

## Space Food

Consumer/Home/Recreation

In the early days of manned space flight, NASA provided basic squeeze-tube sustenance for the astronauts, I food not particularly tasty but that was not considered a major problem due to the relatively short durations of Mercury (1961-63) and Gemini (1965-66) missions. But, planning for Apollo missions of up to 13 days and for later space stays of even longer duration, NASA wanted meals that were not only appetizing and nutritious but were also easily prepared and low in weight. The weight of the individual meal and whatever hardware was required to prepare it became a consideration because the Apollo spacecraft would have to carry meals for three astronauts for two weeks.

During the 1960s and into the 1970s, NASA conducted an extensive program of research into advanced types of space food, contracting with a number of food processing companies pursuing various approaches to the problem. One of the techniques developed was the freeze drying process, in which water is extracted from freshly cooked foods by dehydration at very low temperatures. Flavor is locked in by freeze drying the food and then sealing it in special pouches that block out moisture and oxygen, the principal causes of food deterioration. This makes it possible to store the food for long periods without refrigeration. Among the companies that have successfully commercialized the freeze drying technology is





Action Products International, Inc. (APII), Ocala, Florida. Founded in 1977 as a garage industry by Judith Kaplan of Queens, New York, APII (then known as Action Packets) acquired the NASA technology from a now-defunct company that had been a subcontractor to Whirlpool Corporation, St. Joseph, Michigan, one of the original developers of the NASA freeze drying process. APII focuses on a special niche of the market: freeze dried snack food, including the first freeze-dried ice cream.

Today the company offers 22 varieties of Action Snacks™ and Adventure Foods, including several ice cream products, two types of yogurt, apples, sliced bananas, whole strawberries, fruit cocktail, french fries and the newest and most popular of the line, cheese pizza. The accompanying photos show some of APII's products.

These foods are cooked, then quickly frozen to 40 degrees below zero Fahrenheit. The moisture is removed when the ice crystals formed by the freezing process are turned to vapor by slow heating in a vacuum chamber.

The final product, according to APII officials, retains 98 percent of the fresh food nutritional equivalent and weighs only 20 percent of its original weight.

APII's main outlets for its products are about 2,000 museum and planetarium shops. Action Snacks are also sold at 11 NASA facilities, at space theme parks and at a number of corporate employee shops. The company also exports its products to Japan, England, Sweden, New Zealand, Germany, France, Hong Kong, Denmark and Italy. The one-time garage industry has grown into a 35,000 square foot facility on a 2 1/2 acre industrial site, and company sales run to several million dollars annually.

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