

Ingredient Technology

Sweeteners, Gums, Starches, Flavors

Batch-full of Yumminess

When it comes to flavors, sweeteners, gums and starches, many of today's ingredient introductions offer a host of can't-miss characteristics.

Marina Mayer, Executive Editor

For years, ingredient suppliers have been developing run-of-the-mill solutions—ones that offer healthy attributes and premium mouthfeel and taste.

Today, however, food scientists and technicians have stepped it up a notch by expanding and diversifying their portfolios to include a bevy of flavors, sweeteners, gums and starches that deliver pliability, freeze/thaw stability, improved texture, partial replacements and better-for-you label claims.

Take a look at this year's new creations

Photo courtesy of American Key Food Products



and find out how these solutions can offer up a batch full of “yumminess.”

Flavors that function

For the past eight months, Sensient Flavors has expanded its *DairyBoost* portfolio of flavors to improve the nutritional profile of sweets and baked goods by reducing the use of dairy products without sacrificing flavor, says Emil Shemer, director of food solutions for the Indianapolis-based company.

“Sensient offers manufacturers almost endless possibilities for natural milk, cream, butter and cheese flavor systems with the *DairyBoost* portfolio of premium dairy flavors,” Shemer says. “With flavors such as fresh milk, sweetened condensed milk, melted butter, fresh butter and drawn butter, the *DairyBoost* portfolio of

flavors delivers premium dairy taste while improving the nutritional profile of many products.”

Baked goods such as crackers, biscuits, cookies and cereal bars are bake-stable and feature a true dairy character, including creamy mouthfeel and natural richness, whereas sweets such as baked desserts, chocolate and sugar confections, are heat-stable and provide a creamy mouthfeel.

Sensient Flavors has also enhanced its flavor offerings for sodium reduction and monosodium glutamate (MSG) replacement, Shemer says.

“The natural flavor systems allow manufacturers to reduce sodium by 25-35% or more per serving and to replace monosodium glutamate,” Shemer notes. “In addition to offering the natural flavor systems, Sensient Flavors partners with its

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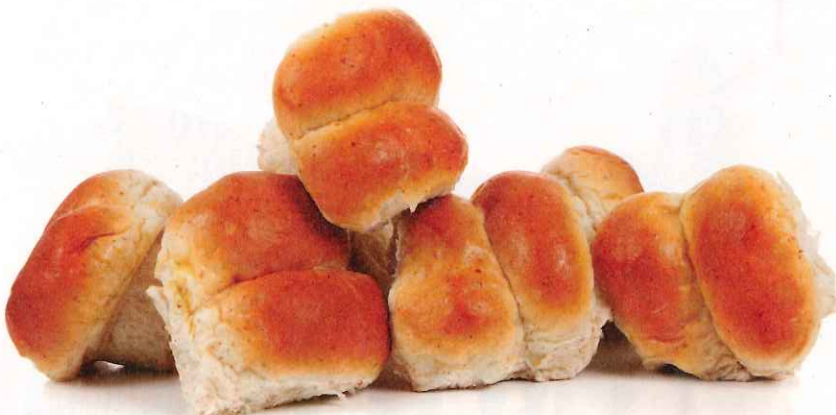
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customers to develop reduced-salt products that mimic full-salt versions and that compensate for additional product profile changes that may occur due to the reduction in salt.”

Likewise, Bell Flavors & Fragrances, Northbrook, Ill., introduced a black garlic flavor within its *Umami Signatures* line. Designed to replace MSG content and enhance reduced-sodium products, the black garlic flavor helps boost flavor profiles.

“In our savory flavors for dips, sauces and snacks, we have removed hydrolyzed vegetable proteins (HVPs) using proprietary technology to redesign flavors containing the flavor nuances present without the actual HVP,” Shemer adds.

For its part, Philadelphia-based David Michael & Co. developed *Fresh Flavors*, a line of non-characterizing flavors that when added to a product containing fruit, it builds back the freshness for a “just picked” sensation.

“Flavor trends can bring excitement to a new product line and liven up classic favorites,” says Erin O’Donnell, marketing manager. “Pies are the new cupcake for 2011, so we expect to see a lot of indulgent pie-type flavors pop up in non-traditional applications. Popcorn is a great example. We expect to see more flavored popcorn beyond the usual butter, cheese and caramel. How about coconut curry or black-berry pie-flavored popcorn?”

Also getting into the flavorful mix is Gold Coast Ingredients, a supplier of

flavors that are used in dough as well as topical applications.

“These flavor systems are designed to perform within their intended matrix processing limitations and give the consumer a fully integrated flavor experience,” says Toni Gitter, technical sales representative for the Commerce, Calif., company. “Due to the increased visibility inside a top chefs’ kitchen, consumers are becoming more familiar with complicated and layered flavor profiles. We have seen an increase in combining sweet/salty/savory in snack products, plus requests for specific items like ancho chili, green peppercorn, manchego cheese plus uncommon fruits like baobab. Flavors can be added to any type of food, so product developers can offer more exotic flavor combinations while achieving consumer acceptance.”

Sweet as silk

When it comes to sweeteners, one thing is certain—foods must taste sweet without doling out a host of too-sweet attributes.

That’s why companies like Roquette America, Inc. offer a wide range of sweeteners, including *SweetPearl* (crystalline maltitol), Maltitol syrups, Sorbitol and Mannitol.

“These sweeteners allow formulators to do a complete or partial replacement of sucrose to reduce sugar and caloric content, depending on what type of nutritional claim they are trying to achieve,” says Isabella Campbell, technical sales and Carl Jaundoo, associate program coordinator

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tions specialist for the National Honey Board, Firestone, Colo.

"[Honey] offers food manufacturers the opportunity to provide a sweet product using a natural sweetener that promotes a clean label," she adds. "Honey also has many functional benefits in bakery foods, such as allowing bakers to extend the shelf life of their products with a natural ingredient. Honey's fructose content holds in a bakery food's moisture, thus reducing dryness in products. Honey's high acidity (average pH 3.91) also inhibits mold growth."

Honey also delivers a sweet and appealing flavor profile that can mask off-flavor notes of whole grains or nutraceutical ingredients, Manelius says, and provides a natural energy boost through its 17 g. of carbohydrates per tablespoon for food and energy bars.

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for the Keokuk, Iowa-based company.

Meanwhile, Corn Products U.S., Westchester, Ill., recently launched *Enliten* Reb A, a high-intensity, naturally-based, low-calorie sweetener obtained from the *Stevia rebaudiana bertonii* plant. It is highly soluble and stable, even under extreme processing conditions, and is designed for cakes, pastries and chocolate, among others.

"*Enliten* is derived from a unique, patented stevia plant variety," says Rick Francolino, food scientist. "It can be incorporated at low use levels as it is about 200 times sweeter than sucrose and imparts sweetness in reduced or lower calorie/sugar products while maintaining the qualities demanded by today's health conscious consumer."

Honey also is an ideal sweetener for enhancing flavor profiles and producing products with all-natural and pure ingredients, says Emily Manelius, communica-

Gums that bind

When it comes to baking, certain products require certain specifics to ensure that ingredients stick, rise and hold.

"Some of the common challenges that bakers and snack producers encounter deal with texture and hydration," says Eric Ferreira, senior technician quality control for Gum Technology Corp. "As producers look to remove an ingredient that is vital to providing textural stability to the food product, such as fat, gluten or sugar, synergistic gum and starch/gum blends can be used to create the network that is necessary for the structural stability and overall texture of the food."

As a result, the Tucson, Ariz., company created a lineup of gum blends under the *Coyote Brand* umbrella.

For starters, Konjac A allows for added pliability in dough, extended shelf life with increased stability through freeze-thaw cycles and improved chewiness texture of bagels, according to Ferreira, whereas the

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Photos courtesy of Gum Technology Corp.



CKX-Fat Replacer, a konjac, xanthan and microcrystalline cellulose gum blend, is used to create a fatty texture to replace fat in traditionally high-fat baked goods such as cakes, cookies, muffins and scones.

The Stabilizer ST-101 blend of xanthan and guar gums improves dough elasticity and freeze-thaw stability in breads and crusts by reducing moisture migration.

“Along with these improvements, it plays an important role in gluten-free

products as it successfully creates a mesh network needed to replace the structural stability that is lost without gluten in a bread system,” Ferreira says. “This blend has been implemented in baked goods such as gluten-free breads, muffins, cookies, pie crusts and pizza crusts.”

Meanwhile, its starch/tara blend called GumPlete SH-0140 is used in fruit prep bake fillings.

“It has been shown to prevent pastry fillings from becoming too molten during heating so that the filling does not flow out of the pastry during the baking process,” Ferreira adds. “It also binds moisture in the filling effectively enough to prevent moisture absorption in spongier breads during heating.”

Cargill’s *CitriTex* GSG 71, which was launched in June 2010, is a functional system that contains gums and can be used to replace 50% of the oil in muffins, cakes and snack cakes, allowing the product to be labeled as “reduced fat,” says Bill Gilbert, technical specialist for bakery snacks and cereals, Cargill Texturizing Solutions, Minneapolis.

“*CitriTex* helps bakers meet a key consumer desire for indulgent products with better-for-you characteristics,” he says.

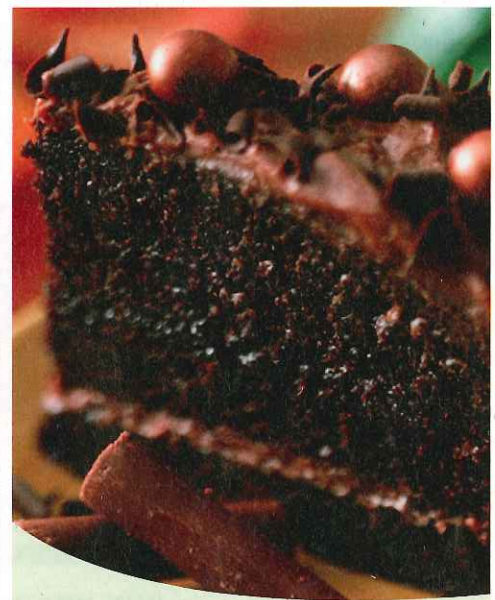
Spreading the starch

When it comes to starch, less is

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more. However, several ingredient companies have formulated solutions that deliver better quality products, allowing consumers to scratch that saying.

For example, Penford Food Ingredients commercialized its technologies to include *PenTechGE*, an ingredient system used to create gluten-free breads, rolls, muffins and pizza crust, says Ying Bian, senior applications scientist for the Denver-based company.

"These systems make products that are equal or better in product quality than their gluten-containing products," Bian says.

Penford also developed the *PenBind 1700* and *PenCling 700* series of modified corn starches, which are designed to improve shear and acid, retort and freeze/thaw stability.

"These starches are used in low pH as well as dairy-based baked good fillings and sauces," Bian adds.

Furthermore, American Key Food Products (AKFP) developed Premium Cassava Flour derived from cassava roots, the same source of tapioca starch, and when blended with native potato starch, can deliver tasty breads and pizza crusts.

"Aside from its value as a gluten-free ingredient, it is also a useful ingredient for snack applications because of its high starch content," says Mel Festejo, chief operating officer for the Closter, N.J., company. "The Premium Cassava Flour has inherently low levels of reducing sugars and is key to addressing acrylamide concerns in extruded snack products."

AKFP also re-introduced a native pea starch, which is manufactured and processed by AKFP's supply partner, Emsland Group of Germany. Designed for use in extruded snacks and baked goods, it offers a fairly high amylase content, providing better gelling, binding and moisture retention properties and extended shelf life.

Whether the product is equipped with starch, gums, flavors or sweeteners, today's snack foods and baked goods deliver a batch full of everything good—and good for you. **SF&WB**