

Formulating With SCI

[Sodium cocoyl isethionate](#) (SCI for short) may sound like a hectic chemical but it is actually a wonderfully versatile and naturally derived surfactant from coconut sources.

(If you don't know what surfactants are and would like to learn more please read here: [Beginner's Guide To Surfactants](#))

One of the most important things about SCI is that it is a solid surfactant, which means it gives hardness and structure to products such as shampoo and conditioner bars, body wash bars and syndet bars. It can also be used in products such as washing powder, powder cleansers, etc.

The only drawback of SCI is that it comes in a flake form which you need to powder before melting otherwise it will take an unreasonably long time to melt. More on this later.

Properties Of SCI

SCI is an anionic surfactant, meaning it is negatively charged. It therefore may interact with cationic (positively charged) ingredients so it is best to avoid them, although in solid products such as bars these interactions don't tend to occur.

It is high foaming and tolerant of hard water conditions which makes it great in all kinds of bars.

pH

SCI has a pretty nice-for-skin pH of around 5-6, and like other surfactants it can be adjusted up or down with acids or bases depending on requirements.

Solubility

Being a surfactant, SCI can work with either oil based or water based ingredients.

ASM and Usage Rate

SCI is a strong surfactant with an active surfactant matter of 87%. If you want to learn about ASMs please read this: [Beginner's Guide To Surfactants](#)

Being this strong it has usage rates as follows:

In rinse off products (shampoo, conditioner, cleanser, scrub of any kind): 49.87%.

In leave on products: 17%.

Types Of Products That Use SCI

As mentioned above, our SCI comes in flake form but you will never use it like this.

Either you will powder it or melt it, to make a variety of products.

Powder products: powder cleansers, foaming bath powder, in bath bombs to make them extra foamy, in washing powder, certain scrubs etc.

Solid products: shampoo bars, conditioner bars, body wash bars, syndet bars, certain scrubs, whipped soap/foaming bath butter, etc.

How To Work With SCI

Now that we know a bit more about this ingredient, let's get down to working with it. Working with SCI isn't exactly an intuitive process, so here are some instructions:

Step 1: because SCI flakes can be difficult to work with, powdering them is a good idea. You can powder the SCI flakes in a food processor or coffee grinder. Please wear goggles and a mask when doing this as the fine dust from the powder can be very irritating if you breathe it in. Work in a well ventilated area. If your formula calls only for powdered SCI, you are now done with the prep phase.

Step 2: as mentioned above, you can use the powdered SCI for certain applications, but a formula may call for SCI to be melted along with other solid ingredients such as fatty alcohols/acids (stearic acid, cetyl alcohol, cetearyl alcohol), butters (if using), or oils. It can also be melted together with other liquid surfactants.

Being a surfactant it can work with either oil based or water based ingredients as it will combine them in the end.

To melt SCI, add whatever other ingredients you need to use along with the SCI in a beaker and then microwave for short 10 second bursts (you may need even less, depending on your microwave), stirring well in between, until it is fully melted. SCI gets extremely hot and has a high melting temperature of

well over 100 degrees C, so please use beaker tongs, a cloth or oven mitts when handling the beaker. You also need to keep a beady eye on it while in the microwave as it has a tendency to bubble over when very hot. That's why I recommend no more than 10 second heating intervals, so this doesn't occur.

You need to work quickly once it has melted as it will want to re-solidify.

Tips

SCI is an advanced ingredient to work with so be prepared for high temperatures and fast working times. If you are a beginner formulator I don't recommend using it until you are more comfortable.

I recommend including some kind of emollient in a formula containing SCI, otherwise it may be overly clarifying or even a little drying due to its strength. A nice [butter](#) or [oil](#), or a [humectant](#) will help prevent these issues.

Our Favourite Formulas Using SCI

[Whipped Soap Base/ Foaming Bath Butter](#)

[Conditioning Shampoo Bar](#)

[Whipped Foot Scrub](#)

[Powder-To-Foam Facial Cleanser](#)

[Foaming Bath Powder](#)