BP–SA Niacinamide Salicylate Complex

Masters of Skin Care, Together as One

BP–SA Niacinamide Salicylate Complex

INCI : Salicylic Acid (and) Niacinamide (and) Polydextrose (and) Dextrin (and) Amylopectin

CAS #: 69-72-7, 98-92-0, 9004-53-9

EC #: N/A

Accelerates skin exfoliation

Improves skin texture

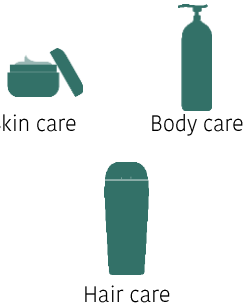
Helps retain moisture by supporting skin barrier

Supports reduction of acne scars and age spots

Effective in scalp care

Sensitive skin-friendly

Recommended applications



BP–SA Niacinamide Salicylate Complex blends niacinamide and salicylic acid by first forming a pre-neutralized inner salt of the two molecules and then rapidly spray-drying the two molecules at a 1:1 ratio with a small amount (1%) of a polysaccharide encapsulant.

Niacinamide (called nicotinamide) is a water-soluble B-Vitamin and functions in cosmetic formulations as a hair and skin conditioning agent. It can reduce the redness, dryness, and irritation caused by bacteria that live in the clogged pores of pimples. The main benefits of niacinamide in cosmetic applications are to alleviate acne, to soothe and calm skin, and supporting in the reduction of hyperpigmentation.[1,2]

Salicylic acid has been introduced in various cosmetic products based on its different effects on the skin. Historically, it has been used to improve xerotic and scaly skin conditions. The main benefits of salicylic acid in cosmetic applications are to alleviate acne, as an anti-microbial, and as a keratolytic.[3]

This complex is an effective ingredient in the treatment of sensitive skin, acne-prone skin, and skin with hyperpigmentation, proven by clinical studies. In addition, this remarkable complex is also very effective in scalp care.

[1] *Forbat E, Al-Niaimi F, Ali FR. Use of nicotinamide in dermatology. Clin Exp Dermatol. 2017;42(2):137-144.*

[2] *Philips N, Chalensouk-Khaosaat J, Gonzalez S. Simulation of the elastin and fibrillin in non-irradiated or UVA radiated fibroblasts, and direct inhibition of elastase or matrix metalloproteinase activity by nicotinamide or its derivatives. J Cosmet Sci. 2018;69:47-56*

[3] *Arif T. Salicylic acid as a peeling agent: a comprehensive review. Clin Cosmet Investig Dermatol. 2015;8:455-61*

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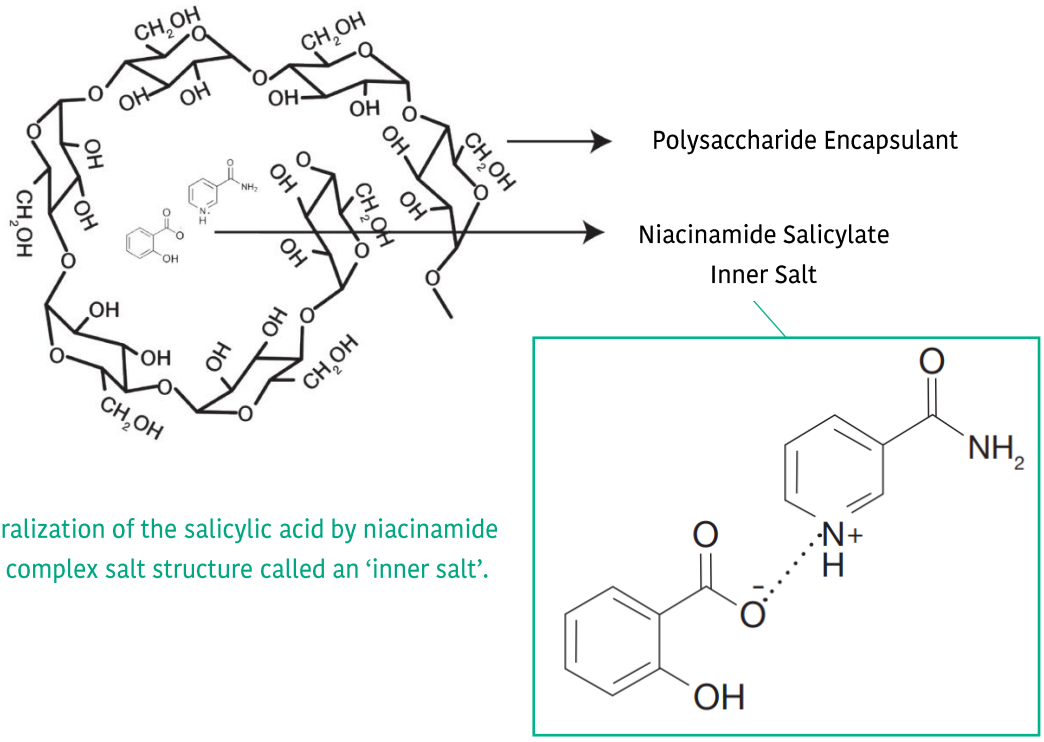
BP–SA Niacinamide Salicylate Complex Structure



Pre-neutralization of the salicylic acid by niacinamide forms a complex salt structure called an 'inner salt'.

Common formulation challenges

Niacinamide is known to be sensitive to hydrolysis.[4]

If niacinamide hydrolyzes, it provides an "amine" odor which is easily detectable by the human nose. Salicylic acid has solubility concerns in water and must be neutralized (NaOH, amines) to attain adequate water solubility. When neutralized, it may lose some of its potency. Un-neutralized salicylic acid is prone to re-crystallization in formulations.

[4]*Finholt P, Higuchi T. Rate studies on the hydrolysis of niacinamide. J Pharm Sci. 1962;51:655-61*

Advantages of BP-SA Niacinamide Salicylate Complex

Pre-neutralization to form the inner salt and encapsulation allows for creating a complex that is highly water-soluble (up to 50% in water) without the re-crystallization of salicylic acid.

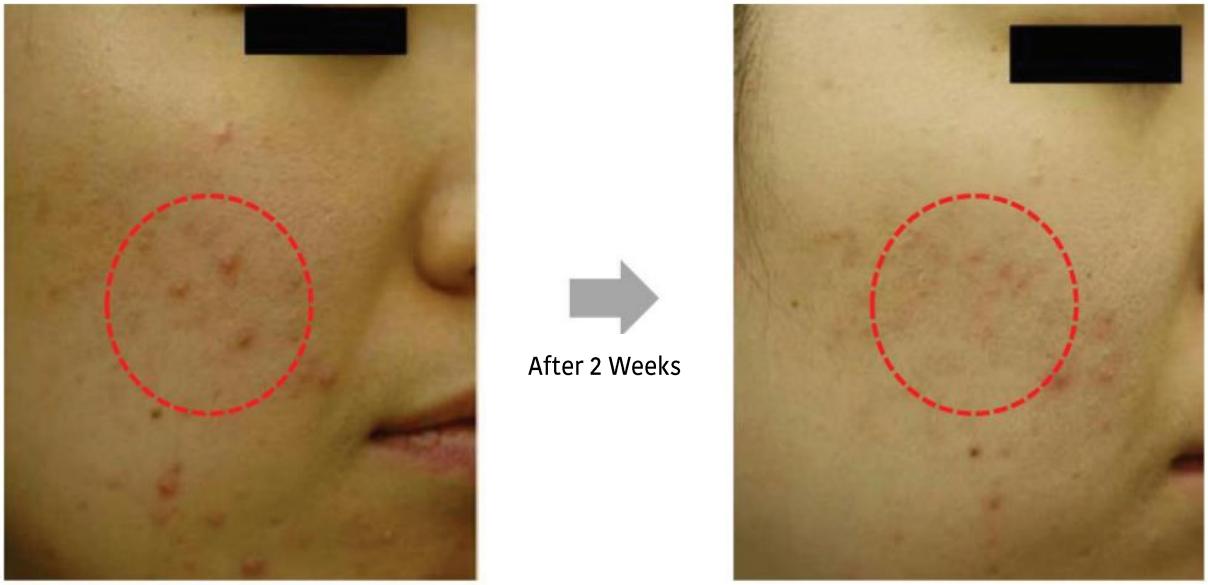
The complexation of niacinamide with salicylic acid through prior formation of the inner salt helps to stabilize the niacinamide against hydrolysis.

The inner salt, while offering a "pre-neutralized" salicylic acid, does not significantly reduce the efficacy of the salicylic acid as a keralytic agent.

The complex also brings along the significant benefits of niacinamide unlike neutralization with NaOH or amines.

Study 1: Acne Benefits

Volunteer applied a serum containing 4% BP–SA Niacinamide Salicylate Complex on her acne lesions twice a day for 2 weeks. An improvement of the appearance of the lesions was observed. The product also shows indications of skin brightening as might be anticipated with niacinamide.

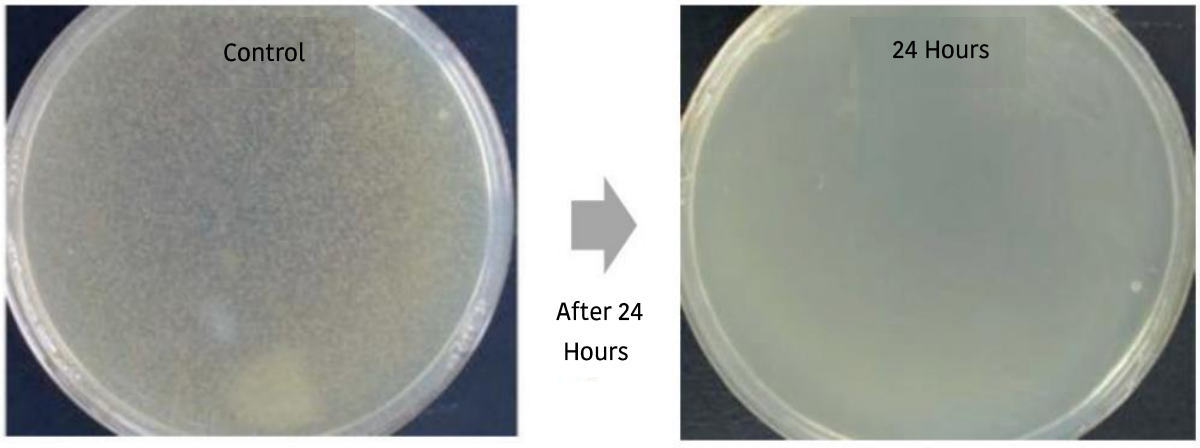


Before Treatment

After Treatment

Study 2: Anti-Microbial Effects

The effect of 4% BP–SA Niacinamide Salicylate Complex against Propionibacterium acnes collected from a volunteer with acne plated onto RCM (Reinforced Clostridial Medium) Agar. "After Treatment" is shown after 24 hours of growth. Plate demonstrates that the complex maintains antimicrobial efficacy at 2% Salicylic Acid.



Before Treatment

After Treatment

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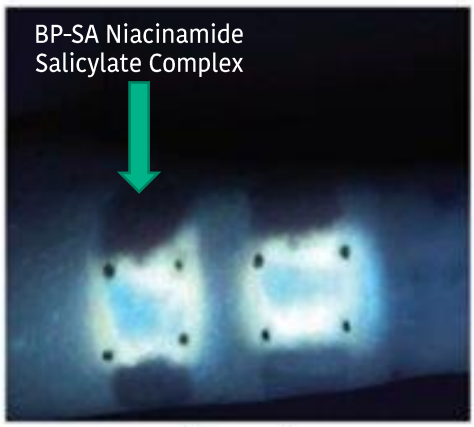
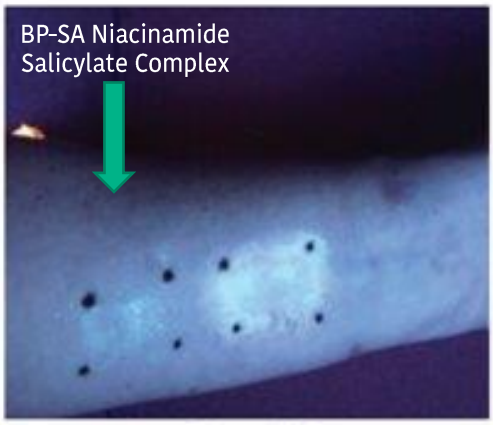
Appearance @ 25°C	White to Pale Yellow Powder
Odor	Characteristic
pH (*4-10)	4.0 – 6.0
Content of Salicylic Acid % (**w/w)	46.0 – 54.0
Recommended Use Level	1 - 5%

Study 3: Accelerating exfoliation

BP–SA Niacinamide Salicylate Complex accelerates skin exfoliation.



Day 1



Day 12
After 21 applications

The active-treated site shows a more rapid elimination of the fluorescent dye after the 12-day treatment compared to the placebo-treated site– demonstrating that the well-known exfoliating benefits of the β-Hydroxy Acid, Salicylic Acid, are not diminished by the presence of the Niacinamide.

Formulation guidelines

BP–SA Niacinamide Salicylate Complex disperses easily into water.

Recommended use levels are anywhere between 1 to 5%.

It is recommended to add this product into the end phase for easy incorporation.

Any stabilizers or rheology modifiers used should be acid stable before adding BP–SA Niacinamide Salicylate Complex.

The optimal pH range should be between 4.5 ~ 5.5 when adding in this product.

A recommended rheology modifier to use with this product is polyacrylate crosspolymer-6.