



How to reduce sodium levels in cheese

Reducing sodium levels will require masking agents and metallic/bitter blockers to eliminate the off-flavors caused by potassium-based salt substitutes.

By [Sharon Gerdes](#)

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High levels of dietary sodium can increase blood pressure. But the health consequences of population-wide sodium reduction are still the subject of some debate. Americans consume on average 3,400 milligrams of sodium daily. That is well over the recommended maximum daily intake of 2,300 milligrams and more than twice the recommended level of 1,500 milligrams for certain risk groups — those with hypertension, diabetes, chronic kidney disease, African-Americans and adults over 50 years of age.

The National Salt Reduction Initiative is a partnership with 72 state and local health authorities and national health organizations. Sodium consumption comes primarily from processed and restaurant foods, and NSRI's goal is to reduce Americans' sodium intake by 20% over five years by lowering the sodium in these foods. One target of this group is cheese, which contributes about 7.8% of the daily sodium intake. The Innovation Center for U.S. Dairy is working with industry groups to address the challenges of lower sodium in regular and processed cheeses.

Sodium provides taste, food safety

Two challenges are flavor and food safety. Sensory research by the Dairy Research Institute revealed that, across three cheese varieties, there is a narrow range of sodium levels that provides the highest consumer satisfaction. NSRI has set target levels for sodium in cheese for 2012 and lower levels for 2014. The 2014 targets may be too low to suit most consumer palates.

An industry study found that sodium levels in retail Cheddar, mozzarella and process cheeses vary widely across types, brands and forms of cheese, as well as among samples of the same brands. Given this variability, manufacturers generally declare a sodium content slightly higher than the actual value.

“Utilizing best manufacturing practices could allow the industry to reduce variability and better reflect the true sodium content of cheese,” says Dave McCoy, vice president product research, Dairy Research Institute, Rosemont, Ill.

The inherent safety of traditional cheeses is based on a series of hurdles to microbial growth: salt content of the cheese, acidity of the cheese, dryness of the cheese, and the presence of compounds such as lactic acid that inhibit the growth of bacteria in cheese. A key industry consortium is helping to update the 30-year-old Food Research Institute (FRI) safety information for shelf-stable process-type cheese products.

Another way to improve best practices is to develop rapid methods for sodium testing. These would allow cheese processors to monitor sodium levels during production. Work on these methods is currently underway, and a preliminary report is expected by the third quarter of 2012.

Education is important to help dispel myths and misperceptions about cheese among consumers and thought leaders. Explaining that salt is one of four basic ingredients of natural cheeses is important, as well as education on the holistic picture of how cheese fits into most healthy meal plans and provides important nutrients like calcium and protein. Education also includes informing regulators that not all cheeses are alike, and that it is easier to reduce sodium levels in some cheeses than in others.

Challenging cheese categories

“The cheese industry is grappling with many technical issues surrounding sodium reduction. These include increased make times, and potential shelf life issues,” explains McCoy.

Certain categories of cheese present special issues. Most cheeses have a standard of identity, which defines which ingredients can be used. The use of salt substitutes in the manufacture of cheese may result in a cheese or cheese product that can no longer maintain the standardized name.

Reduced-fat cheeses pose additional challenges for a fixed target for sodium content. When fat is removed from cheese, it is replaced with water and this increase in water also requires an increase in salt to maintain the ratio of salt to moisture, an important factor in maintaining cheese texture.

The high sodium content of processed cheese is a major contributor to its microbial safety and extended shelf life. Most current work on new technologies to improve the quality of reduced-sodium processed cheese is based on the development of new masking agents and metallic/bitter blockers to eliminate the off-flavors caused by potassium-based salt substitutes.

A healthy approach

The dairy industry is actively pursuing voluntary sodium-reduction strategies. In the retail sector, Alpine Lace and Sargento have introduced several varieties of 25% reduced-sodium cheeses. In schools, Dominos has introduced a “Smart Slice” of pizza that contains a proprietary light mozzarella with 100 milligrams less sodium than regular mozzarella.

“Lifestyle changes, including the Dietary Approaches to Stop Hypertension eating plan, can help Americans reduce the risk of and manage hypertension and heart disease,” says Gregory Miller,

president of the Dairy Research Institute and executive vice president of the National Dairy Council. “Research indicates that increased potassium consumption and modest calorie reductions (100 calories per day) may have a far greater potential for reduction of chronic diseases and associated health care cost savings than reducing sodium intakes.”

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