

Making skin like silicone

As used in JO sleeves or non-penetrating penis prosthetics. More info coming soon to:

<https://github.com/MikesMachines/SiliconeToys>

Introduction

This information is not a supplement for manufactures directions. There are two main goals – first, to share lessons I’ve learned for new, inexperienced users. Second, hopefully some new information for experienced people trying to get a result closer to skin. My experience in this field is quite limited. I’ve never vacuum degassed, created a mask mold, or many other things that experienced users are familiar with. I’ve only focused on making silicone as skin like as possible and 3d printed molds for fun JO sleeves / prosthetics.

All that is being cast here is a thin, flat slab of skin. Details on all the various materials and methods to make molds is beyond the scope, although I will post some STL files for molds I print soon.

I’ve divided out the materials in two parts. First, the basic materials that are needed to cast a soft silicone that is as close as I can get to skin in a single step. The result has a shine and some tack left. Second are the materials needed to dull the surface and remove the excess tack that Slacker brings. It gives a touch as close to skin as I have been able to create. The surface has less stickiness to it so it stays clean and won’t stick to itself.

If you live in an extreme heat area, have caution when ordering online during hot months – or at least be ready to return items. A product can be sitting for hours in the back of a truck while on route the day of delivery. Silicone (unlike chocolate for example) can be affected in ways you might not notice at first. It might just be a bit thicker etc. or the shelf life might be reduced. What works perfectly for the first cast might not cure a few weeks later.

Review the effects of Slacker on different silicones at:

<https://www.smooth-on.com/products/slacker/>

Shore hardness scale (A10 is rather close to 00-50):

<https://www.smooth-on.com/page/durometer-shore-hardness-scale/>

IMPORTANT

DO NOT USE ANYTHING LABELED FAST until you have some experience. The faster the pot and cure times, the less forgiving it is. Environmental variables like temperature and humidity might not make a noticeable impact when you have several hours of cure time, but may leave a pile of slop using Ecoflex 00-35 FAST which has a **5-minute cure** time. You might not notice if the specified pot life of 20min goes to 10min, but when the 8 min pot life of Dragon Skin 10 Fast goes to 4min, you will join the negative reviews saying that it set up while mixing.

Materials

The materials here are only the ones I have experience with. There are other manufactures making high quality silicones. The base materials are used for casting a soft, close to skin like silicone. The end result will have a shine and bit of tack that detracts from actual skin look and feel. The finishing materials are used to matte the surface and remove the tack.

In general, it is not a good idea to combine different silicones to achieve a desired cure time or hardness. There are additives that can negatively impact results. If you're goal is a hardness of 00-50, use Ecoflex 00-50, not some combination of Dragon Skin 10 NV and Ecoflex 00-35 FAST.

Base Materials

Smooth On Eco Flex 00-50 – trial kit

- You can use Dragon Skin 10 Medium or Eco Flex 00-30 also. Most people seem to prefer EcoFlex 00-30, however I like 00-50 the best. 00-30 ends up a bit too soft / delicate for me, but this is just personal preference. Much comes down to the amount of Slacker you add. Slacker gets you a softer end product, but also more tack.

Smooth On Slacker, 1 pint trial

- Slacker is added as a ratio to the silicone being used. Review the effects of varying amounts of Slacker on different silicones at: <https://www.smooth-on.com/products/slacker/>

Mixing equipment (the cautious approach)

- Each time you cast, you'll need at 6 mixing sticks and 4 mixing cups. Three of the sticks need to be large (8" or more) to be able to mix material (scraping sides and bottom) inside the original pint containers (A, B, Slacker) before measuring into cups
- Try to get clear, flat-bottomed cups that are close to the desired size but have enough room to mix. I use mostly 100ml and 300ml cups to cast hollow sleeves. Toys that aren't hollow will obviously need more material.

Digital scale - 500g kitchen scale with 0.01g accuracy

- This isn't absolutely required, but for around \$10 on Amazon this will pay for itself quickly. I don't know a way to accurately do very small (20ml) batches without a scale. If a mixing cup has a deviation of 5ml, it will be close to that regardless of how much is being mixed.
- Without a scale you really need clear cups with black gradient lines. With a scale the lines aren't needed so you can get cheaper cups.

Release spray like Mann Ease Release if casting into plastic or silicone.

- If you are casting into an unsealed, PLA 3d printed mold for the first time, using Vaseline diluted with mineral spirits works well. Look on YouTube for specific info.
- Make sure you follow the directions on the release spray. Ease Release gets sprayed on, then brushed into corners for the first coat and let to dry. Then a very fine second coat is added and left for 5 min to dry.

Optional - Silicone pigments like Smooth On Silc-Pig Silicone Pigments or SAM kits

- Getting silicone to look like skin (of any tone) is far beyond my skills. It needs to be done in layers, getting darker by layer and adding transparent blue and red tones. I'll give some brief tips, but if this is important to you, you should check out Brick In the Yard's special FX videos on you tube.
- Do not use anything else but silicone pigments that are made for silicone. Avoid paints or resin dyes.
- Pigments allow you to know how mixing is going. Even if you don't want color, I strongly suggest using it for your first few times to understand how much mixing is needed.

Finishing / Painting

- SAM Silicone finishing powder (8g should last through 3-4 trial kits of silicone if you are careful)
 - This can be difficult to find and expensive. <https://macphersoncrafts.com/> has a great price (\$35) on 16g. 8g is around \$30.
- A small tray to hold the powder for application as well as catch excess powder that falls off to be reused is very helpful. Digital scales for kitchens often come with the perfect trays for this. This isn't the last time I'll recommend it!
- Silicone solvent or thinner
 - This is used to thin the silicone and apply the finishing powder. You really don't need much at all. Maybe 30mL per run, which is mostly used to clean the brush. I use mineral spirits which can also be used to scale silicone models (info on YouTube)
- A small, flat paint brush that is not prone to shedding its bristles.
- A puffy makeup brush – the kind used to apply powder
- Smaller mixing cups (30 or 60mL) - Much less silicone is required for painting than casting

Materials and info for making molds

- You can use a small piece of foam board with edges cut and folded up into a tray. This is a great way to test out ratios etc as it doesn't any mold making silicone and little casting silicone. You'll see the stretch, color and feel without needing to go thru the whole process of making a mold that is safe to cast platinum silicone in.
- There will be links to molds I use for sleeves etc. where this doc was found, or just get on the Kinky Makers discord, which has plenty of people far more experienced than me.
- To remove soft silicone from complex molds, where the silicone is pulled over itself, a liberal amount of Fumed Silica powder or talc can be brushed on both the silicone and mold to eliminate it sticking to the mold or to itself. SAM finishing powder is too expensive and provides no benefits beyond the cheap stuff.

If you need to find the volume of silicone needed in a mold, fill the mold with something like small grained rice. Measure it on the way in, or (I prefer) once the mold is filled dump it into a cup to measure or weigh. I have used water with some 3d printed plastic molds, but PLA is porous and it must be completely dry before spraying with release agents. You can seal PLA with something like XTC-3D, which will both seal and make the part exceptionally strong, but XTC-3D does require a release agent.

Troubleshooting

The reason this section is at the start is to show some common issues you can prevent. Minimize the risks until you know what works. Don't do your first run with a large, complex mold that requires vents. Keep it simple and small to start. And then minimize the changes introduced. When multiple things are changed and there is a failure, it can be hard to know what happened.

LEAVE SOME OF THE MIXED SILICONE IN THE MIXING CUP AFTER POURING! It doesn't need to be much – just a few ml is fine. The silicone in the cup same cures the same as in the mold so you will know when it is cured. It also will provide valuable troubleshooting info if things go wrong - if it cured in the cup but not the mold you know where to start looking.

Troubleshooting steps

If silicone in cup is cured but silicone in the mold is not cured

1. Wait at least 2 times the recommended cure time.
If this works, it is likely you put too much release spray in the mold or that it didn't have enough time to dry. Verify directions before trying again.
If the silicone in the mold is still not cured, check for any possible contaminates introduced after mixing. What is in the mold that isn't in the cup?
 - From Smooth-On: Latex, tin-cure silicone, sulfur clays, certain wood surfaces, newly cast polyester, epoxy or urethane rubber may cause inhibition.
 - Latex can be in gloves or brushes
 - A mixing stick that was reused, or anything that could have altered the A:B ratio. If you use the mixing stick you used for part A in the final cup, you are adding a slight amount of A to the mix. Same with reusing cups. The smaller the batch the bigger the problem.
 - Take a look at the silicone left in the A and B mixing cups after they were combined in a new cup.

If silicone in cup and mold not cured

1. Use a scale. It is very difficult to be accurate eyeballing tiny marks on plastic cup.
2. Verify that you have a total of 3 mixing cups used. If you don't, you didn't mix correctly
3. Verify that you have at least 3 mixing utensils / sticks. Again, if not, you didn't mix correctly.
4. Use 'diagnostic' pigment to ensure proper mixing. Forget flesh tones. Use yellow in part A and blue in part B. There needs to be a completely uniform color in each before combining and again after combining before pouring.
5. Is everything appropriate for casting silicone?
 - a. Silicone pigments cannot be for paint, resin, or anything other than silicone.
 - b. Do not use silicone utensils to mix
6. Check temp and humidity for both casting and storage
7. Check date on product for shelf life and expiration. Silicones should last about 6 months, Slacker around 2 months.

Keep batches small until there is consistent success. Here are some tips:

1. Following the same process outlined below, scale it down to about 10-20 grams each of A and B.

If Slacker might be a cause (it can have a shorter shelf life) just leave it out or add no more than ½ part (10g A : 10g B : 5g Slacker)

2. Using a toothpick, add a dab of yellow pigment to A and mix until the color is completely uniform with no streaks.
3. Using a toothpick, add a dab of blue pigment into B and mix until uniform.
The goal with color here is to ensure each part is mixed by itself and then mixed together. It can be hard to see unmixed silicone when it is translucent. You could make Part A opaque with white and B with a dark color also.
4. Add A, B, and Slacker if used into a new mixing up. Scrape the sides and bottom of each and do not let the mixing sticks cross contaminate each other.
5. Using a new mixing stick, mix everything until completely uniform, no less than 3 minutes.
6. Pour some on the surface of the mold, leave a bit in the cup.
7. Go do something nice for the universe to earn some karma while it cures.
8. If none of this batch cured – on the mold or in the cup make sure the dates – check the dates on the silicones, make sure that the original pint contains for both A and B are free from lumps, contaminates etc. Focus on the very bottom – the consistency should be the same at the top and bottom. Try again with 0 slacker, or take a break for a year as I did until you forget how frustrating the process can be 😊

Instructions

These instructions might seem silly, but they are provided to highlight potential failures. I have shaky hands and always end up with silicone in places I don't want. It isn't just an inconvenience. If I don't make sure the containers are clean, I find tiny chunks of silicone around the openings or even under the lid. These little contaminates reduce shelf life at best and cause curing problems at worst.

The vast majority of the process is mixing. Mixing things already mixed before more mixing. It seems excessive, but it really needs to be followed to be consistently successful, especially with additives like Slacker.

Part 1 – Mixing and Casting

1. Layout your workspace with everything you need. This might take much longer than expected the first few times. You don't want it to interfere with pot life.
 - a. Use the packaging everything came in on top of your workspace - under all the bottles, cups, scale etc. so you can toss it when done. The stuff that spills rarely sets and is a pain to clean off most surfaces.
 - b. You'll need 4 mixing cups. The cup size depends on the volume of silicone used. 60ml and 300ml cover many smaller sized casts. For multiple casts, it's worth the effort to design an efficient mold. Silicone is strong and flexible; you rarely need anything more than several millimeters thick.
 - c. 6 mixing sticks. Three need to be large enough to mix inside the pint size containers of Part A, Part B and Slacker. It can be very helpful to label one cup and one stick Part B. Part A will be pigmented and the other is Slacker so you'll know what's in/on the cups

- and sticks. Note that the yellow slacker bottle looks exactly like part A.
- d. Put an extra set of gloves out. At some point, I seems to stick to everything I touch. That can make accidents easier as well as contaminate clean mixing sticks.
 - e. Have paper towels or rags available to wipe off the lids, mouths etc of the silicone containers. This stuff can setup on openings; you really don't want chunks on the rim falling in when you open it.
 - f. Set out the pigments. Using finish nails or toothpicks, I get dabs of Silc-Pig colors, White, Flesh, Brown, and Red and then stick the nails in some foam board. If the pigments appear separated in their containers, mix them around with the toothpick first. All pigments are strong, but the red one seems to take over everything, use the smallest possible amount of that. SAM liquid pigments use dropper bottles that have a metal ball inside. Just shake vigorously and use 2-3 drops at a time until you find a good formula. I haven't had much success finding a good tone with them yet. If I'm using release spray, I set out my colors after applying the first coat.
2. If using a release spray, follow the instructions as needed. For Ease Release this usually is to apply a first coat on the mold and use a foam brush to make sure all angles and corners have been covered and let it dry. Apply a very fine second coat and let dry for 5 min. The release spray is not like WD-40 where it doesn't hurt to have extra. Too much or not allowing it to dry will inhibit curing.

This deviates from Smooth-On's instructions which say to premix part B for 3 minutes first. Their videos show premixing part A before measure into a cup followed by the same for Part B.

3. With gloves on, open Part A. Make sure nothing will be falling inside. Take a large mixing stick and start mixing. Scrape the sides and the bottom. Pull the stick up so what's in the bottom gets brought up and mixed in. Keep repeating for at least two minutes. This feels quite difficult when the containers are full.
4. With the A cup on the scale, turn it on, press the tare button to set to 0 if needed. Only measure the silicone being poured, not the cup or any spills. Measure out close to 30g, record the actual measurement.
5. Wipe the Part A container down if anything leaked and put the cap back on tight.
6. Coloring time. Use a new, smaller mixing stick for this step. Add pigment as desired. Start with white to give an opaque base. Add in tiny amounts of one color at a time to get a feel for how they work and interact. After white, I add flesh and brown. Once you have something you like, add the tiniest amount of red possible. It seems to make the base color livelier. The amount really needs to be miniscule. No matter how little you have on the tip of your toothpick, remove some before adding. Brick In the Yard's skin color tutorials help a lot for coloring.

The benefit of coloring is to know when you are done mixing. Keep mixing until you have a completely uniform color with no streaks.

7. This is for slobbs like me - at this point I often need to change gloves as I start sticking to everything I touch. If I grab a new mixing stick with Part A on my gloves, then use it in the Part B container, I might have just ruined the entire container.

8. Put the B cup on the scale and tare to 0. Open part B, and use a new large stick to mix the same way as part A.
9. Measure out the same amount as you did of Part A. Go slowly, be careful of globs coming out. You can do this by volume visually if desired and use the scale to double check – the scale will always be correct. Aim to stop 0.1g less than you did for part A, so any extra just gets you closer.
10. I find no need to color B. Translucency impacts opacity, not color. The final mix will still be completely uniform when complete.
11. Move Part B aside and put the cup for slacker on the scale. Tare to 0 and pour the desired amount. The documentation with Slacker has the details of the different ratios for Dragon Skin and EcoFlex. The softer the silicone you're using, the less Slacker you need. I have found that I prefer the minimal amount of slacker recommended.
 - a. When using Ecoflex 00-50, I use the 100:100:50 Slacker ratio, which means 15g of Slacker when using 30g of A and 30g of B.
 - b. With Dragon Skin 10, I use equal parts A, B, and slacker – 30g each in this case.
12. Using the stick that mixed part A, scrape part A out into a new (likely larger) mixing cup. Get all around the sides and bottom. Pay attention to the color. As you scrape out the bottom, do you see any translucent streaks?
13. Repeat for part B and Slacker. Scrape the cups completely, the sides, the bottom etc. Combining A or B into each other's cup can throw the ratio off. Set the scraped cups off to the side. I have been surprised at how much leftover there is, even after scraping out as much as possible.

Don't panic, but the pot life clock started as soon as A and B touched. Hopefully you did not re-use cups or sticks, otherwise curing started off balance awhile ago.
14. Mix Part A, Part B, and Slacker together for at least 3 minutes. Really work on scraping the bottom and sides. I usually have the cup tilted to ensure the bottom is getting pulled up into the top. Once you have a completely uniform color, keep mixing, focusing mostly on the bottom and sides. Really check to see it is all uniform.
15. When pouring into a mold, you pour into a single area and let the silicone spread by itself. Although bubbles don't seem to be an issue, they can be reduced by pouring slowly from a distance. Trickle out a small stream from the cup about 2 or 3 feet above the mold into the lowest part of the mold.
16. Do not scrape out the cup into the mold. We need a little left to know when it is cured.
17. Slacker increases cure times. After ~3 hours, stick a finger on the remaining silicone in the cup. If it is wet, it needs more time. If it is sticky, try to note just how sticky it is and try again in an hour or so. It can be somewhat tricky to tell when it is ready, as Slacker can make it sticky. If 3 additional hours go by and the stickiness remains the same, pull out the silicone that was left in the cup. It should come out as a single piece, fairly easily. It might be surprisingly solid, yet feel rather sticky. If it is runny at all, it is not cured yet. Wait 24 hours max, checking occasionally. After 24 hours, if it isn't cured, it won't cure (on its own anyway, heat might help but that's a separate topic)

18. Pretending this is a complex mold, you need to be very careful removing it. Get a bunch of fumed silica or talc, put a few tablespoons into a tray. Using a makeup brush, breakup any clumps before applying. Powder the backside of the silicone between it and the mold so it doesn't stick to itself or the mold. The difficulty is directly related to how soft it is how much Slacker was added and the steepness of angles. Be slow and patient, however you'll be surprised at just how hard you can pull as long as you do not tear it. Once it tears, it will tear extremely easily.
19. Now you have it completely removed from the mold. Let it sit overnight to ensure it is fully cured.

Part 2 - Finishing

1. Wash the silicone with soap, pat dry with a clean towel.
2. Get your workspace ready. You'll need Part A and B, mineral spirits, 4 small mixing cups, 3 mixing sticks, a thin flat paint brush, a puffy makeup brush, a small tray with a teaspoon of SAM powder which will also be used to catch the excess powder falling off during application.
3. Measure out about 30ml of mineral spirits (can use Naphtha etc.) in a well-ventilated area in a small cup.
4. Following the same mixing process, measure out 10ml of Part A and 10ml of Part B. If desired, you can add a small amount of pigment to A, but the overall mix should be translucent.
5. In a new cup, put about 5ml of mineral spirits. Add Part A to this and mix until uniform.
6. Add Part B and mix again until uniform. The result should have a consistency thicker than water but thin enough to drip off the brush. The mineral spirits are evaporating so this isn't exact – it really doesn't need to be. Be very careful adding solvents / thinners to silicone. While any causes increased cure times, too much will prevent it from curing at all.
7. With the silicone clean and dry, use a small, flat brush, to apply a coat of the thinned silicone. As stated, it should be slightly thicker than water, thick enough to stay in place, thin enough to drip if there is too much in one place.
8. Use the extra mineral spirits to thin out areas on the silicone as needed, dilute the silicone 'paint' more, and when complete, clean the brush used to paint on the silicone.
9. With the coat applied but not dry, push the puffy makeup brush into the tray with SAM powder. Tap a few times in a clear part of the tray to get excess off. Apply the powder in small jabs. Do not paint it on with strokes – jab it directly on and off so it doesn't smear. It is important the silicone coat is very thin to avoid streaking. If you notice excess, use a clean, dry foam brush to remove (or sponge, but latex is often a problem)
10. Let it cure – just like before the leftover in the cup will tell you its done. Wash the powder off with soap and water. The silicone should now be matte with little to no stickiness or shine to it. You can repeat this process as needed to fix any mistakes. Finishing powder needs to be the final step – applying any silicone paint on top will bring back the shine. The soft, matte texture is partially

created by tiny divots that don't directly reflect light formed when the powder is washed off.