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## Back to Basics—Technology & Manufacture of Jelly Confections

# Cooking Equipment for Jelly Candies

***There are four types of cookers used for making jelly candies. No single system is right for every jelly candy; ingredients are the determinant.***

**by Sylvia J. Coyle**

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For the purposes of this paper, gum or jelly candies are confections made with sugar, corn syrups and a thickening agent such as starch, pectin, agar or gelatin. Examples are orange slices, spice drops, pectin jellies coated with sugar or chocolate, jelly bean centers of starch or pectin, jube gels or jujubes made with starch, fruity snacks and gelatin candies, including gummi bears, worms and marshmallows.

A cooker is a thermal processing device. It transfers heat energy into the candy mass, dissolves sugars and hydrates thickening ingredients while heating to a temperature set point and a solids/moisture target. The cooker or thermal processing device is only one small part of a cooking system. The cooker cannot stand alone. A cooking system includes all of the components required to deliver the finished candy slurry to a forming or depositing system. Some basic components are a recipe with a list of ingredients; an ingredient delivery system; a measuring device or dosing system; a blending and mixing system; holding vessels; a heat source such as a boiler; a method of

preheating the slurry; a thermal processing device or cooker for transferring heat to the mass; in most cases a flashing vessel; sometimes a vacuum chamber; a dosing method for adding minors such as color, flavor and acid with a stirring/mixing system; various pumps and valves; buffer holding vessels; level probes; the control system; and various level-controlling devices.

This paper will review the basic processes for dissolving sugars, hydration and expanding of starch particles, and heating the jelly to a final temperature. The cooked jelly must then be moulded or formed, dried, cooled and finished with sugar, oil or coating.

I will discuss four types of cooking devices used for most jelly candies. These are open kettle cookers, jet cookers, coil cookers and swept surface heat exchangers. Other types of cookers such as thin film dissolvers, tube and shell cookers, various heat exchangers and thermosyphon cookers may be used for sugar and corn syrup mixtures, but are not usually used for candy slurries containing starch or gelatin. These cookers may be used to deliver a cooked bob syrup into which a ►