Back to Basics – Panning

Sucrose Hard Panning

Gumming, engrossing, smoothing, color coat and polishing

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Sugar hard panning is the process of applying a thin coat of a sucrose solution to individual tumbling centers, then evaporating the moisture so that the sugar crystallizes in a thin layer. This process is repeated until the desired thickness of hard coating is obtained. The centers can range from a grain of sugar, as is the starting point for a nonpareil or jawbreaker, to the lentil-shaped chocolate that is the center of an *M&M* milk chocolate candy. Other common center materials are chewing gum, licorice, nuts, compressed tablets or high-solids chewy candy. Any material that will not deform under its own weight and will tumble freely (no flat surfaces that may stick together) is a candidate for hard panning. For a typical panned chocolate lentil product, the coating will consist of 40 to 60 layers applied over the course of 6 to 8 hours. An extreme case would be a large jawbreaker that could consist of over 300 layers applied over the course of 2 weeks.

The goal of this paper is to provide a description of the basic equipment, processes and ingredients used in sucrose hard panning. The hard-panning process consists of five distinct steps:

Gumming The application of a protective sealant layer to the center.

Engrossing The rapid buildup of the sugar shell.

Smoothing This step ensures the finished product will have a uniform surface.

Color Coat This step adds visual appeal to the finished product.

Polishing This step adds gloss and moisture resistance to the finished product.

The first four steps will be discussed in detail. This paper will also discuss different methods of process control used throughout the panning process.

PROCESS EQUIPMENT

Pans are manufactured in various shapes and sizes. A lab-size pan may be 16 inches in diameter and hold 4 to 8 pounds of finished product. Conventional production-size pans are commonly 36 to 60 inches in diameter and hold up to 500 pounds of finished product. Some automated panning systems can accommodate as much as 6,600 lbs. The shape of pans will vary with the equipment manufacturer; some are round, doughnut, pear, tulip or angular (Figure 1). Generally speaking, the pear- and tulip-shaped pans will provide the most uniform depth of product and will produce the most consistent product. However, there is not one pan that is perfect for every product. The centers must tumble in a manner which will allow all of the individual pieces to be evenly coated with the sucrose syrup. For some types of large centers, the round or doughnut-shaped pans can provide better performance.

Apart from the pan, the other critical process component is the air supply. It is the air that will remove the evaporated moisture from the panning syrup and allow

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