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Bonded lubricants developed for the lunar drill and other space applications help to increase production efficiency in food processing plants. Application of one type of space-developed dry lubricant solved a breakdown problem with this meat packaging machine and broke a production bottleneck. In another application, the bonded lubricant improved sanitation and extended the service life of this rotary ice cream packaging machine.



lengthens equipment life and permits machinery to be operated at greater speed, thus increasing productivity and reducing costs.

Bonded lubricants are used in scores of commercial applications. They have proved particularly valuable to food processing firms because, while increasing production efficiency, they also help meet the stringent USDA sanitation codes for food-handling equipment. For example, a cookie manufacturer plagued by production interruptions because sticky batter was clogging the cookie molds had the brass molds coated to solve the problem. Similarly, a pasta producer faced USDA action on a sanitation code violation because dough was clinging to an automatic ravioli-forming machine; use of the anti-stick coating on the steel forming plates solved the dual problem of sanitation deficiency and production line downtime.

Meals for the Elderly

NASA is drawing upon its food-preparation expertise to assist in solving a problem affecting a large segment of the American population.

In preparation for manned space flight programs, NASA became experienced in providing astronauts simple, easily-prepared, nutritious meals. That experience now is being transferred to the public sector in a cooperative project managed by Johnson Space Center. Called Meal System for the Elderly, the project seeks to fill a gap by supplying nutritionally balanced meal packages to those who are unable to participate in existing meal programs.

Many such programs are conducted by federal, state and private organizations, including congregate hot meal services and home-delivered "meals on wheels." But more than 3.5 million elderly Americans

A volunteer is delivering a "Seven Pack" which provides an elderly recipient one easily-prepared hot meal daily for a week. The Seven Pack is lightweight and designed for mailing as well as personal delivery, and can be stored without refrigeration for as long as two years.

are unable to take advantage of these benefits. In some cases, they live in rural areas away from available services; in others, they are handicapped, temporarily ill, or homebound for other reasons.

Looking for better nutrition for elderly, the Texas Governor's Committee on Aging contacted Johnson Space Center. Would it be possible, the committee asked, to apply NASA's space food knowledge to solve the problem?

NASA officials considered the idea feasible and, early in 1975, Johnson Space Center initiated a pilot program in cooperation with other organizations. The University of Texas LBJ School of Public Affairs contributed its expertise in social services. United Action for the Elderly Inc., a meal service organization in Austin, took charge of field demonstrations. The Texas Research Institute of Mental Sciences conducted user surveys and taste tests. NASA accepted responsibility for overall program management and for the design, development and production of the meals. The NASA-Martin Marietta Biomedical Application Team provided project engineering support. NASA also employed the contract services of Martin Marietta Corp. and Technology Inc.

Meal System for the Elderly, a cooperative program in which the food-preparation expertise NASA acquired in manned space projects is being utilized to improve the nutritional status of elderly people. The program seeks to fill a gap by supplying nutritionally-balanced food packages to the elderly who are unable to participate in existing meal service programs.



Here is one of 21 menus available in the Meal System for the Elderly program. Last year, a field test involving delivery of some 10,000 meals brought enthusiastic response from elderly participants and volunteer field workers.

