Manufacturing

Marinated Pork Performance Result

Yield Maximization & Sensory Enhancement

Executive Summary

This trial evaluated three phosphate formulations to resolve yield loss and 'dry' texture in marinated pork slices. The blends were tested for water-holding capacity across vacuum-tumbling, freeze-thaw, and thermal processing cycles. Key Finding: XF-M508 delivered a +9.3 percentage point yield gain over the standard – an exceptional step-change from a single ingredient switch – while simultaneously scoring highest for juiciness and texture. XF-M508 builds a superior, heat-stable protein matrix that locks moisture inside the cell, effectively preventing shrinkage and purge loss during cooking.



Methodology

Substrate Preparation:

Fresh pork sliced to 4mm thickness; Initial input weight standardized to 1,000g per batch.

Brine Formulation:

- Base: Cool Water + Ice [Ratio adjusted to approx. 6-10°C.
- Active Ingredients: Phosphate Blend [3g], Salt [15g], MSG [5g], Sugar [10g].
- Preparation: Powder ingredients fully dissolved in cool water before meat addition.

Tumbling Process:

- Equipment: Vacuum Tumble Mixer.
- Cycle: 30 minutes active tumbling at 12 rpm to ensure uniform absorption.

Freezing Cycle:

Product frozen at -10°C for 12 hours to simulate commercial storage and test freeze-thaw stability.

Cooking Evaluation:

- Thawed samples were boiled to evaluate thermal stability, texture retention, and sensory quality.
- Sensory Check: Blind sensory test for 'Juiciness' and 'Texture' post-boil.

Efficiency & Profitability Benchmark

[per 1,000 g Raw Pork]

Trial	Market Standard #1	Market Standard #2	XF-M508
Thawed Weight	1,289g [+28.9%]	1,291g [+29.1%]	1,382g [+38.2%]
% Yield	128.9% [High Shrinkage]	129.1% [Lower heat stability]	138.2% [Best retention]
Yield Gain	Baseline	+0.2%	+9.3%
Sensory Profile	Dry and sticky	Juicier than baseline	Best Texture & Juicy

Head-to-Head Results

Marination Uptake, Thawed Yield, Sensory



Market Standard #1
The lowest yield & a noticeably 'dry' mouthfeel

The current market standard serves as our baseline (128.9% yield). The brine primarily coats the surface rather than penetrating deep into the muscle fibers. Upon exposure to heat, the protein network contracts rapidly, squeezing out moisture and resulting in a dry, sticky mouthfeel.



Market Standard #2
Eliminates the 'Dry Pork' Complaint

This formula effectively solves the "dryness" problem of the market standard, delivering a noticeably "juicier than baseline" sensory profile. It maintains a traditional, familiar cooking behavior and yield [+0.2% gain],



XF-M508
Breaks the Yield vs. Quality Trade-Off: Highest Weight AND Best Bite

Engineered for ultimate thermal stability and moisture retention. XF-M508 creates a robust, cross-linked protein network that resists denaturation at high temperatures. It locks moisture inside the cell during boiling, eliminates the "sticky" surface defect of the standard, and delivers both the highest yield [+9.3%] and the top-rated sensory score.



STAGE 4 Sensory Test

Commercial Recommendation



Best Overall Value

XF-M508 is the ultimate industrial solution. It is the ideal choice for processors looking to maximize their weight retention per kilogram of raw meat. By combining the highest marination uptake with top-tier consumer satisfaction scores, it allows brands to increase their margins while simultaneously upgrading to a premium product tier.

Performance Phosphate Blends for Marinated Pork

Proven phosphate options for marinated pork. Choose XF-M508 for maximum thawed yield retention, better juiciness, and cleaner texture after cooking and freeze-thaw.



Product Overview and Key Specifications



XF-M508
PREMIUM

Designed for: Heat stability and maximum yield retention

Best for: Cooked / ready-to-eat applications, premium texture targets, freeze-thaw distribution

Key outcomes:

- Highest marination yield retention [less purge loss]
- Juicier bite with better texture [less sticky surface]
- Strong performance through cook + freeze-thaw cycles

Technical Specifications: Contains E339[iii], E450[iii], E451[i].

Typical use guide:

- Application: sliced pork / vacuum tumble
- Dosage: 0.20–0.45% on meat [trial adjust]
- Optimized for: 30 min vacuum tumbling @ ~12 rpm

Choose XF-M508 when: your priority is maximum yield retention, juiciness, and process stability [heat + freeze-thaw].



Highest Yield
Less Purge Loss



Heat Stable
Moisture Lock

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



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