

Calculating Frostings and Fillings

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K-STATE
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Starting in 2023...

- ▶ Recommended at county fairs
- ▶ Required at the State Fair

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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

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Option #1 Kitchen Scale



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Measure out ingredients with household equipment



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Set the scale to measure in grams



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



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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

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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**

$$\% \text{ sugar: } \frac{\text{g total sugar}}{\text{Total weight}} \times 100 = 67.1 \% \quad \% \text{ sugar}$$

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Option #2 Ingredient Weight Chart



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Ingredient Weight Chart

For best results, we recommend weighing your ingredients with a digital scale. A cup of all-purpose flour weighs 4 1/4 ounces or 120 grams. This chart is a quick reference for volume, ounces, and grams equivalencies for common ingredients.

PRINT



Quick reference chart for common ingredients

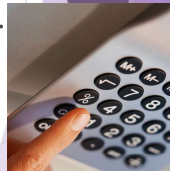
<https://www.kingarthurbaking.com/learn/ingredient-weight-chart>



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Reference Chart Tips

- ▶ Use Grams
- ▶ Must calculate measurements for those not listed
 - ▶ Powdered (Confectioner' 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
 - ▶ 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



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Reference Chart Tips

- ▶ Solve the ratio...
- ▶ Recipe calls for 2/3 cups cocoa
- ▶ Reference chart: 1/2 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
 - ▶ $0.66 \text{ cup} * 42\text{g} \div 0.5 \text{ cup} = 55.44 \text{ g}$

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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

$$\% \text{ sugar: } (960/1430) \times 100 = 67.1 \%$$

Diagram illustrating the calculation: A purple arrow labeled "g total sugar" points down to the numerator (960). A green arrow labeled "Total weight" points up to the denominator (1430). A yellow arrow labeled "% sugar" points right to the result (67.1%).

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Option #3 Recipe Converter

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

<https://bakingcalculators.com/convertrecipe/Default.aspx>



The screenshot shows the "Baking Calculators" website. The main area is titled "Recipe Converter" and has a large text input field for "Input recipe here (one ingredient per line)". To the right of the input field are several settings: "Auto Convert" (checked), "To Cups", "To Teaspoons", "To Imperial", and "Round". Below these are checkboxes for "Clean Up Recipe?", "Use Symbols (1/2)", "Convert Tablespoons", "Convert Teaspoons", "Source System" (set to Auto), "Cups", "Metric", and "Imperial". A note on the right says "A condensed conversion will appear here."

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Baking Calculators

HOME RECIPE CONVERTER RESIZE RECIPE FAQ ABOUT BAKING CALCULATORS

8 ounces cream cheese
1/2 cup butter
1 teaspoon vanilla
3 1/2 cups powdered sugar

Type in ingredients, one item per line

Note: ml = g

Click yes

Click yes

Defaults to yes

Defaults to yes

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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

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Calculation

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% sugar: $(960/1430) \times 100 = 67.1 \%$

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Option #4 Use Google

Google the ingredient
in household
measurement to
convert to grams



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2/3 cup cocoa powder in grams

Images News Shopping Videos Books Maps Flights Finance

About 3,050,000 results (0.46 seconds)

Cocoa Powder

US cups	Grams	Ounces
1/2 cup	50g	1.3 oz
2/3 cup	65g	2.4 oz
3/4 cup	75g	2.6 oz
1 cup	100g	3.5 oz

3 more rows

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Record weights of ingredients

- ▶ After conversion...
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% sugar: $(960/1430) \times 100 = 67.1 \%$

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For More Information and Example Calculations...

- ▶ Food Safety of Frostings and Fillings
- ▶ <https://www.rrc.k-state.edu/judging/index.html>
- ▶ KSRE Publication MF3544

Rapid Response Center

A Judge's Role
Here are some new publications from Kansas 4-H on the role of a judge. Check it out!

- The 4-H Project Exhibit: A Judge's Role
- Consultative Judging of 4-H Project Exhibits

Food Safety of Frostings and Fillings
There are many recipes for frostings and fillings. But when choosing a recipe to use for a fair exhibit, keep food safety in mind as well as an exhibitor's room temperature. See our new publication on this topic and the science behind the recipe.

Publications

- Food Safety of Frostings and Fillings - MF3544, Kansas State University
- Testing data for above publications
- Food Safety of Frostings and Fillings - presentation, August 2020

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