GLUTEN-FREE & DAIRY-FREE BAKING SUBSTITUTION GUIDE

Allergen-Safe Pastry Science | 1:1 Direct Replacement Ratios | Hydrocolloid Binding & Moisture Balances

BAKING LAW: GLUTEN TRAPS GAS, DAIRY BUTTER ADDS MOISTURE | REPLACE BOTH WITH BALANCED STARCHES AND PLANT LIPIDS

MASTER DAIRY INGREDIENT SUBSTITUTION MATRIX

Traditional Dairy Item	Best Dairy-Free Alternative	Direct Ratio	Pastry Texture & Baking Performance	Best Use
Butter (in Cookies/Crusts)	Block Vegan Butter (Miyoko's) or Virgin Coconut Oil	1 : 1 swap	Solid fat at room temp; yields flaky pie crusts & cookies	Pies, cookies, frostings
Whole Cow's Milk	Unsweetened Plain Soy Milk or Creamy Oat Milk	1 : 1 swap	Soy provides matching protein solids (3.3g/100ml) for browning	Cakes, muffins, pancakes
Traditional Buttermilk	1 cup Soy Milk + 1 tbsp Apple Cider Vinegar (curdled)	1 : 1 swap	Acid reacts with baking soda to produce light fluffy rise	Biscuits, red velvet cake
Heavy Whipping Cream	Full-Fat Canned Coconut Cream (chilled top layer)	1 : 1 swap	Whips to stiff glossy peaks when chilled overnight	Chocolate ganache, mousse
Sour Cream / Yogurt	Plain Unsweetened Coconut Yogurt or Cashew Cream	1 : 1 swap	Adds acidity and rich moisture to dense pound cakes	Banana bread, coffee cake

MASTER GLUTEN-FREE FLOUR ARCHITECTURE MATRIX

GF Flour / Starch Base	Role in Pastry Blend	Recommended %	Binder Required	Baking Profile
White / Brown Rice Flour	Structural neutral base grain	40 - 50% of blend	Add 1/4 tsp xanthan gum	Fine grind prevents gritty mouthfeel
Tapioca Starch (Cassava)	Adds chewiness & golden browning	20 - 25% of blend	Natural gelatinization	Essential for chewy cookies & crusts
Potato Starch	Traps moisture & creates tender crumb	15 - 20% of blend	Self-stabilizing starch	Prevents crumbly dry texture
Blanched Almond Flour	Adds healthy fats, moisture & flavor	100% in grain-free	Requires extra egg binder	Dense rich texture, browns quickly
Xanthan Gum (Hydrocolloid)	Replaces gluten elastic protein web	1/4 tsp per cup flour	Master gluten replacement	Locks carbon dioxide bubbles in rising dough

ALLERGEN-FREE BAKING RECIPE CONVERSION LOG (FILLABLE)

Recipe / Baked Item	GF Flour Blend Used	Dairy-Free Swap	Binder Added	Crumb Rating (1-5)
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