

Fresh-Cut Fruit Coating

Food lifestyle changes occurring over the last decade—including increased demand for a variety of fresh, convenient, healthy, quick snacks and meals—have shaped the way we eat and what we eat. Research conducted at the USDA-ARS Western Regional Research Center in Albany, CA, has revolutionized the food industry and the way consumers eat. USDA-ARS scientists teamed with Mantrose-Haeuser, Co., Inc., headquartered in Westport, CT, to develop a coating that helps prevent fresh-cut fruits and vegetables from browning. Mantrose-Haeuser exclusively licensed ARS's patented technology, and is now manufacturing it under the trade name NatureSeal®.

NatureSeal® is sold commercially to apple processors and food retailers who use the coating to treat fresh-cut fruits and vegetables.

It uses a special blend of vitamin salts and minerals to extend the shelf life of sliced fruits for up to 28 days under refrigeration, without detectable changes in color, flavor or texture. This is the first commercial product of its kind that doesn't have a bad af-

tertaste or residue. Initially developed for apples and pears, the technology has been expanded for use on 19 different produce items including sliced avocados, celery, potatoes, carrots, peaches and romaine lettuce.

Over the past few years, the technology has reached expanded markets. Many well-known fast-food chains, grocery and retail stores, and restaurants now offer fresh apple slices and other fresh-cut fruits and vegetables as a healthy food choice. The largest quick-service restaurants, including McDonald's,

Burger King, Wendy's and Subway, sell sliced apples or products with sliced apples as inclusions. In addition, organic apple growers are now using the coating to treat sliced apples, offering consumers an organic option.

This technology has enhanced the demand for fresh-cut fruits and vegetables by helping Americans—particularly children—meet daily intake requirements for fruits and vegetables while on the go. Sliced apples treated with NatureSeal® are now served in the National School Lunch Program through the USDA sliced apple program—and more than 1,000 schools nationwide buy NatureSeal® directly to treat sliced apples on-site for school lunches.

Prior to the development of NatureSeal®, the only

fresh-cut fruit available was primarily melons and pineapple. Today, sliced apples can now be found in 84 percent of supermarkets, and fresh apple slices are also marketed in Europe and Asia. This technology is directly responsible for job creation, resulting in a 40 percent increase in Man-



trose-Haeuser staff. NatureSeal® is sold to over 350 processors worldwide. This technology has benefited American farmers, particularly apple growers, since millions more pounds of apples are used because of this technology. In addition, processors, equipment manufacturers, sanitizer suppliers and packaging manufacturers are a few industries that have been created or vastly expanded due to this technology.

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