

# Milk Powder Functionality

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**M**ilk powders are used as functional ingredients in confections. In addition, the use of milk powders imparts desirable sensory properties to many confectionery products.

As with all dairy ingredients, the quality of milk powders starts with the production of milk on the farm. The raw material, milk, is produced, transported to a dairy processing plant, processed into milk powder, packaged and then transported to the end-user. The milk powder is then reprocessed with other ingredients according to a confectionery formulation and the resultant product is obtained. There are some established standards for milk powders describing composition, microbiological quality, sensory quality and some measures of functional properties that help to insure that end-users obtain the desired ingredients for their product application. In addition, other end-user-specific tests are utilized to insure the desired performance of milk powders in specific food applications. However, such standards and/or specifications may not necessarily insure optimum performance. A better understanding of milk powder production and the factors which influence milk powder functional properties can help the confectionery manufacturer work with his milk powder suppliers to insure that the desired

performance in the final product is more consistently achieved.

## **BASIC PROPERTIES OF MILK POWDERS AND THEIR SIGNIFICANCE**

The two primary milk powders produced are whole milk powder (WMP) and nonfat dry milk (NDM) or skim milk powder (SMP). While other dried products with dairy origin such as buttermilk powder, whey powder, whey protein concentrate, lactose, etc., are used by confection manufacturers they are not specifically discussed here.

In 1999, approximately 1.4 billion pounds of NDM were produced in 47 plants domestically. This was an increase of 21 percent over 1998 production levels. In addition, 119.6 million pounds of WMP were produced in 1999. Milk powders are used as an ingredient for manufacture of other dairy foods, prepared dry mixes, confections, baked goods, dry blends, meats, nutritional and other beverages, meat products and soups. The confectionery industry accounts for about 5.8 percent (55.5 million pounds) and 78.5 percent (83.8 million pounds) respectively of the total domestic sales of NDM and WMP. California produced approximately 47 percent (652 million pounds) of 1999 annual output of SMP in the U.S. and continues to lead the nation in total milk powder production. ➤

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