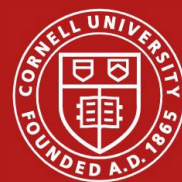




Maple Lip Balm

Ailis Clyne, 2023



Overview

Lip balm is a popular and easy to produce personal care product. Maple syrup can be incorporated into lip balm recipes to add flavor, aroma, label appeal, and nutrients with possible skin care benefits. Potential market opportunities include direct to consumer sales, inclusion in maple gift baskets, and bulk sales of maple syrup to producers of natural skin care products.

This document provides a recipe for a basic maple lip balm containing glycerin; this is the formulation that was used for market testing at Cornell University (see **Market Testing** section). For recipe variations, see the **Maple Skin Care and Bath Products Notebook**.



Using Maple Syrup in Lip Balm

To add maple syrup to lip balm, an emulsifier must be used to combine the fats in the skin-nourishing oils with the small amount of water present in the syrup. In this recipe, liquid sunflower lecithin was the selected emulsifier. In addition to emulsifying, it contributes to the color, aroma, and feel of the lip balm. Lecithin is an edible product, safe for use on lips, and often promoted for skin care. Liquid lecithin is very sticky and difficult to handle when cold, so it is recommended to warm it up to at least room temperature before measuring it out. Soy lecithin can be used, but it is lighter in color, and has a different, less nutty aroma that has not been assessed in this product.

The ingredients in the **Recipe** section are listed by their INCI names. Most lip balms on the market use this naming convention on their labels; however, it is not compliant with US Food and Drug Administration labeling standards. INCI (International Nomenclature of Cosmetic Ingredients) is a naming convention that is required for labeling cosmetic products in the EU and Canada, and being familiar with it can help with sourcing ingredients from suppliers. For FDA compliant labeling, see the Cornell Maple Program's **Lip Balm Regulatory Information** bulletin.

Special Equipment and Supplies

You will need: twist-up lip balm tubes, lip balm tube filling tray(s), and scraper. These items can often be purchased together in a kit. The tubes must be purchased from the same manufacturer as the filling trays. Tubes purchased from a different manufacturer are likely to be incompatible with the filling tray. Without a precise fit, the melted lip balm will leak around the tube causing total batch failure.



The filling tray on the left made by Mary Tylor Naturals is relatively inexpensive and widely available; however, it only holds 50 tubes. Large filling trays are not widely available. The one pictured at right, made by SoapEquipment, holds 225 tubes. It is more expensive, but simplifies operations for larger scale production. Tray dividers enable the use of a single large tray to fill multiple batches with different formulations at one time.

Some lip balm products come in small tins, usually called “pots” when referring to lip balm or “lip butter”. The recipe in this fact sheet is designed for twist-up tubes; it would need to be reformulated to be softer to be made compatible for packaging in tins or pots.

Recipe : Basic Maple Lip Balm with Glycerin

The following recipe makes 500g of lip balm, which will fill 100 0.15oz tubes.

The ingredients are here listed by their INCI names, except for the source of tocopherol; see the **Lip Balm Regulatory Information** bulletin for labeling requirements.

Ingredients

Base Recipe:

- 115g | 23% beeswax¹
- 90g | 18% maple syrup
- 90g | 18% theobroma cacao (cocoa) seed butter
- 80g | 16% prunus amygdalus dulcis (sweet almond) oil
- 70g | 14% cocos nucifera (coconut) oil
- 45g | 9% helianthus annuus (sunflower) lecithin²
- 10g | 2% Solgar Liquid Vitamin E (contributing 0.5% tocopherol)³

Additional Ingredients (% listed is percent of base recipe):

- 5g | 1% glycerin

To make a substitution for any of these ingredients, see “Substitutions & Alterations” in the Maple Skin Care and Bath Products Notebook to understand how these changes will affect your product.

¹Yellow, unrefined beeswax contributed to a maple-like color and a naturally sweet aroma.

²Liquid sunflower lecithin contributed to a maple-like color and a slightly nutty aroma.

³0.5% tocopherol is necessary to delay oxidation, and thus, rancidity. The amount of tocopherol per g in the Solgar product was calculated using information on the nutrition facts panel. The tocopherol in this product is suspended in vegetable oils; these oils must be listed on the product label. To account for the oils in the Solgar product, the amount of sweet almond oil was reduced in the formulation to maintain the ratio between liquid and solid ingredients and thus preserve the final texture.

Directions

Wear heat resistant gloves, or use potholders when handling hot vessels. Wear sterile nitrile gloves when handling the lip balm tubes during the set-up and cool-down phases.

1. Prepare the lip balm filling tray(s) by placing upside down on a clean, dry surface and inserting the empty lip balm tubes into the back of the tray(s). Keep tray upside down until ready for filling to prevent dust or debris from getting into the lip balm tubes.
2. Weigh out each ingredient using a scale with precision to 0.1g.
3. Heating, melting, and combining the ingredients.

Heating Method 1 – Double Boiler (preferred)

Add all ingredients to a double boiler, or melt the beeswax alone first to reduce the time that the other ingredients are exposed to heat. Heat until all ingredients are melted, stirring to homogenize the mixture. A thin layer of small bubbles may appear on the surface of the liquid towards the end of heating. The tiny bubbles suspended in the liquid may be mistaken for small, un-melted pieces of beeswax. Use a thermometer to ensure that the mixture has exceeded the melting point of beeswax.

Note: Before pouring the melted lip balm mixture, be sure to wipe dry any water on the outside of the pot.

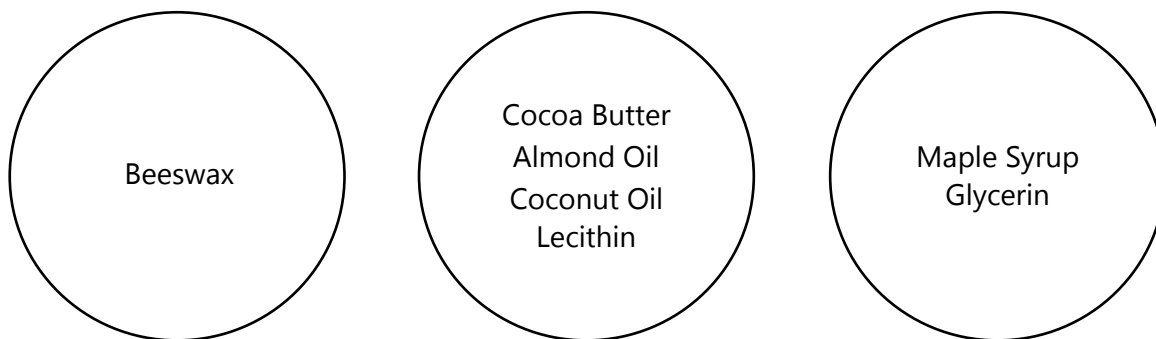
Heating Method 2 – Microwave

Heat ingredients in microwave safe containers, preferably sturdy glass like lab-grade Pyrex with an easy pour spout. Heat the ingredients in three separate groups: 1) beeswax alone, 2) the fats (cocoa butter, almond oil, coconut oil, lecithin), and 3) the syrup and glycerin (see diagram below). Microwave the syrup in short bursts, paying close attention to avoid a boil over. If all the ingredients are heated in the microwave together in one container,

the maple syrup is very likely to cause a boil over. Use a thermometer to ensure that each group of ingredients is above 160 °F before combining them into the largest container with a pouring spout. Avoid pouring all 3 into a fourth larger container that has not been warmed – the ingredients will cool and solidify on the sides of the container.

Add the Liquid Vitamin E to the warm mixture once thoroughly combined.

Diagram showing 3 groupings of ingredients for microwave steps:



Note: the melting point of beeswax is 144 – 149 °F. Use a laser thermometer to ensure that the temperature is above this melting point before pouring. The hotter the melted ingredients, the more working time you have before the mixture begins to solidify.

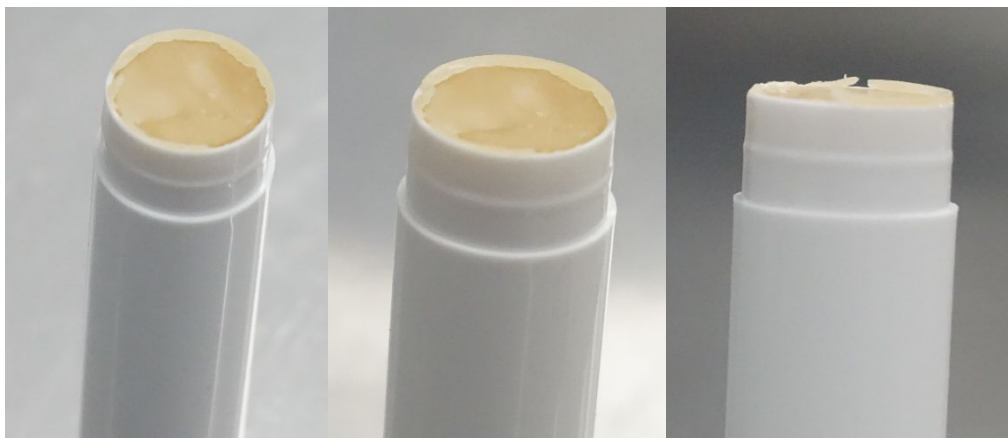
4. Pour into lip balm tubes. Tap the lip balm tubes on the counter to eliminate air bubbles. Work quickly to avoid air pockets due to layers solidifying before the tubes are filled.

5. Allow the lip balm to solidify, protected from dust, before removing excess lip balm from the surface of the filling tray. To remove, Use the scraper that came with your lip balm filling tray, or a bench scraper. You can save any extra lip balm from this step in a sealed jar in the fridge to add to future batches.



6. Turn the filling tray over on a clean surface and remove the lip balm tubes. Using a slight twisting motion can help make removal easier, and help to prevent damage to the smooth tops of the lip balms.

7. Before capping each lip balm tube, you may want to adjust the look of the top of the balm. Some makers cut the tops off of the balm with a knife so that it is flush with the top of the tube. Another method is: using a fresh pair of nitrile gloves, run a gloved finger around the edge of the top of the balm to gently melt or remove any loose pieces from the edges. Do not use a latex gloves; consumers with latex allergies could have a reaction to any product handled with latex gloves.



A lip balm that had its smooth surface disturbed during removal from the filling trays. Some makers consider this an unsightly defect and choose to correct it before capping the tubes.

8. Carefully cap each lip balm. Remove any balm residue on the outside of the tubes with a paper towel before applying labels which will not stick to an oily surface.

Clean Up

Spills on the counter are a breeze to clean – simply wait for the spilled lip balm to harden, then scrape it off with a bench scraper and throw it in the trash. If any residue remains, soap and water will remove it.

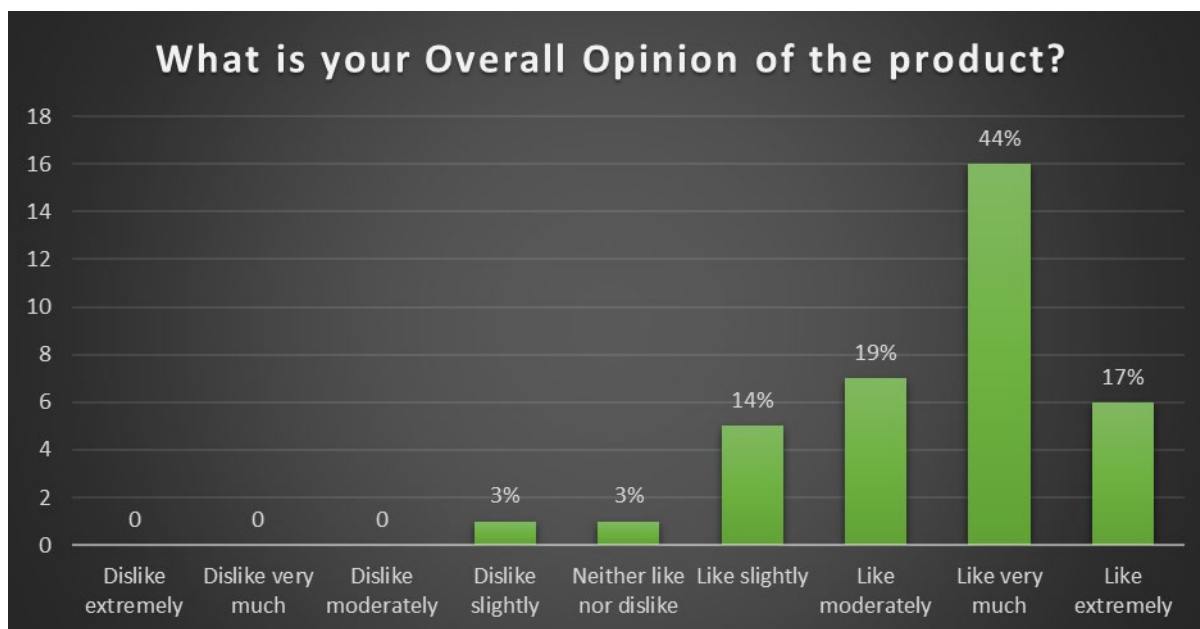
However, the shape of the tube filling trays makes them more challenging to clean. Because of the small nooks and crannies where lip balm can solidify, scraping it off after hardening is impossible. Though fats are usually easy enough to remove with soap, the wax in the mixture makes an overnight soak in soapy water ineffective.

One effective method for handwashing is using baking soda paste. Make the paste by adding a small amount of water to the baking soda. The paste should be thin enough to spread, but thick enough to adhere to the filling tray. Spread the paste all over the surface of the lip balm filling tray and use it to fill the slots for the individual tubes. The paste can then be left to dry overnight, and popped out of the slots taking the wax along with it. Or it can be used to scour the tray with a gloved hand while it is still wet, alternating between a soapy sponge and more baking soda paste. You may want to have a decent bottle brush handy that can fit in the slots for the lip balm tubes.

Market Testing

The formulation in the recipe above was used for market testing at Cornell University. This iteration of the Maple Lip Balm which contained glycerin was very well received by students at an on-campus event. Of 36 participants, 94.4% liked the product overall. The

only two respondents who did not like the product were infrequent lip balm users. The bar chart below shows the results of this market testing.



Though the product's aroma was not assessed by the consumer survey, several respondents shared that they liked how the product smelled. The aroma of this product can be attributed to the unrefined ingredients used with naturally occurring aromas. Substituting these ingredients with refined types will change the final aroma of the product, and may change how the product is received by certain consumers. Instructions for scenting and flavoring this product with artificial maple fragrances / flavor oils can be found in the **Maple Skin Care and Bath Products Notebook**.

Producing lip balm for sale requires compliance with federal regulations. For cosmetics regulations pertinent to lip balm, including labeling requirements, safety requirements, and small business exemptions, please read the **Lip Balm Regulatory Information** bulletin at www.cornellmaple.com.

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