

STAY-C® 50

Powerhouse ingredient for anti-ageing and radiance products

CHARACTERISTICS

Introduction

STAY-C® 50 is the sodium salt of the monophosphate ester of ascorbic acid. It is used as a stabilized source of Vitamin C in cosmetic products. STAY-C® 50 has an anti-aging, anti-oral bacteria, skin lightening and anti-acne activity.

Composition

INCI name	Content	CAS No.	EINECS/ELINCS
Sodium Ascorbyl Phosphate	>95%	66170-10-3	425-180-1

General Properties

- Appearance: White to Off-white powder
- Aqueous solutions with up to 10% STAY-C® 50 are clear
- pH (3% in water): 9-10

FORMULATING

Solubility

- Soluble in water up to 50%.
- Insoluble in lipophilic components or alcohols.

Incorporation

- In general, STAY-C® 50 should be added below 35-40°C.
- O/W formulations

Add STAY-C® 50 in a separate water phase or directly as a powder. Homogenize the emulsion after adding STAY-C® 50. Adjust the pH of the final formulation to 6.0 or higher with common neutralizing agents.

- W/O formulations:

Add STAY-C® 50 by dissolving the product in the whole water phase. If the water phase has to be heated up above 40°C, then add Stay-C® 50 with a separate, cold water phase.

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- Gel formulations or formulations based on thickeners

STAY-C® 50 at higher concentrations can reduce the viscosity of formulations based on electrolytes sensitive thickeners. Higher concentrations are possible in gel formulations based on derivatives of Cellulose gum, Alkyl Acrylate Copolymer or Xanthan gum.

Best stabilities of Stay C® 50 are obtained with Carbomer, Hydroxy-Ethylcellulose and Cellulose Gum.

Compatibilities

- Recommended pH of the final formulation should be pH≥6.
- Emulsifiers have an influence on the stability of STAY-C® 50.
Only selected emulsifiers can be used with higher STAY-C® 50 concentrations due to the high ionic strength in the formulation. Non-ionic emulsifiers showed the best stability for STAY-C® 50.
- STAY-C® 50 is sensitive to heat. Add 0.05-0.1% Sodium Metabisulfite to improve color stability of STAY-C® 50 especially on higher storage temperature.
- STAY-C® 50 is sensitive to heavy metals. It is recommended to add a chelating agent to the formulation. The best performer is Disodium EDTA. Others Chelating agents can be used such as: Sodium gluconate, Sodium phytate, Etidronic Acid, Sodium Polyphosphate...etc
- STAY-C® 50 is sensitive to oxygen.
 - Pre-boil the water phase for 10 min to remove all dissolved oxygen.
 - Combine oil soluble and water soluble anti-oxidants. The following anti-oxidants should be avoided: Ferulic Acid, Nor-dihydroguaiaretic Acid, Rosmarinic Extract, Propyl Gallate, Tert-Butyl Hydroquinone.
- Saturated lipids show good compatibility with STAY-C® 50 whereas unsaturated lipids should be avoided.
- Formulations with STAY-C® 50 may develop a typical caramel-like smell, especially at elevated temperatures (e.g. 40-45°C). This could be prevented by the presence of Urea in the ratio 1:1 to STAY-C® 50 in combination with 0.1% Sodium Metabisulfite. This combination could also decrease discoloration of the final formulation.

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VARIOUS

Storage Please refer to the Product Data Sheet.

Use level

Hair care:	0.5-2%
Skin care:	0.5-3%
Oral care:	0.5-3%
Intensive Treatment:	up to 15%
Japan:	minimum 2% with claim skin lightening

Patent Information

DSM Nutritional Products Ltd. owns patents encompassing this product.

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