
Hard Coat Panning

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Kacena began her confectionery career at Leaf as a quality control technician, moving through progressively responsible positions as senior scientist and project manager.

In March of 1997 Kacena joined the Blommer Chocolate Co. as a quality assurance manager.



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Hard coat panning is a process of building up a shell on the center piece by applying a saturated solution of sugars or sugar alcohols, with subsequent drying of each layer. Coating of pharmaceutical tablets and confectionery products dates back about 1,000 years. In those days materials such as slime substances from *Plantago Psyllium* seeds, honey, gold and silver were used for coating. Historical records mention coated dragees as early as 1400. It was said that in September 1792, the famous German poet Goethe sent a "parcel containing sugar-coated sweets to his friend, Christine Vulpins."¹ The first coating pans were kettles suspended on chains swung by the operator over an open fire. Manually turned pans, fitted with shafts, were invented in the early 1800s. Industrial pans were first manufactured in 1860 and the panning principles used then are still applied today. Advancement in panning brought about automatic pans that are capable of producing large batches using closely controlled processing conditions.

HARD COATED PRODUCTS

Hard coated confections include sugar-coated centers such as chocolate and peanut butter lentils, licorice and chewing gum centers, sugar-coated nuts, jawbreakers and pressed tablets.

Sales data for years 1993 to 1996 are listed in Figure 1. This information is based on data by the U.S. Department of Commerce. Bite size candies have become popular in recent years due to consumers' demand for small serving size. Chocolate and non-chocolate panned products contribute to 16–20 percent of their individual categories (based on volumes).

Functionality of Hard Coat

The primary benefits of the hard coat include the following:

- Visual appeal and color identification with the flavor of the piece.
- Improved taste when flavor is added to the coat.
- Excellent eating experience due to the smooth mouth feel.
- Texture difference compared to other panned products such as jelly beans; the dense structure of the coat makes the shell hard, brittle and crunchy.
- Volume build-up (especially on products like jawbreakers).
- Protection of the center from the influence of the environment (heat, light, moisture).

Crystallization and Drying

During panning, the saturated sugar syrup of a proper viscosity is distributed onto the centers to form a thin film on the individual pieces. Each film layer is about 10–14 microns thick. This process involves two competing mechanisms: crystallization and drying. Crystallization of sucrose molecules reduces the concentration of the solution, in contrast to drying, which increases the concentration of the solution.

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