



Ease sodium concerns by using permeate

By using permeate, or dairy product solids, it's possible to reduce salt in many foods and beverages without stripping away the salty flavor.

Salt's ability to balance and expose rich flavors makes it the easiest and most inexpensive way to enhance flavor.

However, industry changes are encouraging manufacturers to revisit sodium levels in their products.

The 2015-2020 Dietary Guidelines for Americans have garnered attention for emphasizing sodium reduction. Sodium-related diseases, such as high blood pressure, are putting the aging population at risk. In response, the guidelines are recommending consumers reduce sodium consumption to less than 2,300 milligrams per day. Approximately 90% of all Americans consume roughly 3,400 milligrams per day.

The FDA also weighed in this past June by proposing voluntary guidance for the industry on meeting short-term (2 year) and longer-term (10 year) sodium targets for a wide variety of foods. With this knowledge and with over 75% of sodium consumption coming from packaged and restaurant foods, food and beverage manufacturers can help make sodium reduction an attainable achievement for consumers.

Reduce sodium by replacing salt in food and beverage formulations, because salt is almost 90% of the sodium consumed. Manufacturers may hesitate since losing the salty taste in foods could upset flavor profiles, but one dairy ingredient can reduce salt in many foods and beverages without stripping away the salty flavor.

Formulating with permeate

Permeate's strongest quality is its ability to supplant more costly or less appealing salt alternatives while maintaining original flavor and nutrition. Permeate, or dairy product solids, is an appealing option for manufacturers because it can reduce sodium in the formulation by up to 75%. It also is a high-lactose, high-mineral

ingredient produced through the removal of protein and other solids from milk or whey, creating two types of minimally processed permeate.

Whey permeate is a coproduct of the production of whey protein concentrate and whey protein isolate. It offers good solubility and a pleasant dairy flavor. Milk permeate is a coproduct of milk protein concentrate, milk protein isolate and ultra-filtered milk manufacturing. It is derived directly from milk, giving it a clean, consistent flavor. Each permeate type may have its unique contributions, but the overall benefits are one and the same.

"Permeate is extremely valuable when re-creating formulations. Overall, it can reduce sodium, brown, enhance flavor and add nutrition to multiple food groups," said K.J. Burrington, Dairy Ingredient Applications Coordinator for the Wisconsin Center for Dairy Research. "Even for clean-label purposes, permeate's minerals — potassium, sodium, magnesium, phosphorus and calcium — can provide naturally occurring nutrients derived from its simple composition."

Permeate can include many different products, but must contain a minimum of 76% lactose and a maximum of 14% ash and 7% protein. Although the standard allows for protein, most permeate ingredients contain no intact or true protein. Technically, the functionality of permeate is determined by its lactose content.

Permeate can replace a portion of ingredients, such as skim milk or whole milk powder, but it cannot replace the functionality of protein or fat. It also can replace other carbohydrates and flavor-characterizing ingredients. Know when substituting for salt, 10-11 grams of permeate replaces approximately 1 gram of salt in baked goods, soups and sauces, confectionery, dry mixes and beverages to maintain taste.

Sodium-reduced applications

Baked goods can use permeate for browning, stable emulsions, moisture retention (softer bread), flavor enhancements and fat-like attributes. These benefits are prevalent in the U.S. Dairy Export Council's Savory, Soft Protein Pretzel recipe. This formula includes milk permeate, so there is no added salt for a 73% sodium reduction when compared with traditional pretzels.

Soups, sauces and dry mixes normally have high sodium levels, but along with a desirable dairy flavor, improved texture and creamy appearance, permeate can reduce sodium in these salty, savory foods.

Even beverages can use permeate, especially ready-to-drink formulas. Permeate can provide important electrolytes to help rehydrate the body, and the lactose will provide carbohydrates for an energy boost. For example, the USDEC Dairy Mineral Thirst-Quencher recipe has only naturally occurring minerals from milk permeate, contains 8% of the daily value of calcium and can be used as an after-workout beverage to enhance electrolytes.

Food and beverage manufacturers and foodservice professionals can help consumers decrease their sodium intake by making sodium-reduced foods an option in grocery stores and when dining out. Sourcing from U.S. processors, who produce 40% of the global supply of permeate, offers manufacturers a secure supply of a highly functional product.

Visit ThinkUSAdairy.org for more information about permeates. ■

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