

# Niacinamide

## Multi-benefit Active for Personal Care



INCI Name: Niacinamide USP PC

SAP Code#: 202937

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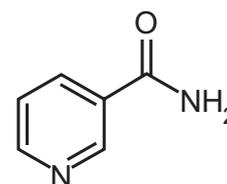
SAP Code#: 194749

### Key Product Attributes

- Upregulates Aquaporin-3 [AQP3] (in vitro)
- Enhances skin tone (in vitro)
- Helps improve the overall appearance of skin
  - Improving skin texture
  - Evening skin complexion
- May help to reduce the appearance of acne
- May help to revitalize hair to minimize hair fall and improve its overall appearance
- Two grades available for the Personal Care market: Niacinamide USP PC (low niacin) and Niacinamide USP

#### Niacinamide USP / Niacinamide USP PC

INCI name:	Niacinamide
Other names:	Nicotinamide, Nicotinic acid amide, Pyridine 3-carboxylic acid amide, Vitamin B3
Chemical formula:	C <sub>6</sub> H <sub>6</sub> N <sub>2</sub> O
CAS No:	98-92-0



### What is Niacin/Niacinamide?

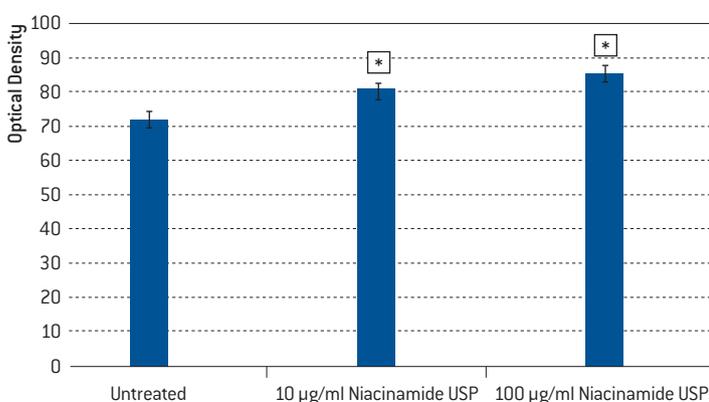
Niacinamide (nicotinamide) comprises one of the two forms of Vitamin B3; niacin (or nicotinic acid) being the other, both of which provide equivalent vitamin activity. As an essential component of living cells, Vitamin B3 is essential for protein, carbohydrate and fat metabolism. Niacinamide is a precursor in the synthesis of the pyridine coenzymes NAD and NADP involved in cell metabolism, and as such play a key role in the production of energy.

## Efficacy Studies (*in vitro*)

### Upregulation of AQP3: Epidermal Keratinocytes

Aquaporins (AQP) are a family of transport proteins involved with the movement of water and small solutes across cell membranes. Epidermal keratinocytes have been shown to express AQP3, and the glycerol transport function of AQP3 has been implicated to play a critical role in maintaining skin hydration. Therefore, materials which can influence the level of epidermal AQP3 can prove to be valuable components in cosmetic or personal health care products. For this study, untreated human keratinocytes were compared to keratinocytes treated with 10 µg/ml and 100 µg/ml of Niacinamide USP. After the 48-hour treatment period was completed, assessment of AQP3 expression of the treated keratinocytes showed that application of both 10 µg/ml and 100 µg/ml of Niacinamide USP provided a statistically significant positive effect on AQP3 expression.

### Change in Aquaporin-3 Expression (*in vitro*)

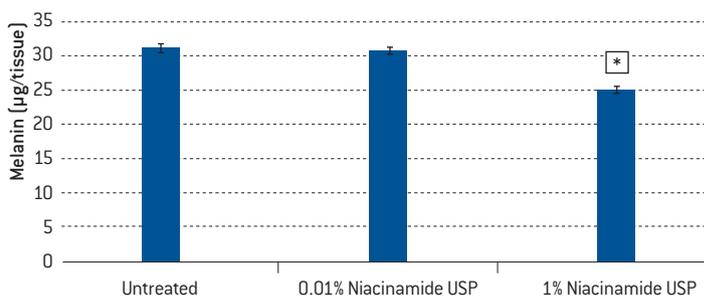


\* Denotes values that are significantly different from the Untreated group ( $p < 0.05$ ).

### Enhanced Skin Tone: Tanned Epidermal Model

Studies have shown that Niacinamide USP has a positive effect in inhibiting melanin synthesis to deliver a more uniform skin tone appearance. To assess its effect on melanin, a study was conducted using SkinEthic's Tanned Epidermis model where treatments with both 1% and 0.01% of Niacinamide USP were applied to the surface of the tissue substrate over a 9-day period. Upon completion of the treatment period, melanin values were calculated. The results of this study showed that 1% Niacinamide USP provided a statistically significant reduction of melanin synthesis versus untreated tissue.

### Assessment of Melanin Concentrations via Melanin Assay (*in vitro*)



\* Denotes values that are significantly different from the Untreated group ( $p < 0.05$ ).

## Lonza – Your Reliable Supplier for Vitamin B3

Lonza has been a leading supplier of Vitamin B3 for over 40 years, producing Niacinamide in different forms for the dietary supplements, food, personal care, pharma and animal nutrition markets. Lonza Consumer Care is committed to providing unsurpassed quality products, stemming from our belief that our products are an extension of yours.

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