Soap Making Oil Chart

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Base Oil, Butter or Fat	Soft, Hard or Brittle	Properties in Soap	Recommended Usage	Breaking the Rules & Other Notes
Coconut Oil - Learn more about coconut oil in soap making.	Hard	Abundant lather, large fluffy bubbles, high cleansing, hard bar, white color	15-50%	High amounts of coconut oil can be drying, however you can always use a higher superfat to counteract the drying effect. The more un-saponified oils in your soap the more moisturizing it is. Experiment with a 100% coconut oil soap with a 20% superfat.
Palm Oil	Hard	Mild stabilizing lather, hard, long lasting bar	25-50%	Palm oil is great for those that don't want to use animal fats such as lard or tallow. I personally do not use palm oil because of the environmental effects of producing it.
Olive Oil - Learn more about olive oil in soap making.	Soft	Low slippery lather, almost no bubbles, low cleansing	25-80%	The low cleansing properties of olive oil make it very mild and nourishing. Soap for sensitive skin, elder skin or baby skin should include high amounts of olive (60%). Castile soap is made with 100% olive oil. I classify this as a soft/hard oil because it makes a very soft bar of soap initially upon unmolding but cures into a rock hard bar. Soaps high (50%+) in olive oil need longer to cure and unmold.
Lard	Hard	Mild stabilizing creamy lather, hard, white bar	25-50%	100% lard soap with no superfat makes great laundry soap.

Base Oil, Butter or Fat	Soft, Hard or Brittle	Properties in Soap	Recommended Usage	Breaking the Rules & Other Notes
Tallow (beef)	Hard	Mild stabilizing creamy lather, hard, white bar	25-50%	100% tallow soap with no superfat makes great laundry soap.
Babassu Oil	Brittle	Similar to coconut oil, large fluffy bubbles, high cleansing but a bit milder than coconut oil, white color	15-30%	Babassu oil is a great oil to use in place of coconut oil for those that have a coconut allergy.
Palm Kernel Oil	Brittle	Similar to coconut oil, large fluffy bubbles, high cleansing but a bit milder than coconut oil, white color	15-30%	Palm kernel oil is a great sub for coconut oil. You can also use it with coconut oil to add some hardness to your bar. If you have a recipe that calls for 20% coconut oil…try using 10% coconut oil and 10% palm kernel oil.
Cocoa Butter	Brittle	Mild stabilizing lotion-like lather, hard, long lasting bar	5-15%	You can experiment using cocoa butter and other butters in high amounts – up to 80%. Try a bar made from 60% cocoa butter and 40% coconut oil. You might like it!
Shea Butter - Learn more about shea butter in soap making.	Hard	Mild stabilizing lotion-like lather, medium hard, long lasting bar	5-20%	Same as cocoa butter. I typically use 5-15% but occasionally will experiment with using up to 20%.
Mango Butter - Learn more about mango butter in soap making.	Hard	Mango butter helps with the hardness of the soap, and it adds luxurious conditioning and moisturizing values as well.	5-20%	I typically use 5-15% but occasionally will experiment with using up to 20%.
Castor Oil	Soft	Boosts lather by making a soap more easily dissolved in water	5-10%	Some soap makers like to use 15-20% castor oil in their shampoo bars or shaving bars.

Base Oil, Butter or Fat	Soft, Hard or Brittle	Properties in Soap	Recommended Usage	Breaking the Rules & Other Notes
Apricot Kernel Oil	Soft	Medium lather, mild cleansing	5-12%	Apricot Kernel is a wonderful sub for some of the olive oil in a recipe.
Avocado Oil - Learn more about avocado oil in soap making.	Soft	Medium lather, mild cleansing	5-12%	Avocado oil is a wonderful sub for some of the olive oil in a recipe. It is high in vitamin E and other vitamins and minerals making it a great addition to facial bars or bars for elder skin.
Jojoba Oil	Soft	Stabilizes and suspends lather	5-8%	Jojoba oil, a liquid wax, can kill lather when used in high amounts. Keep below 8%.
Sunflower Oil	Soft	Medium lather, mild cleansing	5-12%	Sunflower oil is a wonderful sub for some of the olive oil in a recipe. Use high oleic sunflower for a longer shelf life.
Grapeseed Oil	Soft	Medium lather, mild cleansing	5-12%	Grapeseed is a wonderful sub for some of the olive oil in a recipe.
Hazelnut Oil	Soft	Medium lather, mild cleansing	5%	Hazelnut is a wonderful sub for some of the olive oil in a recipe.
Hemp Seed Oil	Soft	Medium lather, mild cleansing	5%	Hemp Seed is a wonderful sub for some of the olive oil in a recipe.
Safflower Oil	Soft	Medium lather, mild cleansing	5-12%	Safflower oil is a wonderful sub for some of the olive oil in a recipe.
Soybean Oil	Soft	Medium lather, mild cleansing	5-12%	Soybean oil is a wonderful sub for some of the olive oil in a recipe. UPDATE: I quit using soybean as it is the only oil that I got rancid soap with.
Rice Bran Oil	Soft	Medium lather, mild cleansing, gives soap a sheen making it look less dull	5-12%	Rice Bran oil is a wonderful sub for some of the olive oil in a recipe.
Almond Oil, sweet	Soft	Medium lather, mild cleansing	5-12%	Sweet Almond oil is a wonderful sub for some of the olive oil in a recipe.

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Soft, hard and brittle? What does that mean?

- **Oils, fats and butters are generally classified as soft, hard or brittle.** You'll see that I did so in the soap making oil chart.
- **Soft oils** are generally oils that are liquid at room temperature such as olive oil, castor oil, sweet almond, rice bran…etc. As a general rule, soap made from a high percentage of these oils will be on the softer side. The only exception to this rule is olive oil. Soap made from a high percentages of olive oil is soft upon un-molding but will cure to be a really hard bar of soap.
- **Hard oils** are oils, fats and butters that are solid but scoopable at room temperature such as palm oil, lard, tallow, coconut oil, mango butter and shea butter. Hard oils make a hard bar of soap.
- **Brittle oils** are oils that are solid at room temperature but require some chipping at or a bit of elbow grease to break them up. These generally include palm kernel oil and cocoa butter. Brittle oils make a hard bar of soap.

Here are some general rules when talking about soft, hard and brittle percentages in your recipe.

Hard and Brittle Oils

- Soap made with higher percentages of hard and brittle oils will be easier and quicker to un-mold. These soaps set up quickly and harden faster than soaps made with high percentages of soft oils. Recipes high in hard or brittle oils can be hard to swirl or do advanced designs with that take time as the soap can set up too quickly.
- Recipes high in hard and brittle oils make un-molding soap easier in single cavity molds.
- Soap made with higher percentages of hard and brittle oils will require higher temps when mixing. If you soap at too low of a temperature you can get what is called false trace. This is when the solid and brittle oils

start thickening up/re-solidifying because of the low temperatures. It looks similar to trace so you might end up pouring your soap before you reach trace. Keep the oil temps in the range of 100-110 F.

Soft Oils

- Soap made with high percentages of soft oils tend to be softer and stickier when un-molding. Simply leave them in the mold a day or two longer before un-molding and cutting. If you are using single cavity molds, you can try freezing them to harden and hopefully the soap will pop out easier.
- Soap made with soft oils, especially olive oil, is slower to trace and setup. This makes them perfect for swirling. You have more time to color and play with the soap batter.

Below is our Fatty Acid Profile Chart. Knowing your fatty acid profiles can help you better formulate and substitute oils.

Fatty Acid Profiles

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Base Oil	Lauric	Myristic	Palmitic	Stearic	Ricinoleic	Oleic	Linoleic
Coconut Oil	49	19	9	3	0	8	2
Babassu Oil	50	20	11	4	0	10	0
Palm Kernel Oil	49	16	8	2	0	15	3
Palm Oil	0	1	44	5	0	39	10
Castor Oil	0	0	0	0	90	4	4
Sal Butter	0	0	6	44	0	40	2
Kokum Butter	0	0	4	56	0	36	1
Shea Butter	0	0	5	40	0	48	6
Cocoa Butter	0	0	28	33	0	35	3

Base Oil	Lauric	Myristic	Palmitic	Stearic	Ricinoleic	Oleic	Linoleic
Mango Butter	0	0	7	42	0	45	3
Tallow (Beef)	2	6	28	22	0	36	3
Lard (Pig)	0	1	28	13	0	46	6
Avocado Oil	0	0	20	2	0	58	12
Emu Oil	0	0	23	9	0	47	8
Neem Oil	0	2	21	16	0	46	12
Rice Bran Oil	0	1	22	3	0	38	34
Canola Oil	0	0	4	2	0	61	21
Almond Oil, Sweet	0	0	7	0	0	71	18
Apricot Kernel Oil	0	0	6	0	0	66	27
Olive Oil	0	0	14	3	0	69	12
High Oleic Sunflower	0	0	3	4	0	83	4
Jojoba Oil	0	0	0	0	0	12	0
Macadamia Nut Oil	0	0	9	5	0	59	2
High Oleic Safflower Oil	0	0	5	2	0	77	15
Soybean Oil	0	0	11	5	0	24	50
Cottonseed Oil	0	0	13	13	0	18	52
Grapeseed Oil	0	0	8	4	0	20	68
Hemp Oil	0	0	6	2	0	12	57
Sunflower Oil	0	0	7	4	0	14	70
Safflower Oil	0	0	7	0	0	15	75

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Below is our Fatty Acid Properties Chart.

Fatty Acid Properties in Soap

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Fatty Acid	Shelf Life	Cleansing	Lather	Primary Oils	Se
Lauric Acid	Long	High	Abundant fleeting lather	Coconut Oil, Palm Kernel Oil, Babassu Oil	No
Myristic Acid	Long	High	Abundant fleeting lather	None	Co Ba
Palmitic Acid	Long	Medium	Stabilizing, creamy	Palm Oil	Ta En Br
Stearic Acid	Long	Low	Low, creamy	Sal Butter, Kokum Butter	Sh Ma
Ricinoleic Acid	Long	Low	Low, creamy, boost lather because of solvent properties	Castor Oil	No
Oleic Acid	Medium	Low-Medium	Conditioning lather	Shea Butter, Cocoa Butter, Mango Butter, Lard, Tallow, Avocado Oil, Emu Oil, Rice Bran Oil, Canola Oil, Sweet Almond Oil, Apricot Kernel Oil, Olive Oil, High Oleic Sunflower Oil, High Oleic Safflower Oil, Jojoba Oil, Macadamia Nut Oil	Pa Co Oi
Linoleic Acid	Short	Medium	Conditioning lather	Soybean Oil, Cotton Seed Oil, Grapeseed Oil, Sunflower Oil, Safflower Oil	Ri Sw Ke
Linolenic Acid	Short	Medium	Conditioning lather	None	He

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