

# Formulating With Vitamin C

Vitamin C is without doubt one of the most effective skin actives. It has great antioxidant qualities and is a skin brightener and anti ager. Vitamin C is extremely well researched and is known for its efficacy. However you need to know how to effectively use it!

We stock two forms of Vitamin C:

The 'pure' and most bioavailable, but unstable form, L ascorbic acid.

And a Vitamin C ester called ascorbyl palmitate, which is a highly stable and oil soluble version.

There are other forms as well, but there are the two that we stock.

## **Solubility**

Different forms of Vitamin C have different solubilities. Ascorbic acid is water soluble, while ascorbyl palmitate is oil soluble. You will need to take these solubilities into account when formulating with Vitamin C.

## **Usage**

Similarly, usage rates will differ. Ascorbyl palmitate is used from 0.2-2% , while ascorbic acid usage varies from 2% up to 20%+ in extreme cases (however I don't recommend you go higher than 10% without a dermatologist's supervision).

## **pH**

Different forms of Vitamin C have different pH levels and pH requirements. Ascorbic acid being in its natural acid form, needs an acidic environment

## Types of Products

Vitamin C is most commonly found in leave-on products such as serums and moisturisers. I don't recommend using it extensively in rinse-off products as it won't have time to work in the skin.

## Formulas & Working With Vitamin C

Formulating with Vitamin C can be more complex than simply dissolving and incorporating into a formula. Ascorbic acid in particular is highly sensitive to light and oxygen and will oxidise in a short time. If you notice your formulas containing Vitamin C are looking a shade browner with time, then your Vitamin C has likely oxidised and will be ineffective.

Fortunately there are ways to stabilise Vitamin C. L'oreal even has a patent on a stabilisation process involving ferulic acid and Vitamin E to stabilise the Vitamin C.

## Vitamin C Serum

### *Phase 1*

10% [propanediol](#)

0.5% [ferulic acid](#)

71% water

### *Phase 2*

10% [OliveM 300](#)

0.5% [Vitamin E](#)

### *Cool down phase*

1% [Geogard 221](#) / [Saliguard BDHA](#)

7% [ascorbic acid](#)

[Beakers](#)

[Chattaway spatula](#) or silicone spatula

[pH strips](#) or digital pH meter

The order of adding ingredients is important here so please add them in the order listed in the formula.

In a beaker, combine the propanediol and the ferulic acid together, then add the water and mix to combine. Heat this mixture up until the ferulic acid has dissolved.

In another beaker combine the OliveM 300 and the Vitamin E oil.

Add beaker 1 to beaker 2 and mix. It will be cloudy. Allow to cool down to room temperature then add the cool down phase ingredients, one at a time, mixing well. The solution should clear up, and there you have it!

Check and adjust the pH to 3.2 - 3.6, as this is where the Vitamin C works best.

It is advised to store any Vitamin C serum in a dark glass bottle so it is protected from light. I recommend one of [these in a dark colour](#).

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## **Vitamin C Moisturiser**

### *Heated water phase*

4% [propanediol](#)

71.2% water

0.3% [xanthan gum](#)

### *Heated oil phase*

4% [Eco E wax](#)

0.5% [lecithin](#)

1% [cetyl alcohol](#)

15% [oil of choice](#) - jojoba, wheatgerm, squalane are all great choices

0.5% [Vitamin E](#)

2% [ascorbyl palmitate](#)

### *Cool down phase*

0.5% [ferulic acid](#)

1% [Geogard 221](#) / [Saliguard BDHA](#)

[Beakers](#)

[Chattaway spatula](#) or silicone spatula

[pH strips](#) or digital pH meter

In one beaker, create a slurry with the propanediol and the xanthan gum, then add the water and mix well.

In another beaker add all the oil phase ingredients and heat until thoroughly melted through, about 70-75 degrees.

Bring the water beaker up to the same temperature as the oil, then pour the oil beaker into the water beaker and homogenise with a stick/soup blender until an emulsion forms. Stir while cooling down then add in the cool down phase ingredients and give another quick blitz with the blender to incorporate.

Decant into a serum pump bottle and enjoy!

I like to layer the serum and moisturiser together at night for maximum benefits.