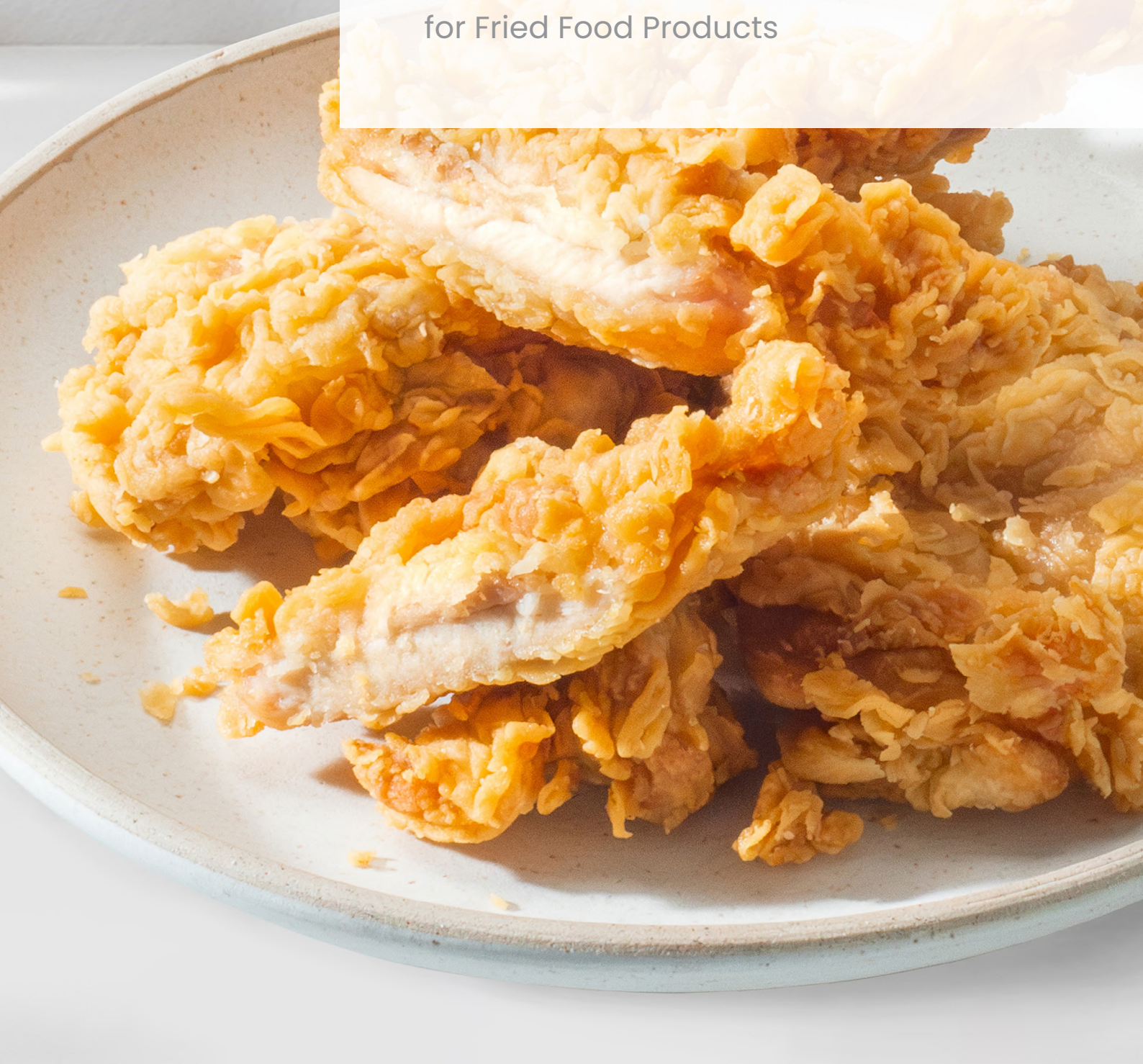
S-TEX® A207

Pre-Dusting Starch

with Superior Adhesion Efficiency
for Fried Food Products



Fried Food Takes the Global Stage as the World Craves More Crunch

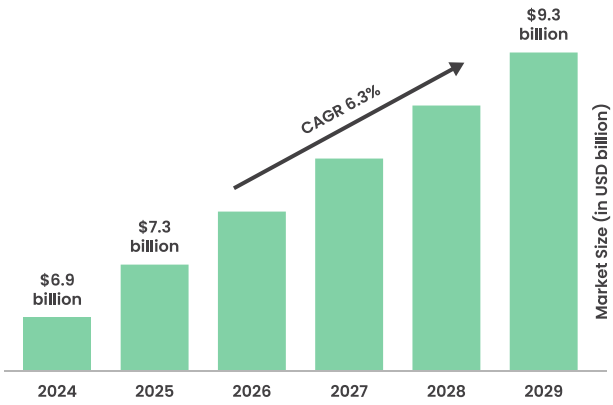
From crispy fries to golden tempura, the global love for fried foods shows no signs of slowing down as consumers everywhere seek bold flavor, satisfying texture, and convenient indulgence. Today, the global fried food market continues to accelerate, projected to grow from USD 93.33 billion in 2024 to USD 130.63 billion by 2029, at a strong CAGR of around 7%. This growth reflects not only the broad scale of the fried food segment but also the rising dominance of categories such as fried chicken, which remains one of the fastest-expanding fried products worldwide.

As demand for consistently crispy, golden-fried perfection continues to rise, **coating innovation takes center stage**. A well-designed coating system—starting from the predusting starch layer—defines not only texture and appearance but also the overall eating experience. Functional ingredients now play a critical role in ensuring adhesion, uniform coverage, and long-lasting crispiness, helping manufacturers keep pace with the world's craving for crunch.

Source: The fast food market report, PR Newswire (2024)

Fried Chicken Leads the Global Fried Food Market Growth

Among countless fried favorites, **fried chicken**, a billion-dollar global obsession transcends cultures through its irresistible contrast of crunchy coating and juicy tenderness. Once seen as simple comfort food, it has evolved into a dynamic global market where brands constantly innovate with new flavors, textures, and regional twists to satisfy ever-changing consumer preferences.



According to the Fried Chicken Global Market Report, the market was valued at approximately USD 7.0 billion in 2024 and is expected to reach USD 9.3 billion by 2029, growing at a strong CAGR of 6.3%. While North America leads in market share, rapid growth is emerging across Asia Pacific, Western Europe, and the Middle East, driven by consumers' evolving preferences for diverse flavors and satisfying textures.

Source: The Business Research Company. (2024). Fried Chicken Global Market Report.

What's Powering the Rapid Rise of the Batter Mix Market

As **fried foods** continue to dominate menus and mealtimes around the world, the **batter mix market** has become one of the fastest-growing segments in the food industry. This growth is powered by several key drivers:

- First, there is an increasing demand for convenience and fast foods. Fried chicken, in particular, has emerged as both a convenient option and a sought-after indulgence.

- Second, the expansion of global quick-service restaurants (QSRs) is noteworthy; these fast- food chains continually innovate and introduce new fried chicken items to their menus.

- Third, urbanization and rising disposable incomes, particularly in the Asia-Pacific region, contribute significantly to this growth, making it the fastest-growing market at present.

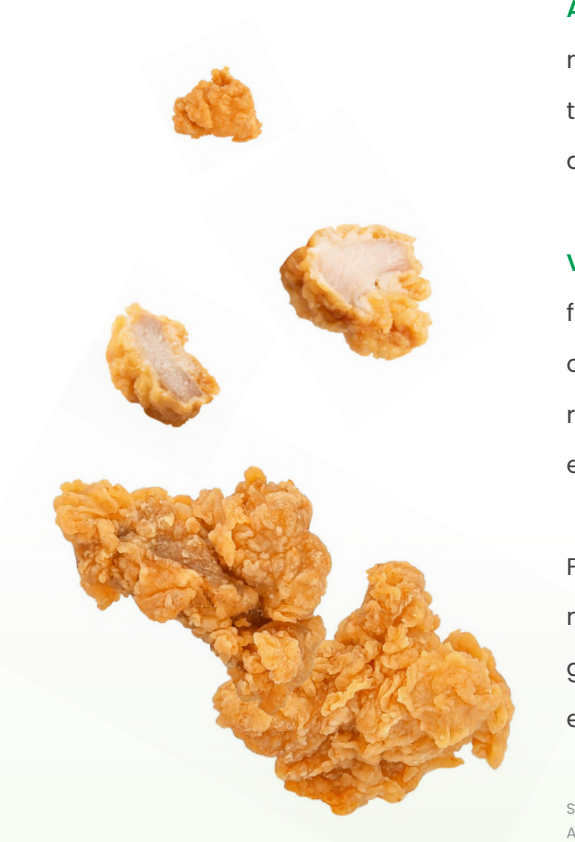
- Lastly, the surge in food delivery platforms has shifted consumer preferences toward ready- to-cook and quick-service meals, further enhancing the demand for batter mixes.

Source: Market Report World: Batter and Breader Premixes Market (2025)

What expectations do consumers hold regarding fried food?

Texture remains the foremost expectation. Consumers look for a light, crispy exterior with a satisfying crunch, paired with an interior that stays tender, juicy, or fluffy. They also expect fried foods to maintain their crispiness over time, especially during holding, delivery, or reheating.

Flavor is another key driver of satisfaction. Consumers seek fried foods with well-balanced, appealing taste profiles. Seasonings, marinades, and coatings all play a role in elevating the flavor and distinguishing products in a highly competitive market.



Appearance is equally crucial. The food should be visually appealing, most often a **golden-brown color**. Thus, coatings or batters must adhere tightly without cracking or separating because poor adhesion directly affects both texture and visual appeal.

Variety and innovation also play an increasing role. Consumers are eager for bold new experiences. Global influences like Korean-style spicy garlic or Nashville hot coatings complemented by indulgent sauces such as ranch, barbecue, or cheese reflect consumers' appetite for new and exciting flavor experiences.

Finally, **lower oil uptake** is becoming more important. As consumers grow more health-conscious, they prefer fried foods that feel lighter and less greasy. Coatings that reduce oil absorption offer a cleaner eating experience while maintaining the indulgence consumers expect.

Source: Recent advances in the optimization of the sensory attributes of fried foods: Appearance, flavor, and texture (researchgate), Why Fried Foods Are Delicious? (fryAway)

How Predusting Starch Sets the Stage for Perfect Coating

Predusting starch serves as the foundation of a successful coating system, particularly in fried meat and seafood applications. Applied as the first dry layer before battering, it improves the surface condition of the substrate, ensuring that subsequent layers — batter and breading — adhere effectively.

By enhancing adhesion between the substrate and coating, predusting starch prevents the crust from detaching during frying and holding, which is one of the most common challenges in fried product manufacturing.

Without predusting, visible gaps or cavities often form between the meat and coating, leading to uneven texture and reduced product appeal. As illustrated in Figure 1, samples using wheat flour dusting show irregular coverage and voids, while those with predusting starch display a tight, continuous bond that enhances product integrity.

Beyond adhesion, predusting starch contributes to a more appealing appearance by reducing uneven browning and oil absorption, resulting in a cleaner, lighter, and more uniform golden color.

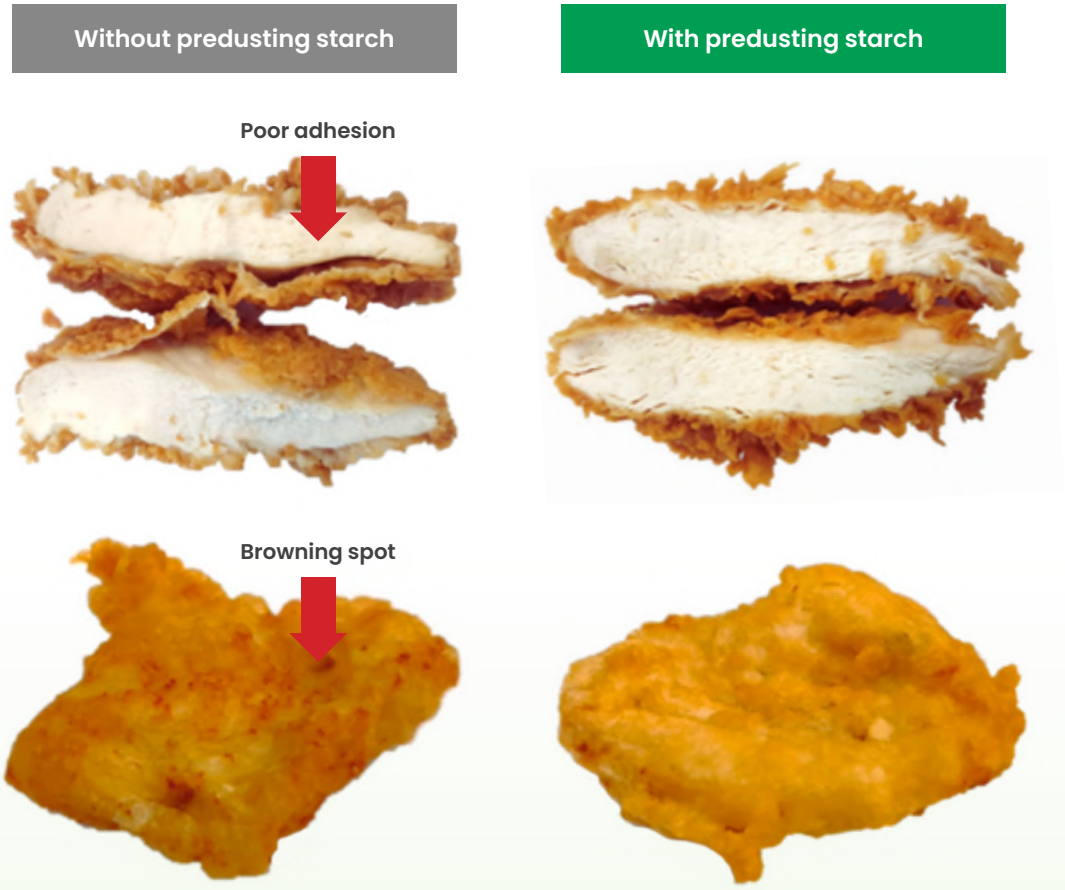


Figure 1 The role of pre-dusting starch in coating Systems

S-TEX® A207: Modified Tapioca Starch for Exceptional Adhesion Performance in Pre-Dust Starch

- Superior Adhesion: S-TEX® A207 forms a strong bond between meat and batter, keeping coatings intact through frying, handling, and delivery.
- Prevents Blow-off: Effectively reduces coating loss during frying and freezing, ensuring consistent product appearance.

- Minimizes Sogginess: S-TEX® A207 creates a clean, non-gummy film that enhances the overall consumer eating experience.
- Versatile Performance: Performs reliably across poultry, shrimp, and squid, showing stronger adhesion than wheat flour and commercial E.1420 in SMS trials (Table 1).
- Flexible Use: Can replace 25–100% of wheat flour in pre-dusting formulas, giving manufacturers both formulation freedom and cost efficiency.

Table 1. Adhesion quality of pre-dusting starch in various meat substrates

Meat substrate	Wheat flour	S-TEX® A207	Commercial E.1420
Shrimp	 Poor	 Excellent	 Excellent
Squid	 Poor	 Excellent	 Excellent
Poultry	 Poor	 Excellent	 Excellent
Pork	 Poor	 Excellent	 Excellent

Technical Validation of S-TEX® A207

Adhesion Performance

A comparative assessment was carried out between a commercial E.1420 starch and SMS S-TEX® A207 to evaluate the effectiveness of pre-dusting starch. Wheat flour was used as a reference point, resulting in frequent flaking and blow-off, which highlighted its limited effectiveness for this purpose. In contrast, both pre-dusting starches significantly enhanced coating adhesion compared to wheat flour.

Efficiency Evaluation

To determine cost-to-performance efficiency, the pre-dusting starches were mixed with wheat flour in various ratios (25%, 50%, 70%, 100%). As the dilution increased, the adhesion performance declined across the board. However, S-TEX® A207 sustained strong adhesion even when diluted up to 25% (Table 2), showcasing its high efficiency and cost-effectiveness, as excellent adhesion could still be achieved at lower dosage levels.

Table 2. Efficiency test of pre-dusting starch in fried shrimp

Usage level	Wheat flour	S-TEX® A207	Commercial E.1420
100% Predust	Poor	Excellent	Excellent
70% Predust	-	Excellent	Excellent
50% Predust	-	Good	Good
25% Predust	-	Good	Fair

Cost-to-performance efficiency of S-TEX® A207

- Poor Adhesion
- High Blow off
- High Soggy

100% Wheat flour

- Good Adhesion
- Less Blow off
- Less Soggy

25% S-TEX® A207

- Fair Adhesion
- Blow off
- Soggy

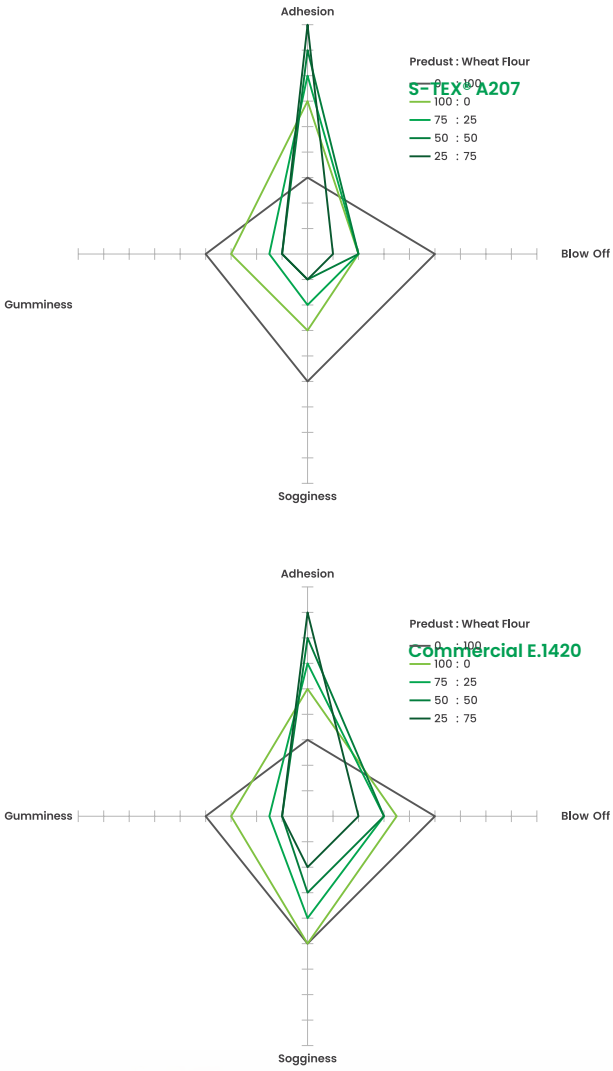
25% Commercial E.1420

Sensory Evaluation

Additionally, a sensory evaluation was conducted with ten trained panelists to compare the two starches (Figure 2). As the ratio of wheat flour increased, blow-off became more pronounced, and the dusting layer turned soggy, leading to weaker coating adhesion. At equivalent inclusion levels, S-TEX® A207 consistently outperformed the commercial product by yielding lower blow- off, decreased sogginess, and stronger adhesion to meat substrates.

Commercial Benefits

- Cost Efficiency: Achieves the same adhesion performance at a 25% dosage level as commercial reference starches at 50% dosage — reducing ingredient costs while maintaining quality.
- Process Reliability: Improved adhesion minimize blow-off during high-speed frying or freezing, reducing waste and rework rates in industrial production lines.
- Consistent Quality: Ensures consistent quality for QSRs and food delivery, where adhesion failures directly affect consumer satisfaction.
- Brand Reputation: Enhances brand reputation by delivering fried products that look and taste as intended — even after transport or reheating.



Remark: Sensory evaluation by 10 panelists
(Score 0-10; 0 = no detect, 1 = the lowest, 5 =medium, 10 = the highest)

Figure 2 Adhesion performance fried shrimp of prediusting starch in fried shrimp

As global demand for premium fried foods grows, innovation in starch technology is essential. S-TEX® A207 represents a new generation of modified tapioca starch that combines scientific precision, sensory quality, and cost efficiency. Its strong adhesion and reduced coating loss deliver clear economic and quality benefits, while its renewable tapioca origin supports sustainable food production. Through ongoing R&D and collaboration, SMS Corporation enables producers to create fried products that perform flawlessly—from fryer to table.

ABOUT SMS
The global leader of Non-GMO TAPIOCA STARCH AND MODIFIED TAPIOCA STARCHES from THAILAND is internationally certified with BRC, FSSC 22000, FDA, HACCP, ISO, HALAL, KOSHER.

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