



Specialty starches and  
sugars step up to the  
plate to meet diverse  
food applications

BY ANDALEEB AHMED

# FUNCTIONAL INGREDIENTS

Recent trends in North America confirm the need for highly functional ingredients that allow the food processor to create specialty and customized products. It is as true in food, as it is in economics, that every satisfied need gives rise to a host of new needs. The food processor who responds best to changing consumer preferences is the processor who will prosper.

Today, an increasingly demanding consumer wants it all. The food processor must offer freshness, flavour, attractive appearance, low trans fats, low carbohydrates, convenience and low prices. The emerging functional foods

market brings the additional challenge of producing health promoting food offerings in a package that is both tasty and appealing.

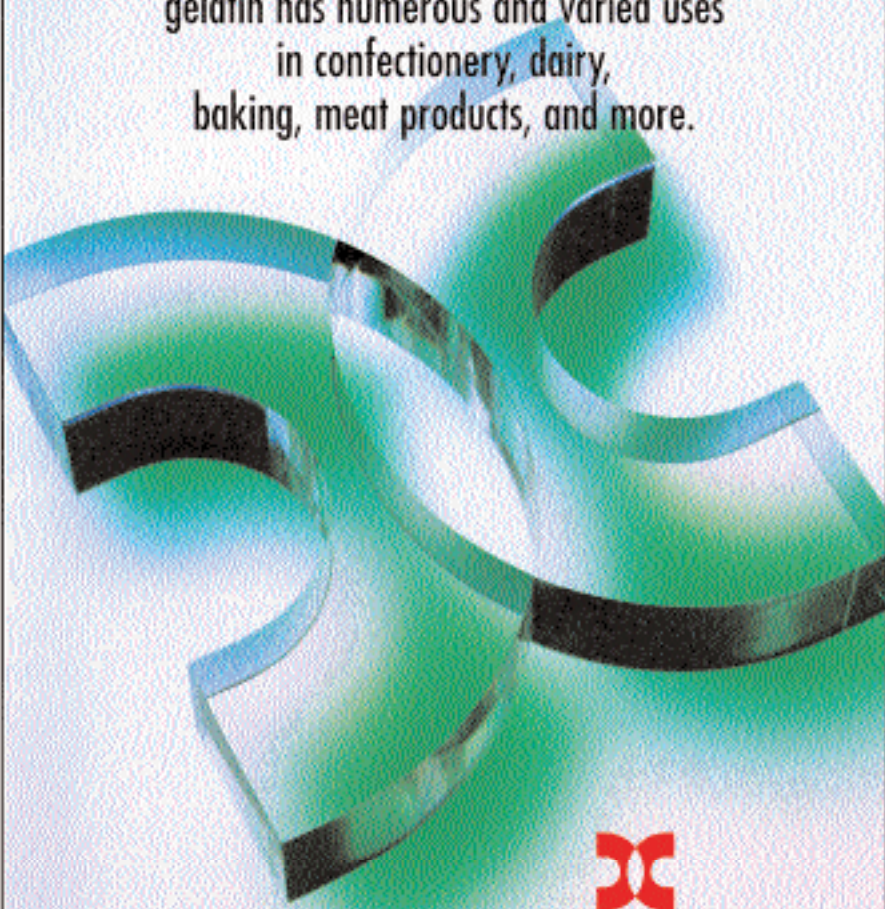
Faced with such a daunting task, food researchers have come to rely on


an increasingly sophisticated array of specialty starches and sweeteners to help them formulate new food products. New starch technologies have emerged that allow the food scientist considerably more processing latitude than previous generations of modified starches. Long regarded as useful viscosifying agents, today modified starches deliver a host of useful attributes. Surprisingly, starches are often a key ingredient, not only in low-fat products, but in low-carbohydrate formulations as well.

Bill Ruderman, vice-president of the food starch division of Nacan Products, says that Nacan's parent company, National Starch and Chemical, has developed a wide variety of specialty starch products to meet the burgeoning demand for products that are high in fibre and low in carbohydrates. The Hi-maize line of resistant starch products has met with success in the U.S., Europe and Australasia. Hi-maize products are in use around the globe to increase fibre content while lowering carbohydrates and maintaining desir-

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able texture and flavour. This unique patented technology is eaten daily by “carb-conscious” consumers who can purchase it in Canada in imported products. “Regrettably,” says Ruderman, “Health Canada has been very slow to recognise the importance consumers and manufacturers place on the availability of high-quality low- or reduced-carbohydrate products. We believe the consumer should have legal and informed access to these products, and food processors should be able to market such products here in Canada. At the very least, let’s allow Canadian processors to compete on a level playing field with the flood of imported low-carbohydrate products crossing the border daily.”

“Hi-maize is just one of many new patented technologies,” he adds, “in addition to modified starches used in such diverse areas as beverage emulsions, batter and breading or baked goods, we also offer products tailored to the growing organic foods market.” In the past, most of Nacan’s clients used modified corn and waxy maize. Today, Nacan supplies modified and

native starches from tapioca, rice and potato as well. The Novation line of high functionality native starch is designed for formulators who need the benefits of a modified starch and the clean label advantage of a native starch. These products are available in cook up

or cold water swelling varieties.

“When we first introduced Novation,” says Ruderman, “food scientists were astonished at the quality and clean flavour available for the first time in a native starch. Today, there is an entire range of Novation starches based



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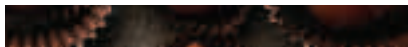
on not only waxy maize, but also on tapioca, potato and rice. There is even organic certified Novation.”

Diane Berthiaume, an account manager with Cargill Food and Pharma Specialities in Burlington, Ont., says Cargill’s line of Cream Tex modified tapioca starches is “formulated to withstand processing needs, such as acid stability, heat and high shear. In addition, modified tapioca starch has excellent freeze thaw stability, making it an ideal choice for frozen cream pies, sauces and soups.” For convenience the company offers HiForm instant modified tapioca starch. There’s also EmCap starch, which has the equivalent functionality of gum arabic and can be applied to beverage flavour emulsion or beverage cloud emulsion or spray dried flavour.

Keeping in mind the demand for low-carbohydrate food, Cargill has



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introduced several sugars made from cornstarch. “Several new products have been included in our specialty ingredient portfolio, including Eridex erythritol, a bulk sweetener that contributes zero net carbs to food formulations. Further, Eridex erythritol has a zero glycemc index and zero insulinemic index, which means it won't increase blood or insulin levels,” says Berthiaume. Eridex erythritol has been published in Canada Gazette part 1. Cargill’s Actistar – a resistant starch – is manufactured using a patented process and has a pleasant, non-sandy mouth feel and bland flavour.

“Although there are some fundamental differences between the regulatory processes in the U.S. and Canada, both are based generally on scientific principles and promoting food safety,” says Berthiaume. “Cargill has teams in both countries working on regulato-

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ry issues. They co-operate and coordinate with each other as much as possible.”

Tate & Lyle North America sells a line of Staley specialty starches and specialty sweeteners. These ingredients are diverse in performance, meeting a range of needs in functional applications, including texturizing, gelling, thickening and adhesion. The sweeteners are sold in Canada under the Redpath brand and are produced in Toronto.

Formulators are also trying to remain competitive by keeping costs in check and sourcing the best ingredients.

The right selection of ingredients is the key to functional food formulation as these products are specifically designed to impart positive health attributes, including low available carbohydrates and high-fibre content.

While the current regulatory environment in Canada may not permit the marketing claims made south of the border, consumers, nevertheless, are very clear about what they want.



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“The demand for resistant starches in Canada is growing and will increase once the regulatory hurdles are removed,” says Ruderman. “Demand for these products is already high among food processors who export to

the rest of the world.”

*Andaleeb Ahmed is a Food Science graduate from Kansas State University with six years of food industry experience. She is based in Maryland, U.S.*



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