INTERNATIONAL TECHNICAL CARAMEL ASSOCIATION

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International Technical Caramel Association (ITCA)
Frequently Asked Questions on Caramel Color

1. What is caramel color?

Caramel color is a color additive that helps food and beverage products maintain their distinctive appearance and contributes to their unique taste.

In the U.S, the U.S. Food and Drug Administration (FDA) regulations describe caramel color as a dark-brown liquid or solid created through controlled heat treatment of food grade carbohydrates, such as sucrose, dextrose, and starch hydrolysates. Certain food-grade acids, alkalis, and salts may be used to further refine caramel color to best suit the intended use.[1]

2. What is the advantage to using caramel color?

Caramel color helps to ensure consistency in the appearance of food and beverage products. Part of the appeal of food lies in its appearance, which is why chefs around the world are mindful of both the color and flavor palette of the foods they create.

The same applies to packaged food and beverages. A predictable visual experience is a key factor for many consumers, given the strong association between the color and flavor of food. As a result, food and beverage producers use color additives to minimize variations between batches, which arise due to natural variations and also degradation from processing and storage conditions. The use of caramel color helps to result in a more consistent food or beverage color for consumers. Caramel color can be used to enhance the yellow, red, brown, and black hues of a variety of foods or beverages depending on the type and concentration added.

3. Is caramel color a natural color additive?

A legal definition for the term "natural" has yet to be established across the U.S. According to FDA, the use of any color additive, regardless of the source, results in a food product that is "artificially colored."

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[1] Regulations on the use of caramel color differ slightly among global areas, depending on the region's relevant public health agency. The information provided in this document focuses on the use of caramel color in the U.S. Other organizations engaged in caramel color regulations include the World Health Organization (WHO), Codex Alimentarius, the European Food Safety Authority (EFSA), Health Canada, and the Japan Ministry of Health, Labor and Welfare.

4. What regulatory classifications of color additives exist?

Under U.S. law, all color additives must have FDA approval before they are used in foods, drugs, or cosmetics. In addition, some color additives are permitted to be used only if they are from batches that FDA has certified to meet requirements for composition and purity. Like many other colors derived from natural sources, caramel color is exempt from batch-by-batch certification. Regulations further define specifications for color manufacturers.

5. How do I know if there is caramel color present in my food/beverage?

In the U.S., "caramel color" is a common term on product ingredient lists. Caramel color may be listed as "color added" with other exempt colors.

6. Are caramel colors safe to consume?

The safety of caramel colors has been established through 40 years of extensive investigation. While some of the low molecular weight (LMW) compounds that may be present in caramel colors and other cooked/roasted foods have been associated with carcinogenic activity in laboratory animals at high levels, the amounts present in the various types of caramel colors do not pose a risk to typical consumers.

Food safety authorities around the world continue to recognize caramel color as safe and authorize its use as a color additive in a broad range of food and beverage products. Both the use of caramel color and the ingredients used in its production are regulated globally.

Manufacturers may vary the permitted ingredients and processing conditions to produce one of four types of caramel color (*i.e.*, Class I, II, III, and IV) to ensure the end product is suitable for a particular food and/or beverage application. Regardless of the type of caramel color produced, the product must be well-characterized and meet strict specifications to ensure compliance.

More information on the safety of caramel colors is available on the ITCA Safety and Resources web pages.

7. How is caramel color produced?

Under FDA regulations, caramel color is created using a number of food-grade carbohydrates, including dextrose, invert sugar (*i.e.*, a mixture of glucose and fructose), lactose, malt syrup, molasses, starch hydrolysates, and sucrose. The desired carbohydrate is heated under controlled temperature and pressure conditions that allow for caramelization to occur. During caramelization, a wide range of compounds form in the

mixture, which gives caramel color its distinct flavor and aroma. Additional food-grade acids, alkalis, and salts may be added to assist the caramelization process and to ensure the production of a specific type of caramel color.

8. Can I use caramel color when cooking at home?

Yes, caramel color can be prepared at home simply by heating brown sugar and water until the mixture is reduced to a slightly syrupy consistency. The goal is to boil the sugar water until it develops a dark brown color, but to avoid burning the sugar.