INGREDIENTS
\(\left.$$
\begin{array}{lrrr}\hline & \text { Grams } & \text { Bakers (\%) } & \text { Usage Levels (\%) } \\
\text { Sugar } & 952.5 & 200.0 & 29.760 \\
\hline \text { Chocolate }^{1} & 510.0 & 107.1 & 15.940 \\
\hline \begin{array}{l}\text { Whey protein concentrate, 80\% } \\
\text { protein (WPC 80) }\end{array}
$$ \& \mathbf{4 7 6 . 0} \& \mathbf{1 0 0 . 0} \& \mathbf{1 4 . 8 8 0} \\
\hline Butter, unsalted \& \mathbf{4 3 5 . 0} \& \mathbf{9 1 . 4} \& \mathbf{1 3 . 6 0 0} \\
\hline Egg, white \& 312.0 \& 65.7 \& 9.778 \\

\hline Water, 32^{\circ} C (90\end{array}\right]\)| Glucose | 136.0 | 28.5 |
| :--- | ---: | ---: |
| Egg, yolk | 108.8 | 22.8 |
| Cornstarch | 95.0 | 20.0 |
| Vanilla liquid ${ }^{2}$ | 54.4 | 11.4 |
| Cocoa powder, Dutched | 47.6 | 10.0 |
| Chocolate extract | 40.8 | 8.5 |
| Salt | 27.2 | 5.7 |
| Total | 2.70 | 0.57 |

It is important to use the best semi-sweet or bittersweet chocolate available.
${ }^{2}$ Madagascar Bourbon Vanilla 2X is the best to use in moist pastries, it holds flavor and aroma in moist products such as brownies and cakes, fats help hold flavors but are not always necessary. Indonesian andMexican Vanillas 2 X are best suited for dry products such as cookies, but not for brownies.

NUTRITIONAL CONTENT

| Per 100 g |  |
| :--- | ---: |
| Calories | 420 kcal |
| Total Fat | 23 g |
| Saturated Fat | 14 g |
| Trans Fat | 0 g |
| Cholesterol | 85 mg |
| Total Carbohydrates | 44 g |
| Dietary Fiber | 3 g |
| Sugars | 36 g |
| Protein | 17 g |
| Calcium | 149 mg |
| Magnesium | 85 mg |
| Phosphorus | 128 mg |
| Potassium | 290 mg |
| Sodium | 80 mg |
| Iron | 3 mg |
| Vitamin A | $432 I \mathrm{U}$ |
| Vitamin C | 0 mg |

## PREPARATION

1. Pre-heat oven to $163^{\circ} \mathrm{C}\left(325^{\circ} \mathrm{F}\right)$.
2. Place butter, water and chocolate in a large pouring container, place in microwave, on high power in 30 second increments, stirring between each microwave burst, until chocolate is $3 / 4$ melted. (Never completely melt chocolate as it can quickly burn and separate the cocoa butter from the liqueur.)
3. Stir until totally smooth. This method allows the unmelted chocolate to help cool the mixture and does
not allow the butter to overheat and explode in the microwave.
4. Add water to the chocolate mixture, stir until smooth. Set aside to cool.
5. Place the eggs, sugar and glucose in a $\mathbf{2 0}$ quart or liter mixer fitted with paddle attachment, mix for 8 minutes on medium speed.
6. Using a flexible spatula, scrape down sides and bottom of bowl frequently.
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## Protein Brownies

## PREPARATION

## (continues)

7. Pour the chocolate mixture down the side of the mixing bowl, with paddle moving on low speed, trying not to hit the sides of the bowl or the paddle. Mix quickly, maximum 40 seconds.
8. Scrape down bowl well especially focusing on the bottom of the bowl where the glucose can hide.
9. Mix together salt, WPC 80, cornstarch and cocoa powder. Sift 3 times.
10. Add vanilla and chocolate extracts and flours to the batter, blend until well incorporated, on low speed.
11. Double parchment line a high sided half sheet pan. Pour into prepared sheet pan, smooth surface of batter, making sure corners are slightly higher that the center.
12. Bake time can vary from $\mathbf{2 0}$ to $\mathbf{3 8}$ minutes depending on the pan and oven.
13. Center will be slightly higher than the sides when ready ("done"). To test for doneness, us a temperature probe in the center of the brownie which must read $82^{\circ} \mathrm{C}\left(180^{\circ} \mathrm{F}\right)$.
14. Leave in oven with door open slightly for 30 minutes.
15. Remove from oven. Cool upside down in the pan at room temperature. Brownies should be refrigerated or frozen for $\mathbf{1}$ to $\mathbf{2}$ hours before cutting.
16. Cut brownies $5 \times 5 \mathrm{~cm}\left(2 \times \mathbf{2}^{\prime \prime}\right)$ (recommended portion size).
17. Re-run knife around pan then lift brownies out of the pan using the extended double parchment paper.
18. Brownies are best cut from backside to maintain good top surface.
19. Cellophane bags are ideal for packaging brownies.

Rely on the dynamic lineup of U.S. dairy to meet consumer demands for global product development. The U.S. Dairy Export Council (USDEC) offers resources on ThinkUSAdairy.org including a dairy ingredient supplier search, consumer, nutrition and product research, technical insights and prototype assistance to help develop and launch your next successful product. @ThinkUSAdairy

[^0]
[^0]:    This formula serves as a reference. Product developers are encouraged to modify the formula to meet manufacturing and finished product specification needs. ©2014 U.S. Dairy Export Council.

