

Deodorant Stick

This quick guide gives you everything you need at a glance when making the formula — tools, containers, ingredient lists, and step-by-step directions. Use it as your working page while you formulate. There's space to check off steps, record notes, and customize your batch if you enjoy experimenting.

For your first batch, you only need the Test Version and the core directions — print those pages and skip the rest until you're ready to scale up or customize. The Full, Minimalist, or Custom Blend tables can be printed later.

After printing, use the notes column to jot adjustments or observations directly onto the directions table — it's designed as your working surface while you formulate.

Difficulty: Moderate
Required Ingredients: 8
Optional Ingredients: 4
Prep Time: 30 minutes
Full Cure: 4 hours

⚠ IMPORTANT: This quick guide is for formulation only. Before beginning, please **read the full description of the Deodorant Stick** for detailed safety precautions, ingredient explanations, and usage instructions.

Suggested Tools & Equipment

- gloves (optional)
- spray bottle with 70% isopropyl alcohol
- large-capacity scale (5000 g × 0.01 g)
- milligram scale (100 g × 0.001 g)
- 1 heat source
- digital thermometer
- timer (optional)
- 1 glass beaker (~250 mL)
- tiny glass or ceramic dishes
- several stainless-steel lab spatulas
- 3 stainless-steel measuring spoons
- skewers or disposable pipettes (optional)
- flexible silicone scrapers
- shallow bowl with ice water
- sanitized, completely dry final container
- labels

Suggested Container Options

- 2 [Empty Deodorant Tubes \(2.65 oz/78 mL each\)](#)

Formulation Notes

¹ Substitute for Caprylic/Capric Triglycerides (MCT Oil): Squalane (absorbs faster) or Jojoba Oil (richer). Both maintain glide.

² Substitute for Behenyl Alcohol: Cetearyl Alcohol (softer) or Cetyl Alcohol (softest). With cetyl, increase candelilla wax to 8%.

³ Substitute for Olivem 1000: C10–18 Triglycerides.

⁴ Substitute for Magnesium Hydroxide: Non-nano Zinc Oxide for a gentler, creamier feel. Magnesium hydroxide provides stronger odor control.

⁵ Substitute for Candelilla Wax: Carnauba (harder) or Beeswax (softer). With beeswax, increase behenyl alcohol to 14–15%. With carnauba, reduce behenyl to 12%.

⁶ No substitutes for Triethyl Citrate.

⁷ No substitutes for Zinc Ricinoleate.

⁸ Optional. Substitute for Arrowroot Powder: Tapioca Starch or Cornstarch. If omitted, increase magnesium hydroxide from 8% to 9%.

⁹ Optional. Substitute for Totarol: None with the same targeted odor-control action. If omitted, increase magnesium hydroxide from 8% to 9%.

¹⁰ Substitute for Mixed Tocopherols: Rosemary Extract (25% standardized) at 0.1–0.3%. The “25%” refers to the strength of the extract as sold, not the amount used.

¹¹ Optional. Essential oils can add deodorizing or antimicrobial benefits. If omitted, increase MCT Oil. See ***Essential Oils for Skin Care***.

¹² Optional. Substitute for Bisabolol: Chamomile CO₂ (has a noticeable herbal scent). If omitted, increase the main oil.

TEST FORMULA

Makes 80 g Deodorant Stick / Fills one 2.65 fl oz (78 mL) tube

This version is designed for testing. Making a small batch first lets you check texture, scent, and skin feel before committing to a larger amount. Once you're happy with the results, you can make the larger batch for general use.

Phase	Ingredients	Function	%	Grams
A	Caprylic/Capric Triglycerides¹	Base oil	48.67%	38.94
A	Triethyl Citrate⁶	Controls odor	6.00%	4.80
A	Behenyl Alcohol²	Thickens and stabilizes	13.00%	10.40
A	Olivem 1000 Emulsifier O³	Aids glide and structure	8.00%	6.40
A	Magnesium Hydroxide⁴	Controls odor	8.00%	6.40
A	Candelilla Wax⁵	Firms and stabilizes	7.00%	5.60
A	Zinc Ricinoleate⁷	Controls odor	5.00%	4.00
A	Arrowroot Powder ⁸	Absorbs moisture	1.00%	0.80
A	Totarol Powder ⁹	Odor support	0.50%	0.40
B	Mixed Tocopherols¹⁰	Keeps oils fresh	0.70%	0.56
B	Essential Oil ¹¹	Scents and supports	2.00%	1.60
B	Bisabolol ¹²	Calms skin	0.13%	0.10
			100.00%	80.00

FULL FORMULA (Includes Optional Ingredients)

Makes 160 g Deodorant Stick / Fills two 2.65 fl oz (78 mL) tubes

Phase	Ingredients	Function	%	Grams
A	Caprylic/Capric Triglycerides¹	Base oil	48.67%	77.87
A	Triethyl Citrate⁶	Controls odor	6.00%	9.60
A	Behenyl Alcohol²	Thickens and stabilizes	13.00%	20.80
A	Olivem 1000 Emulsifier O³	Boosts glide and structure	8.00%	12.80
A	Magnesium Hydroxide⁴	Controls odor	8.00%	12.80
A	Candelilla Wax⁵	Firms and stabilizes	7.00%	11.20
A	Zinc Ricinoleate⁷	Controls odor	5.00%	8.00
A	Arrowroot Powder ⁸	Absorbs moisture	1.00%	1.60
A	Totarol Powder ⁹	Odor support	0.50%	0.80
B	Mixed Tocopherols¹⁰	Keeps oils fresh	0.70%	1.12
B	Essential Oil ¹¹	Scents and supports	2.00%	3.20
B	Bisabolol ¹²	Calms skin	0.13%	0.21
			100.00%	160.00

MINIMALIST FORMULA (Required Ingredients Only)

Makes 160 g Deodorant Stick / Fills two 2.65 fl oz (78 mL) tubes

This version gives you the lightest, simplest take on a solid deodorant stick—just the base oil, the ingredients that give it shape, and the key odor-control actives. It's fragrance-free and extremely gentle, but you'll miss the added powdery dryness, antioxidant support, customizable scent, and soothing feel that the optional ingredients provide in the full formula.

Phase	Ingredients	Function	%	Grams
A	Caprylic/Capric Triglycerides¹	Base oil	52.30%	83.68
A	Triethyl Citrate⁶	Controls odor	6.00%	9.60
A	Behenyl Alcohol²	Thickens and stabilizes	13.00%	20.80
A	Olivem 1000 Emulsifier O³	Aids glide and structure	8.00%	12.80
A	Magnesium Hydroxide⁴	Controls odor	8.00%	12.80
A	Candelilla Wax⁵	Firms and stabilizes	7.00%	11.20
A	Zinc Ricinoleate⁷	Controls odor	5.00%	8.00
B	Mixed Tocopherols¹⁰	Keeps oils fresh	0.70%	1.12
			100.00%	160.00

How to Use the Custom Blend Table

This table is provided to help you customize your blend. Only fill it out if you enjoy experimenting and feel comfortable working with percentages. The full formula above is already balanced and ready to use.

You may choose any batch size you like. Percentages always stay the same; only the grams change. Enter the percentage you want for each ingredient and adjust the values until your total reaches 100%. Then calculate the grams so they add up to your chosen batch size. Add the % column to ensure it equals 100%, and add the grams column to ensure it equals your batch size. Items shown in bold are required components of the formula.

One percentage is already filled in because this ingredient must stay at a fixed level for safety, stability, or performance. Only adjust the blank cells.

Examples of the math:

- If you choose a 50 g batch and an ingredient is 7%, multiply: $50 \times 0.07 = 3.5$ g
- If you choose a 200 g batch and an ingredient is 1%, multiply: $200 \times 0.01 = 2$ g
- If you choose a 112 g batch and an ingredient is 0.5%, multiply: $112 \times 0.005 = 0.56$ g

MY CUSTOM BLEND

Deodorant Stick(s)

Phase	Ingredients	Function	%	Grams
A	Caprylic/Capric Triglycerides¹ (47-50%)	Base oil		
A	Behenyl Alcohol² (12-14%)	Thickens and stabilizes		
A	Olivem 1000 Emulsifier O³ (7.5-8.5%)	Aids glide and structure		
A	Magnesium Hydroxide⁴ (6-10%)	Controls odor		
A	Candelilla Wax⁵ (6-8%)	Firms and stabilizes		
A	Triethyl Citrate⁶ (3-8%)	Controls odor		
A	Zinc Ricinoleate⁷ (3-7%)	Controls odor		
A	Arrowroot Powder ⁸ (Max 3%)	Absorbs moisture		
A	Totarol Powder ⁹ (Max 0.5%)	Odor support		
B	Mixed Tocopherols¹⁰	Keeps oils fresh	0.70%	
B	Essential Oil ¹¹ (Max 2%)	Scents and supports		
B	Bisabolol ¹² (Max 0.3%)	Calms skin		
			100.00%	

Date:

Formulation Method	Notes	✓
1. Prepare your workspace and a sanitized, completely dry container. Wash and dry your hands or put on gloves. Spray all tools and equipment with 70% Isopropyl Alcohol and let them air-dry before beginning.		
2. Weigh out ingredients before heating and combining.		
Phase A: Weigh Oil-based Ingredients		
1. Place a clean beaker that holds at least twice the amount of product you plan to make on the large-capacity scale.		
2. Press Tare to show 0.00 grams. Use a small beaker to slowly drizzle Caprylic/Capric Triglycerides (MCT) into the beaker to reach the target weight.		
3. Press Tare. Use a spoon to slowly drizzle Triethyl Citrate into the beaker to reach the target weight. Set aside.		
4. Place a clean, tiny dish on the milligram scale and press Tare. Use a clean spoon to slowly transfer Behenyl Alcohol into the dish to reach the target weight. Transfer into the main beaker with the MCT Oil.		
5. Return the tiny dish to the milligram scale and press Tare. Use a spoon to slowly transfer Olivem 1000 into the dish to reach the target weight. Transfer into the main beaker.		
6. Return the tiny dish to the milligram scale and press Tare. Use a spoon to slowly sprinkle Magnesium Hydroxide into the dish to reach the target weight. Transfer into the main beaker.		
7. Return the tiny dish to the milligram scale and press Tare. Use a spoon to slowly transfer Candelilla Wax into the dish to reach the target weight. Transfer into the main beaker.		
8. Return the tiny dish to the milligram scale and press Tare. Use a spoon to slowly transfer Zinc Ricinoleate into the dish to reach the target weight. Transfer into the main beaker.		
9. Optional. Return the tiny dish to the milligram scale and press Tare. Use a spoon to slowly sprinkle Arrowroot Powder into the dish to reach the target weight. Transfer into the main beaker.		
10. Optional. Return the tiny dish to the milligram scale and press Tare. Use a spoon to slowly sprinkle Totarol Powder into the dish to reach the target weight. Transfer into the main beaker.		
11. Gently stir the Phase A mixture and set aside.		

Formulation Method	Notes	✓
Phase B: Weigh Heat-sensitive Ingredients		
1. Return the tiny dish to the milligram scale.		
2. Press Tare. Use a small spoon or a disposable pipette to slowly drizzle Mixed Tocopherols into the dish to reach the target weight.		
3. Optional. Press Tare. Use a small spoon or a disposable pipette to drizzle Essential Oil into the dish to reach the target weight. If your bottle has a dropper insert, remove it before measuring (see Making a Formula Work).		
4. Optional. Press Tare. Use a small spoon, skewer, or a disposable pipette to drizzle Bisabolol into the dish to reach the target weight.		
5. Use a flexible spatula to gently stir. Set aside.		
Warm		
1. Place the Phase A beaker on a heat-safe surface and warm gently to 80–85°C (176–185°F), stirring occasionally with a lab spatula until fully melted and uniform. Stir gently to avoid introducing air bubbles. Zinc Ricinoleate must be fully melted for a smooth, even stick.		
Cool Rapidly		
1. Remove the beaker from the hotplate and wipe off the thermometer with a clean paper towel.		
2. Immediately place the beaker into your prepared ice bath . Do not let water splash into the beaker.		
3. Stir constantly until the mixture thickens to a smooth, slightly viscous liquid as it cools to 55–60°C (131–140°F) . This promotes even powder suspension and prevents settling.		
Reheat and Combine		
1. Remove from the ice water and wipe off the outside of the beaker with a clean paper towel.		
2. Briefly and gently reheat and stir the mixture to 65–70°C (149–158°F). Do not exceed 70°C (158°F) . This step ensures a smooth, uniform stick with no graininess or powder pockets.		
3. Remove the beaker from the hotplate and wipe the thermometer with a clean paper towel.		
4. Use a flexible scraper to scrape all of Phase B into the Phase A beaker .		
5. Stir and scrape down the sides of the beaker to combine. The mixture should be smooth, uniform, and fully fluid.		

Package	Notes	✓
1. While still fluid at 65–70 °C (149–158 °F), gently tap the beaker on the counter to release any trapped air bubbles.		
2. Quickly pour the mixture into clean deodorant stick tubes while it is still fluid. If necessary, gently reheat until the liquid is warm. Pour in a thin stream to avoid air pockets.		
3. If the mixture gets on the outside of the tube, let it harden, then scrape it off easily.		
4. Wait 4 hours. Set the filled tubes aside on a level surface and let them cool undisturbed at room temperature until solid. Do not refrigerate. A timer can be helpful.		
5. Wipe or scrape away any wax that got on the outside of the tube before capping.		
6. Label the containers with the product name and a 12-month expiration date.		
7. Store below 30°C / 86°F, away from sunlight and moisture.		

Cleanup	✓
Tools	
1. Immediately after making the product, wipe down tools with a clean, dry paper towel.	
2. Rinse all tools under warm running water to loosen residue.	
3. Wash with hot, soapy water using a soft sponge or bottle brush.	
4. For stubborn residue, soak tools in warm water with dish soap for 10–15 minutes before scrubbing.	
5. Sanitize tools in a dishwasher if they are dishwasher-safe.	
Workspace	
1. Wipe down counters and scales with a damp cloth.	
2. Sanitize surfaces with 70% isopropyl alcohol (spray or wipes), then allow to air-dry.	
3. Store clean tools in a covered container or drawer to prevent dust and contamination.	