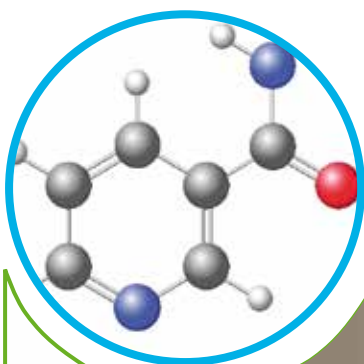


NIACINAMIDE

An Eco-Friendly
Personal Care Ingredient





INNOVATION AND SCALE

Committed to leverage innovation and scale of operations at every step of the value chain

COMPANY OVERVIEW

Ingrevia is born out of a union of '**Ingredients**' and '**Life**' ('vie' in French). Jubilant Ingrevia is committed to offering high quality and innovative life science ingredients to enrich all forms of life.

Jubilant Ingrevia Limited is a global integrated Life Science products and Innovative Solutions provider serving Pharmaceutical, Nutrition, Agrochemical, Consumer and Industrial customers with customised products and solutions that are innovative, cost-effective and conforming to excellent quality standards.

The Company, with more than 40 years of experience, offers over 134 products & innovative solutions using more than 35 key chemistry and technology platforms across its three portfolios of businesses viz Acetyls, Pyridines and Vitamins & Premixes, and its broad portfolio of high quality ingredients find application in a wide range of industries. The Company has 2,300 employees and serves more than 1,500 customers in more than 50 countries across the world. The Company's portfolio also extends to custom research and manufacturing for pharmaceutical and agrochemical customers on an exclusive basis.

Jubilant Ingrevia Limited is a Responsible Care certified company, driven by the motive to add value to millions of lives through innovations and cutting-edge technology. As a leader in key products that the Company manufactures, it takes pride in being a partner of choice for its valued customers.

LEADERSHIP POSITIONS

BUSINESS SEGMENTS

Speciality Chemicals

- Globally **#1 in 18** Pyridine Derivatives
- Amongst **top 2 Globally** in (Pyridine + Beta)

Nutrition & Health Solutions

- Globally amongst **top 2 in Vitamin B3**
- **Leader** in India in **Vitamin B4**

Chemical Intermediates

- **Globally** amongst **top 2 in Acetic Anhydride** in Merchant Market

Four decades of transition and progress



MANUFACTURING FACILITIES

5 world-class manufacturing facilities with 56 plants across 3 states in India

Gajraula, Uttar Pradesh, India | 31 Plants

Integrated facility for Speciality Chemicals & Chemical Intermediates

Bharuch, Gujarat, India | 9 Plants

Speciality Chemicals, Nutrition & Health Ingredients, Chemical Intermediates facility located in the Special Economic Zone (SEZ)

Nira, Maharashtra, India | 10 Plants

Chemical Intermediates

Savli, Gujarat, India | 5 Plants

Animal Nutrition & Health Solutions

Ambernath, Maharashtra, India | 1 Plants

Speciality Chemicals

GLOBAL FOOTPRINT

Operations in the following countries

- India
- USA
- Europe
- Japan
- China

RESEARCH DEVELOPMENT & TECHNOLOGY

At Jubilant Ingrevia, a team of well qualified and experienced professionals at R&D centers spread across multiple locations are specialized across the value chain of chemical research, chemistry/ process development of advance intermediates, fine chemicals and contract research.

R&D locations

Gajraula, Uttar Pradesh, India
Noida, Uttar Pradesh, India
Bharuch, Gujarat, India



Team of 114 Scientists with 22 PhDs



Knowledge driven operations; Providing innovative products and economically efficient solutions



Proven expertise in complex chemical / engineering technologies viz. heterogeneous technologies, chiral chemistry, vapour phase technologies and polystate science



Advanced in-house capabilities in modern analytical instruments leads to expedited customer support



Continued efforts to minimize time to commercialization of newer technologies/ products



Niacinamide is a water-soluble vitamin and is part of the vitamin B group. Also referred as Vitamin B3 or Nicotinamide is well recognized as an essential nutrient when it comes to a well-functioning and healthy body.

The first indication of the beneficial effects of Niacinamide to human skin was the observation that it could reverse the dermatitis associated with pellagra. This disease was widespread throughout human history. Symptoms of pellagra included diarrhea, inflamed mucous membranes, mental confusion, delusions and scaly skin sores. In 1915, Goldberger named it the P-P (for pellagra-preventative) factor after discovering its benefits to control Pellagra.

After the discovery of good skin absorption of Niacinamide around 1970, the interest to evaluate the topical benefits of Niacinamide increased and today literature is full of the benefits of Niacinamide's topical application.

NIACINAMIDE PERSONAL CARE OFFERINGS

Jubilant is a dominant global player being the 2nd largest producer of Niacinamide in the world. With backward integration up to the initial raw material stage and global scale of operation, we deliver unmatched advantages of consistent quality and availability of Niacinamide to our customers globally.

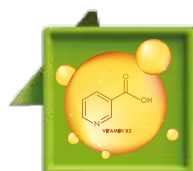
Niacinamide

We are a dominant global player being the 2nd largest producer of Niacinamide in the world. With backward integration up to the initial raw material stage and global scale of operation, we deliver unmatched advantages of consistent quality and availability of Niacinamide to our customers globally.

Nutri

For personal care, we offer Niacinamide with different Niacin content to suit customer needs

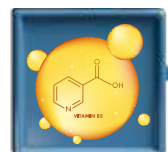
Niacinamide PC



With less than
100 ppm Niacin

Niacinamide MAX

With less than
1000 ppm Niacin



Both grades have stringent Microbiology Specification, i.e., TVC < 100 CFU/gm and free from undesirable pathogens in cosmetic formulations.

FORMULATION CONSIDERATION WITH NIACINAMIDE

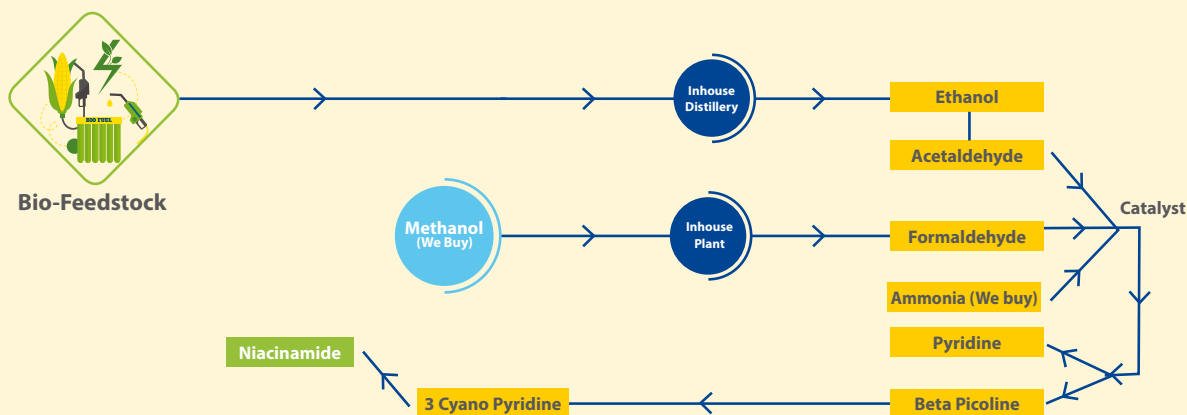
Niacinamide is one of the most stable vitamins. It is freely water soluble and solution is light stable. The optimum solution stability is at a pH of 4.5-6. It is very stable to most oxidizing and reducing agents.

Niacinamide was considered non-toxic at levels considerably higher than would be experienced in cosmetic products. Hence, considered safe in cosmetic formulations.

Clinical testing of Niacinamide produced no stinging sensations at concentrations up to 10%, use tests produced no irritation at concentrations up to 5% and a 21-day cumulative irritation test at concentrations up to 5% resulted in no irritancy. Niacinamide was also neither a sensitizer nor a photosensitizer⁶

OUR NIACINAMIDE HELPS IN MAKING SUPPLY CHAIN GREENER

OUR INTEGRATED PRODUCTION PROCESS



Manufacturing Process is seamlessly forward & backward integrated

OUR DIFFERENTIATORS

Backward Integration to the Basic Feedstock

The complete backward integration, (Molasses – Alcohol– Acetaldehyde – Pyridine / Beta Picoline – Niacinamide/ Niacin) up to the basic feedstock, this is one of the major advantages that company has over the other manufacturers of Niacinamide and Niacin.

Sustainability

Jubilant Ingrevia is Responsible Care® 14001: 2013 certified for its Corporate Office, Noida. Sustainability & being Socially Responsible is integral to our business and the certification reinforces Jubilant's continued commitment to ensuring the highest standards of Health, Safety, Security and Environmental Performance for both its products and operations.

Care For Environment

We use Bio-Ethanol which leads to 66.6% natural content in our Niacinamide (Tested & confirmed based on Radiocarbon (C14) analysis conducted at ISO/IEC 17025:2017 accredited Lab). This process even helps our customers to build a greener supply chain by using our Niacinamide and Niacin. We save an estimated 4.3 and 4.1 tonne CO2 per

tonne of Niacinamide and Niacin produced respectively in comparison to Niacinamide and Niacin produced from petroleum-based feedstock (Naphtha)

Global Reach

Jubilant has wholly owned subsidiaries with offices in US, Europe and China and strong global sales & distribution networks worldwide.



Certifications & Compliances

WHO-GMP | MUI HALAL | OU Kosher | FSSC - 22000 | ISO | REACH | NMPA | USFFR | VEGAN | NON-GMO
| Naturality index of 66.6% (ISO 16128-2)



Product Registered with
China NMPA



APPLICATIONS IN PERSONAL CARE

Niacinamide (Nicotinamide) is a multifunctional, high value added, cost effective, globally approved ingredient that should be considered for use in most skin care formulations. Its numerous skin care benefits have been extensively substantiated in numerous peer reviewed scientific journals and publications. It has been used in dermatology for more than 45 years for a diverse range of conditions including acne, rosacea, psoriasis, autoimmune bullous dermatoses, the treatment and prevention of photoaging and photoimmunosuppression.



Niacinamide Moisturizes Skin

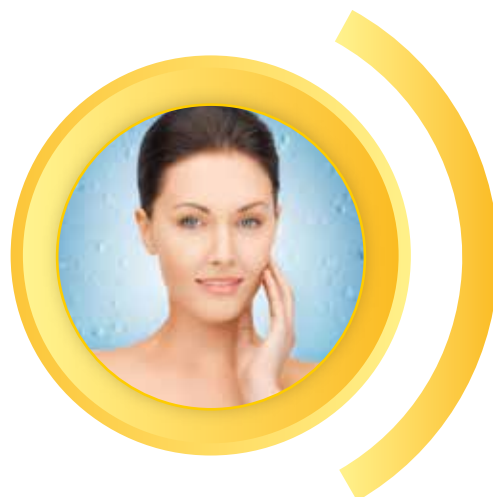
White petrolatum is the standard against which other moisturizers are compared, because of its hydrating properties. Niacinamide has performed better than white petrolatum in study¹.

Nicotinamide significantly decreased transepidermal water loss, but white petrolatum did not show any significant effect. Both Nicotinamide and white petrolatum increased stratum corneum hydration, but Nicotinamide was significantly more effective than white petrolatum.

Niacinamide an Effective Anti-aging Agent

5% topical Niacinamide Reduces Yellowing, Wrinkling, Red Blotchiness, and Hyper-pigmented Spots in Aging Facial Skin. A clinical study² was run assessing two topical products: moisturizer control product versus the same moisturizer product containing 5% Niacinamide. Niacinamide was well tolerated by the skin and provided significant improvements versus control in end points evaluated previously: fine lines/wrinkles, hyperpigmentation spots, texture, and red blotchiness.

In addition, skin yellowing (sallowiness) versus control was significantly improved.





Niacinamide Helps in Skin lightening

Niacinamide reduces dark skin discoloration with lesser side effects than Hydroquinone.

In a study³ -Twenty-seven Melasma patients were randomized to receive for eight weeks 4% Niacinamide cream on one side of the face, and 4% Hydroquinone (HQ) cream on the other.

- Good to excellent improvement was observed with Niacinamide in 44% of patients, compared to 55% with HQ.
- Side effects were present in 18% with Niacinamide versus 29% with HQ.

Niacinamide Has Anti-Acne Activity

Acne vulgaris is considered one of the most common disorders for which patients seek dermatological care. 5% nicotinamide gel is as effective as 2% clindamycin gel for treatment of mild to moderate acne vulgaris. No side effect was observed during the treatment⁴.



Niacinamide Reduces Skin Oiliness

The presence of sebum on the face is responsible for both facial shine and the formation of inflammatory acne lesions.

Topical 2% Niacinamide may be effective in lowering the sebum excretion rate (SER) in Japanese individuals and Casual sebum level (CSL) in Caucasian individuals⁵.

A formulation containing 2% Niacinamide was shown to reduce sebum by 30% and pore size by 10% after 4 weeks of use (P&G US patent 583998-11/98).

NIACINAMIDE APPLICATION FOR HAIR CARE

**KERATIN
SYNTHESIS**



**BOOSTS BLOOD
CIRCULATION**



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