

Formulating With Caffeine Powder

We all love it in our morning drinks to wake up. Yup, we're talking about caffeine!

Most of us only know caffeine as the kicker in coffee and certain teas, but you can get the concentrated powder for use in cosmetic products too. Caffeine has a couple of interesting benefits in personal care products - let's find out more.

Caffeine is commonly used in eye gels and creams to depuff and boost circulation, leading to a more youthful and brightened look.

Caffeine can promote the dilation of blood vessels and accelerate contraction of striated muscle, giving a more toned appearance and helping improve the appearance of cellulite. It is therefore used in body products to help firm and tone the skin, and improve the appearance of cellulite.

Caffeine has a good ability to penetrate the skin barrier and is a powerful stimulant and circulation booster. It can be included in shampoos and hair products to boost hair growth. Overall, a pretty neat ingredient!

Solubility

Caffeine powder is soluble in water. I like to add it to the heated water phase of formulations.

It is not soluble on its own in oil, so you would require an emulsifier in this case.

pH

Caffeine has a natural pH of about 6, but it is best to reduce the pH slightly to below 5.5.

Ensure that other ingredients and actives in your formula are compatible with lower pH levels.

Usage

The recommended usage rate for caffeine powder is 0.1 – 2%.

If you are sensitive to caffeine then we recommend using it very sparingly or perhaps leaving it out of your formulation altogether. While I haven't experienced any 'caffeine buzz' from using it at 0.5%, it is possible for those who are very sensitive to experience something, so just be mindful of this.

If you are pregnant, we don't advise using caffeine.

How To Work With Caffeine

In water based formulations, add the caffeine directly to the water. Some gentle heat may be required.

In emulsions, add the caffeine to the heated water phase, then process the formulation like normal. Ensure the pH is at 5.5 or below.

It is recommended to add an antioxidant such as tocopherol ([Vitamin E](#)) to prevent oxidation.

Ingredients That Work Well With Caffeine

I like to add a soothing ingredient such as allantoin to products containing caffeine, as this can help to soothe the skin.

Caffeine can work well with most other actives and ingredients, as long as the pH is correct (and therefore those other ingredients should also be effective at that pH). Caffeine is a penetration enhancer, so it can actually assist other actives to get into the skin and be more effective.

You could pair caffeine with other stimulating actives such as [ginseng](#) and [green tea](#) to be more effective.

Typical Products Containing Caffeine

Caffeine is most commonly found in eye gels and creams to depuff, and in body creams. It can also be added to shampoos or leave in hair products.

Caffeine is best used in leave on products, for maximum exposure to the skin.

Formulations With Caffeine

Caffeine Body Serum

Heated water phase

77.5% water / [hydrosol](#) / herbal infusion

0.5% [caffeine powder](#)

0.5% [allantoin](#)

Heated oil phase

3% [Emulsifier HP 30](#)

17% [oil\(s\) of choice](#)

0.5% [Vitamin E](#)

Cool down phase

1% [Geogard 221](#)

Optional: [essential oils](#) for scent.

[Citric acid](#) to lower the pH (only if required)

[Beakers](#)

Scale

Hand/soup blender

[pH test strips](#)

[Spatula](#) to stir with

[Pipette](#) or [serum pump bottle](#)

In one beaker, weigh out the water phase ingredients. In another beaker weigh out the oil phase ingredients. Bring both beakers up to about 70-75 degrees, ensuring everything is dissolved and melted through. Then add the oil phase to the water phase and blend with high shear with 2 minutes until homogenised. Allow to cool before blending in the preservative. Check and adjust the pH to 5.5 or below if required.

More caffeine formulas:

[Active Anti Aging Serum](#)

[Caffeine & Cucumber Under Eye Gel](#)