



Soaping Effect
in Skin Care

RAHN

What Is Soaping Effect?

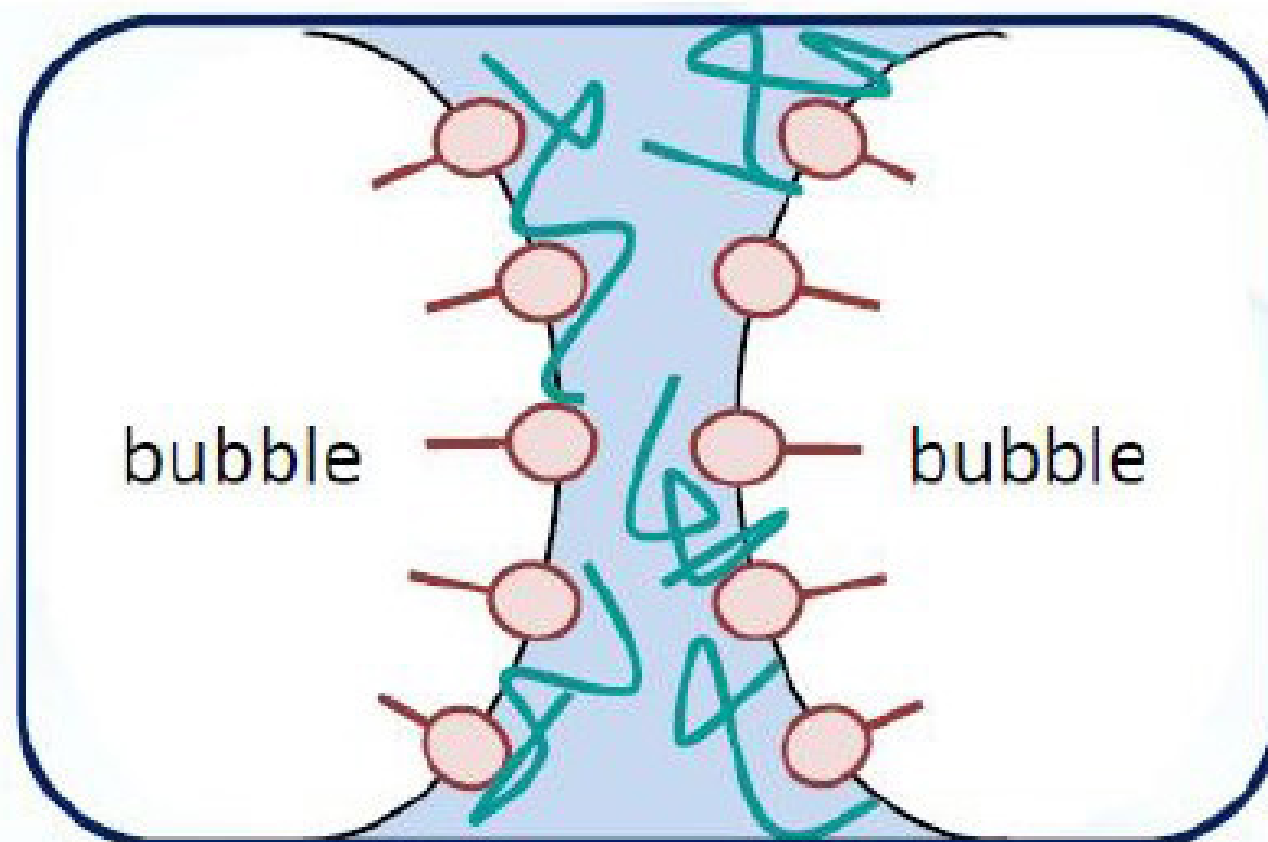
= white “foaming” on the skin during application of a cream or lotion.

It is known, that surfactants result in the formation of foam and they are intentionally used in shampoos, body washes and soap systems to create foam. However, foaming effects while using skin care products are rather unwanted.

The white film rubs off completely and does not affect the effectiveness or the absorption behaviour of an emulsion, but is mostly perceived as visually disruptive.

What is causing it?

- Usually O/W emulsifier molecules build aggregates around oil droplets within an emulsion system.
- If there is an excessive amount of emulsifier available and there is no oil droplet for the molecules left to go, they look out for other space options.
- This could be around air bubbles which are captured within your formulation. Which means these air bubbles will be stabilised. Polymers and fatty alcohols within your formulation can act additionally therefore as a foam stabiliser.



How to get rid of it?

Usually this unwanted effect is eliminated by addition of a silicone oil to the formulation. The silicone oil works in this case as a defoamer. However, as silicones in cosmetic emulsions are not liked that much and are not allowed in natural cosmetics, it is of general interest to find a solution without silicones.

How to get rid of it?

Our lab experience has shown, the main reason for soaping is in general an **excess of emulsifier** within your formulation.

We recommend to **reduce your emulsifier**. As a rough guideline you can use 10 % emulsifier according to your oil phase size. If you do so and your viscosity is dropping, you can adjust viscosity while **increasing your fatty alcohol** content.



A young boy with dark hair, wearing black-rimmed glasses, a white collared shirt, a dark blue sweater, and a red and blue plaid bow tie, is holding a glowing yellow lightbulb over his head with his right hand. The background is a blurred indoor setting.

Do you have a microscope? If yes, it is worth to have a look at your **oil droplet sizes** within your formulation. **Bigger droplets** mean, there is **less space** available for your emulsifier. The **smaller** the droplets, the **more surface options** for your emulsifier are available , which means there is less excess amount.

Another option is trying to **reduce** your overall **HLB value** while combining your **main emulifier** with a **co-emulsifier** with a lower HLB value. In general we can say, the lower the HLB value, the lower the foam tendency.