

Technical Tips

Caramel Color in Cookies & Cakes

Bakers have been using caramel color to enhance the color and appeal of baked goods for decades. Caramel color is much darker than alternatives such as malt syrup (extract) and food-grade molasses and therefore is widely-used.

Cookie manufacturers like caramel's high dispersibility in water and dough systems. A wide selection of caramel colors serves as a tool for bakers to design rich, visually-appealing goods ranging from tannish-yellow to reddish-brown to nearly black.

Bakers can choose between liquid or powdered caramel colors depending on their process needs. Some will select powder for its handling ease and performance in dry mixes. The caramel powder drying process raises the solids from 50 - 65% to higher than 96%. The resulting powder is darker than liquid so it requires less caramel volume in a baking formula. Given the same caramel type – for every 1.0 kg of liquid, bakers can substitute 0.5 to 0.6 kgs of powder to achieve the same color intensity (darkness).

Cookies & Snack Cakes

To obtain a very dark color in a chocolate cookie wafer, add 3% to 6% (bakers percent) of double-strength caramel (e.g., DDW #050 liquid or #602, #605, #606, #607, #609 powder) with cocoa powder. The same applies for the following:

Color Comparison

The baking results and photos demonstrate the impact of caramel color in cookies. The following formulas show how 1% caramel color replaces 2% cocoa powder to result in a darker cookie:



Formula #1



Formula #2

	Bakers %	Actual %	Bakers %	Actual %
Pastry Flour	100.0%	37.54%	100.0%	37.9%
Powdered Sugar	67.0	25.0	67.0	25.4
Margarine	57.0	21.0	57.0	21.57
Water	21.0	8.0	21.0	8.0
Cocoa Powder, Dutch	14.0	5.3	7.0	2.65
Nonfat Dry Milk	4.0	1.5	4.0	1.5
DDW # 602 powder	0	0	3.5*	1.3
Chocolate Flavor Enhancer	1.36	0.5	1.36	0.52
Salt	1.33	0.5	1.33	0.5
Baking Soda	0.9	0.34	0.9	0.34
Vanilla Extract	0.55	0.2	0.55	0.2
Ammonium Bicarbonate	0.17	0.06	0.17	0.06
Monocalcium Phosphate	0.17	0.06	0.17	0.06

* Certain bakers may prefer DDW #050 liquid at 6.4% (bakers percent) in place of DDW #602 powder.



For samples or technical questions,
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Cookie Fillings and Cake Frostings

Processors like less moisture in filling and frosting systems, so they choose powder over liquid caramel. However, in some cases an oil-dispersible color (DDW #764 products) may work where dispersibility is an issue. Class I powder (e.g., DDW #624 or #626) can add both a reddish-brown color and a coffee/toffee flavor note to the fillings of cappuccino-flavored and dulce de leche cookies popular in South America.

Chocolate icings or fillings can be also formulated using DDW double-strength powder, liquid, or 200-series caramel depending on the desired shading/redness.



Frosting

Dry Mixes

Dry mix is a large, growing industry characterized by ready-to-use mixes, pre-mixes or concentrates. Powdered caramel allows a cookie mix manufacturer to standardize the color of the baking mix. Cake and muffin mixes frequently contain caramel color to enhance the visual appeal of the final product. In addition, caramel can also be used to extend the color of cocoa powder.

Cost Savings as a Cocoa Extender

Depending upon the price of your cocoa, there is an opportunity for cost savings by replacing 50% of the cocoa in your formula with a cocoa replacer containing flour, D. D. Williamson Powdered Caramel Color #642 or #643, and a chocolate flavor. One can substitute DDW #602, #605, #606, #607, #609, or #640 depending on customer's desired darkness and redness.

The formula is as follows:

Cocoa, Natural process, 10-12% Fat	50.0%
Flour, All-purpose <12% Protein	26.1
Milk, powder	15.0
DDW #642 or #643	7.5
Chocolate Flavor	1.4
	<hr/>
	100.0%

Sulfite Issues

The use of Class III powders (DDW #640, #642, #643) would be desired if sulfite labeling is an issue due to usage levels of Class IV (DDW #602, #605, #606, #607, #609) powders.

Replacing or Reducing Synthetic Colors

Before the advent of caramel color powder, dry mixes for brown cakes contained a blend of synthetic (certified) colors to replace cocoa. Today, those bakers can formulate powdered caramel into cake mix for a cleaner ingredient label by reducing or eliminating synthetic colors.



Cake containing 3% (bakers percent) DDW #602 powder or a synthetic blend of Red # 40, Yellow # 5, and Blue # 1



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