Calculating Frostings and Fillings

Karen Blakeslee, M.S.

Starting in 2023...

- Recommended at county fairs
- Required at the State Fair

Recommendations and Tools

- Use a frosting or filling recipe with a minimum of 65% by weight sugar.
  - Does not factor in natural sugars or sugars already in other ingredients
    - Sweetened coconut, chocolate chips, bananas

Option #1
Kitchen Scale
Measure out ingredients with household equipment

Set the scale to measure in grams

Place a bowl on the scale and “Tare” the scale to set it to zero

Record weights of ingredients

- Pour/place ingredient into the bowl and take the measurement in grams.
- Write down the gram weight.
- After measuring and weighing all ingredients:
  - Add up all measurements to get total weight in grams.
  - Add all sugars for total weight of sugar in grams.
Calculation

- Take grams of all sugars ÷ total weight
- Multiply by 100 to get % sugar in recipe
- A safe recipe must have at least 65% sugar

<table>
<thead>
<tr>
<th>g total sugar</th>
<th>% sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>% sugar: (960/1430) x 100 = 67.1%</td>
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</tbody>
</table>

Option #2 
Ingredient Weight Chart

Quick reference chart for common ingredients
[https://www.kingarthurbaking.com/learn/ingredient-weight-chart](https://www.kingarthurbaking.com/learn/ingredient-weight-chart)

Reference Chart Tips

- Use Grams
- Must calculate measurements for those not listed
  - Powdered (Confectioner’s Sugar): 2 cup = 227 grams
  - If recipe calls for 3 2/3 cup powdered sugar, then...
    - 3 cup = 227 grams + 113.5 grams = 340.5 grams
    - 2/3 cup (or .66 cup) = 74.91 grams
    - .66 * 113.5 = 74.91 grams
    - Total for 3 2/3 cup powdered sugar = 415.41 grams

Reference Chart Tips

- Solve the ratio...
- Recipe calls for 2/3 cups cocoa
- Reference chart: ½ cup cocoa = 42 grams
- Use a ratio to calculate grams for 2/3 cups cocoa
  - $\frac{0.5 \text{ cup}}{42 \text{ g}} = \frac{0.66 \text{ cup}}{X \text{ g}}$
  - Solve for X
  - $0.66 \text{ cup} \times 42 \text{ g} \div 0.5 \text{ cup} = 55.44 \text{ g}$
Calculation

- Take grams of all sugars ÷ total weight
- Multiply by 100 to get % sugar in recipe
- A safe recipe must have at least 65% sugar

% sugar: \( \frac{960}{1430} \times 100 = 67.1\% \)

Option #3
Recipe Converter

Input your recipe ingredients and measurements. It calculates from household measurement to metric for you


Record weights of ingredients

- After conversion...
  - Add up all measurements to get total weight in grams
  - Add all sugars for total weight of sugar in grams
Calculation

- Take grams of all sugars ÷ total weight
- Multiply by 100 to get % sugar in recipe
- A safe recipe must have at least 65% sugar

Total weight

\[ \% \text{ sugar} = \left( \frac{960}{1430} \right) \times 100 = 67.1\% \]

Option #4
Use Google

Google the ingredient in household measurement to convert to grams

Record weights of ingredients

- After conversion...
  - Add up all measurements to get total weight in grams
  - Add all sugars for total weight of sugar in grams
Calculation

- Take grams of all sugars ÷ total weight
- Multiply by 100 to get % sugar in recipe
- A safe recipe must have at least 65% sugar

% sugar: \[(\text{960} \div \text{1430}) \times 100 = 67.1\%\]

For More Information and Example Calculations...

- Food Safety of Frostings and Fillings
- [https://www.rrc.ksstate.edu/judging/index.html](https://www.rrc.ksstate.edu/judging/index.html)
- KSRE Publication MF3544

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