

4.3: The Application of Sugar

Sugar is the third most used ingredient in the bakeshop. Sugar has several functions in baking. The most recognized purpose is, of course, to sweeten food, but there are many other reasons sugar is used in cooking and baking:

- It can be used for browning effect, both caramelization and the Maillard reaction, on everything from breads to cookies to cakes. Browning gives a pleasant colour and flavour to the finished product. Caramelization results from the action of heat on sugars. At high temperatures, the chemical changes associated with melting sugars result in a deep brown colour and new flavours. The Maillard reaction results from chemical interactions between sugars and proteins at high heat. An amino group from a protein combines with a reducing sugar to produce a brown colour in a variety of foods (e.g., brewed coffee, fried foods, and breads).
- It acts as the most important tenderizing agent in all baked goods, and one of the factors responsible for the spread in cookies. It helps delay the formation of gluten, which is essential for maintaining a soft or tender product.
- It makes an important contribution to the way we perceive the texture of food. For example, adding sugar to ice cream provides body and texture, which is perceived as smoothness. This addition helps prevent lactose crystallization and thus reduces sugar crystal formation that otherwise causes a grainy texture sometimes associated with frozen dairy products.
- It preserves food when used in sufficient quantity.
- In baking, it increases the effectiveness of yeast by providing an immediate and more usable source of nourishment for the yeast's growth. This hastens the leavening process by producing more carbon dioxide, which allows the dough to rise at a quicker and more consistent rate.

Just as there are many functions of sugar in the bakeshop, there are different uses for the various types of sugar as well:

- Fine granulated sugar is most used by bakers. It generally dissolves easily in mixes and is pure enough for sugar crafters to boil for “pulled” sugar decorations.
- Coarse granulated sugar may be used for a topping on sugar cookies, puff pastry, and Danish pastries as it doesn't liquefy or caramelize so readily. In some European countries, an extra coarse sugar (called hail — a literal translation) is used for this purpose.
- Icing or powdered sugar is used in icings and fillings and in sifted form as a top decoration on many baked goods.
- Brown or yellow sugars are used where their unique flavor is important, or in bakeries where an old-fashioned or rustic image is projected. Brown sugar can usually be substituted for white sugar without technical problems in sugar/batter mixes such as cakes and muffins, and in bread dough.

This page titled [4.3: The Application of Sugar](#) is shared under a [CC BY-NC-SA 4.0](#) license and was authored, remixed, and/or curated by [Sorangel Rodriguez-Velazquez](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.