



Reduced-Sugar Chocolate Milk

CATEGORY: SUGAR REDUCTION

APPLICATION: BEVERAGES

Chocolate milk is a sweet part of childhood. But too much of a good thing—in this case sweetened milk—likely contributes to the obesity epidemic. The 2010 Dietary Guidelines for Americans recommends limiting total intake of added sugars and solid fats to 5% to 15% of calories per day. As a lunchroom staple, lower-sugar, no-fat chocolate milk might help decrease the calories of the typical elementary school lunch, currently averaging 115% of the recommended daily calories from added sugars and fats, according to a November 2013 study by the USDA's Food and Nutrition Service. This formulation turns nonfat milk to a creamy, chocolately treat, but with 37% less sugar and 26% less calories compared to a product made with full-calorie sugars alone. Providing sweetness without calories and with a natural source is a stevia-based reb-A sweetener. A functional native starch from waxy rice plus carrageenan provides body for mouthfeel and cocoa suspension.



Formulation

Ingredients	Percentage (%)
Reb-A sweetener (Ingredion Enlighten® 95% Reb-A).....	0.0195
Rice starch (Ingredion Novation® 8600)	0.400
HFCS 42	4.000
Cocoa powder, dutched, 10/12.....	0.650
Vanillin.....	0.018
Natural chocolate flavor WONF.....	0.080
Carrageenan.....	0.032
Salt.....	0.050
Nonfat milk.....	94.750
Total	100

Procedure

1. Combine nonfat milk and HFCS under agitation.
2. Dry mix remaining ingredients.
 - a. Under agitation, add dry blend to milk.
 - b. Mix for 20 minutes with impeller mixer.
3. UHT process (280°F for 6 seconds)
 - a. Homogenize - 500/2000 psi
4. Fill cold (<50°F)

Formulation courtesy of Ingredion, Inc. Additional information can be found at ingredion.com/products/services/ingredient_solutions/

This formula serves as a reference. Product developers are encouraged to modify the formula to meet manufacturing and finished-product specifications requirements.