Bar Extrusion

Advantages of pressureless extrusion include constant product weight and preservation of fragile ingredients, but the biggest one is its precooling capability.

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The vast majority of candy and formed food bars in the world are manufactured by pressureless extrusion. This type of extrusion uses forming drums to create a slab or ropes which are then cut to shape. This paper will cover the basic concepts of bar forming, concentrating on pressureless forming of multilayer candy bars including nougat and caramel layers; granola and cereal bars; dough-type nutritional bars; and fruit-based bars and ropes.

There are various ways of configuring the forming drums, depending upon the actual bar to be formed. Examples of many of the possibilities will be discussed and illustrated in this paper. Process parameters such as drum surface temperature, product preconditioning, use of scrapers, etc., will all be discussed in detail.

The advantages of pressureless extrusion for bar forming will be illustrated with examples such as constant product weight over the complete belt width and preservation of the integrity of fragile ingredients.

Pressureless extrusion technology allows the product to be cooled while it is being formed, unlike pressure extrusion. The concept of this type of forming technology results in open drums or forming cylinders, which are accessible and easily cleaned.

OVERVIEW

Pressureless drum-based continuous bar-forming equipment can produce a wide range of bars, including soft candy; hard-boiled sugar mass like nut brittle and toffee; fruit bars; and protein bars as well as cereal and granola bars (Figure 1). All of these products can be single or multilayer or even a sandwich format. In addition, rope-forming capabilities can be used and this is common in the bakery industry to add layers of stripes on cookies.

A continuous bar-forming line layout consists of various components (Figure 2). It starts with a mixer to feed the mass into the former. The former creates an endless slab. Multiple formers can layer different types of

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