



CopeSoap

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We chose the name “CopeSoap” because we feel that it represents our brand best. Health benefits being one of the focuses when creating our formulas, we decided on the name “CopeSoap” based on the ingredients used to create our very first soap (Fresh Peppermint Soap). Peppermint helps with stress relief and has many other benefits that allow consumers to relax, take a deep breathe and cope with any problems/ conflicts/ stresses they may be dealing with.



Snoap

Snoop is a term created to name our winter/holiday themed soaps. It comes from the combination of the words “snow” and “soap”. Our Fresh Peppermint Snoop bar is the very first of this collection. The classic scent and the fun packaging truly allow this snoop bar to live up to its name and the theme of this collection.

# About Our Soap

Our goal as a brand is to deliver products to consumers while keeping their health in mind. We focus on using ingredients that have a beneficial purpose, while also considering the economic and environmental factors of those ingredients. We also use unique and creative packaging to attract potential consumers to our products.

For our soap peppermint soap specifically, we want to provide a sense of warmth and relaxation along with the holiday spirit. We have created a formula appropriate to represent this.

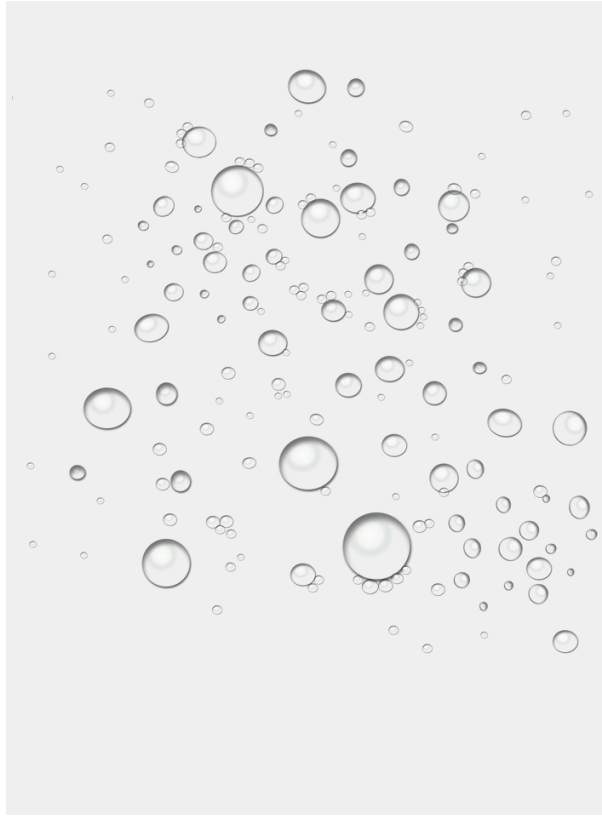
# Cold Soap Process



The fat and oils are combined (usually having a high percentage of coconut oil) and mixed with slightly less alkali than normally used. This is done to leave a small amount of fat or oil that has not reacted as a superfatting agent. The mass is then mixed vigorously in an open container until it begins to thicken, when it is poured into moulds and left to solidify.

We chose to use cold process to make our soap as it is the most practical and simplest saponification process. All other processes require a lot more energy and sophisticated equipment that would take more time than available to create our soap. It is also much easier to make smaller quantities in cold process which was desired for our purposes

# Saponification



Saponification reaction between an organic acid and a base to produce soap (the salt) and water. A byproduct produced in glycerol which can be left in the soap to add natural moisturizing properties. The organic acid is a triglyceride made up of fatty acids from living organisms, in our case all plant based. The base is a lye solution made from dissolving sodium hydroxide in water.

Product Quality

Our soap is made with oils found naturally, either in vegetables or other plants, and are fairly sustainable. The soap itself is aimed to be a hard soap with high cleansing and conditioning properties as well as some creamy and bubbly lather. The bar of soap smells strongly of peppermint and has a nice mixture of red and white colouring.

# Material Selection

The materials we chose for our soap were based on what we wanted our soap to provide and how we wanted to present it. We used sodium hydroxide to make lye because it creates harder soaps than potassium hydroxide. The main oils of coconut oil, crisco, and olive oil were chosen because of the properties they offered to the soap, such as hardness, cleansing, and conditioning and slight creamy and bubbly lather. The peppermint oil and red food colouring were added to make the soap fit a holiday theme. The peppermint oil was chosen for both its scent and health benefits, while the food colouring was added for aesthetics.



# Process Selection

We used cold process to make our soap because it was simpler, more reasonable, and best for the amount of soap we were making. Other processes require more time and complex equipment that would not have been the most appropriate choice for what we wanted to do.

# Ingredients

{Soybean Oil, Hydrogenated Palm and Soybean oils, mono and diglycerides, TBHQ, Citric Acid} (Crisco oil), Water, Cocos Nucifera (Coconut oil), Olea Europaea (Olive Oil), Sodium Hydroxide, Mentha piperita oil (Peppermint essential oil), Red food colouring (water, propylene, glycol, colour, citric acid, sodium benzoate)

# Ingredient Selection

Our recipe was chosen with the goal of providing a seasonal soap that was very cleansing, hard, and conditioning with some bubbly and creamy lather. To accomplish this, we chose to use crisco and coconut as the main oils in our soap. The crisco contributed high conditioning and moderately high hardness and creamy lather, while the coconut oil provided high hardness, cleansing, and bubbly lather with some conditioning and creamy lather. The other oil used in our soap was olive oil because it added high conditioning and moderate hardness and creamy lather. We also chose to use sodium hydroxide to make the lye for our soap because it typically makes soaps that are harder. Another reason behind our oil selection was that all of the oils were vegetable and plant based and are fairly sustainable.



To make the soap seasonal, we decided to add peppermint oil for its association with the holidays, scent, and the properties it provided. Peppermint oil, while known for its fresh, soothing scent, also improves respiration and self confidence. The essential oil can relieve muscle tension, close pores, tighten skin, and, when in combination with coconut oil, can assist in the renewal of skin, like calming sunburns. Another choice was made to add red food dye to the soap to give it some colour and to make it look more seasonal. The soap itself was white, so we folded in the red colouring to give it more of a peppermint swirl and to make it appear more like the candy.

# Mould Selection



We chose to use a pringles can as our mold because it was round and shaped like a peppermint. The coating on the inside of the can also prevented the soap from sticking and allowed for easy removal after it solidified.

Packaging

For our packaging we wanted to minimize cost and make sure it was environmentally friendly and sustainable. Paper bags met all these needs and was very easy to obtain. We decided on paper bags to wrap our soap and a red ribbon tied around the ends to give the appearance of real peppermints.



# Iterations (Previous Formulations)

Ghee oil was considered instead of Olive Oil as ghee provides all soap properties including cleansing and bubbly lather

Olive oil was chosen instead as:

- Olive oil is cheaper
- Our solution already had a lot of solid oils in coconut and crisco oil and we did not want to add another solid
- Olive oil is vegan friendly and would allow our soap to reach a wider target market

Pine oil was considered as our festive scented essential oil instead of peppermint

Opted for peppermint oil as:

- Peppermint oil may appeal to a wider market as some people may find the smell of pine unpleasant and overpowering
- Peppermint oil has more direct health benefits and is more easily accessible
- Peppermint is a more universal holiday smell while pine is too specifically geared for christmas

**Ingredient Data**

Green = Coconut Oil, Blue = Crisco Oil, Gold = Olive Oil

2	Oil Properties									
3	SAP (NaOH)	SAP (KOH)	Hardness	Cleansing	Conditioning	Bubbly Lather	Creamy Lather	Cost per 100 mL	Density	
4	0.183	0.257	79	67	10	67	12	1.63	0.9	
5	0.162	0.227	55	15	22	15	40	1.67	1.0	
6	0.137	0.192	26	0	70	0	26	0.42	0.8	
7	0.133	0.186	22	0	70	0	22	1.86	0.9	
8	0.135	0.19	17	0	82	0	17	0.6	0.9	
9	0.134	0.188	15	0	83	0	15	1.77	0.9	
10	0.137	0.192	14	0	84	0	14	0.27	0.9	
11	0.129	0.181	12	0	88	0	12	0.86	0.9	
12	0.135	0.189	11	0	87	0	11	0.28	0.9	
13	0.133	0.186	6	0	91	0	6	0.21	0.9	

	Mass of NaOH (g)	Mass of KOH (g)	Hardness	Cleansing	Conditioning	Bubbly Lather	Creamy Lather
Totals	15.18238675	21.30417811	42.68729	22.43255	51.04843622	22.43255444	20.2547372
	Recommended Ranges		29-54	12-22	44-69	14-46	16-48
	Targets		40	20	55	32	28
	Objective Function		181.1841				



# Soap Calculator

Values obtained from the initial soap calculator were present in the final soap recipe with only slight amendments made

### Amendments:

- Initial recipe was composed of 55g of Crisco with only 1g of peppermint oil per 100g of oil
- Would have resulted in only 5g of peppermint oil in the final soap solution

17	Final Solution			Final Cost/100ml	
18	Coconut Oil, 76 deg	33%	33	\$	1.29
19	Crisco, old	55%	55		
20	Olive Oil	11%	11		
21	Peppermint Oil	1%	1		
22	Total	100%	100		

Upon further research of the use of essential oils in soap, we decided to double the amount of peppermint oil to ensure the smell came through

- Final solution contained 10g of peppermint oil
- The extra 5g of peppermint oil was compensated for by reducing the total value of Crisco oil from 275g to 270g
- Original sodium hydroxide value obtained through soap calculator was 76g
- 95% of the calculated sodium hydroxide was used instead
- 72.2g NaOH final recipe

Economics

Cost for 100g Oils

\$0.58/33g Coconut oil

\$0.28/54g Crisco Oil

\$0.07/11g Olive oil

\$0.74/2g Peppermint Oil

=\$1.67/100g Oil

\$0.43/14.25g NaOH

\$0.28/2g Red Food Colouring

Cost to manufacture 100g of soap is \$2.05

Profit margin of about 80% gives a market price of \$3.69 per  
100g of soap

40g of soap costs \$1.50