

Vitamins B3

Jubilant enjoys global leadership position in Pyridine and its derivatives.

The Nutrition Products portfolio includes Niacin and Niacinamide, key derivatives of Pyridine. 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 Niacin and Niacinamide to our customers globally.

The Pyridine platform has provided Jubilant with various derivatives servicing Pharmaceuticals, Nutrition, Cosmetics and Technical application markets with standard as well as customized products.

The Company ranks among the largest manufacturers of Niacin and Niacinamide in the world. The products conform to all the major and latest pharmacopoeias i.e. USP, BP, JP, FCC and the manufacturing facility is Star-Kosher, Halal, GMP and FAMIQS certified.

We are strengthening our leadership position in Vitamin B3 by setting up a new Niacinamide plant of 10,000 TPA, in India which is expected to be functional by end of 2010.

We offer the following grades of Niacin and Niacinamide, manufactured by us :

Niacin

- For Human food and Animal Feed Applications
- For Pharmaceutical applications
- For Direct compressible

Niacinamide

- For Human food and Animal Feed Applications
- For Pharmaceutical applications

Custom manufacturing of different particle size ranging from fine mesh powder to coarse granular form

Niacin and Niacinamide are vitamins of the Vitamin-B group having equivalent vitamin activity. Both are precursors in the synthesis of the pyridine coenzymes NAD and NADP involved in numerous cell metabolic reactions. The major function is the removal of hydrogen from certain substrates and the transfer of hydrogen to another coenzyme. Reactions in which NAD and NADP are involved include the metabolism of carbohydrates, lipids and proteins.

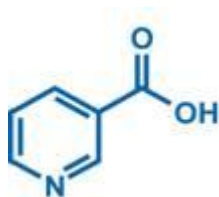
Niacin

Chemical name: pyridine-3-carboxylic acid

Other names: vitamin PP, vitamin B₃

Chemical formula: C₆H₅NO₂

CAS No: 59-67-6



Application Areas:

Human Nutrition: Although both Niacin and Niacinamide are naturally present in various staple foods, the bioavailability of the same is a major concern. Many natural staple foods contain bound Niacin/Niacinamide which may not be available to the human body. Hence it has been generally acknowledged that Niacin and Niacinamide must be supplemented in the diet to ensure the required daily intake.

Animal Nutrition: Niacin and Niacinamide are essential for good health and optimum productive performance of all animals. The following factors influence the availability of niacin to the animal body:

- Biosynthesis
- Enzymatic conversion of tryptophan to niacin
- Natural niacin content of feedstuffs.

The effectiveness of these sources in providing enough niacin for optimum performance is limited. Numerous experiments have shown that although feedstuffs contain niacin, much of the ingested niacin is in a form unavailable to the animal, being bound in a polysaccharide complex.

There are also differences in the utilization of naturally occurring niacin between individual animal species and between various age groups. Niacin deficiency reduces the activity of the coenzymes NAD and NADP, affecting numerous metabolic processes and in turn causes other secondary metabolic disorders, which further leads to commercial problems of reduced weight and growth of animals.

The animal feeding and nutrition industry typically supplements diets with niacin to ensure that the daily requirement of this vitamin is met.

Pharmaceutical: Niacin has shown encouraging results in humans during clinical trials for effectively reducing and controlling Low density cholesterol (LDL) levels, elevation of high density Lipoprotein Cholesterol (HDL) and reduction in tri-glyceride levels. Currently, Niacin therapy as a replacement or in combination with existing cholesterol reducing prescription drugs is under evaluation by various drug regulatory authorities around the world.

Technical: The manufacturers of zinc and cadmium brighteners have long been using niacin in the preparation of metal surfaces. The addition of niacin in a quaternized form (obtained by the reaction of niacin with benzyl chloride) to metal-plating baths results in uniform and brilliant surfaces. Use of niacin may also improve the electro-deposition of the plating metals. Niacin is also used as a brightener additive in cyanide-free metal baths for galvanic zinc, cadmium, tin, chromium copper and nickel

Product brief:

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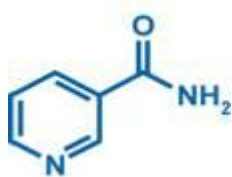
Niacinamide

Chemical name: pyridine-3-carboxylic acid amide

Other names: vitamin PP, vitamin B₃

Chemical formula: C₆H₆N₂O

CAS No: 98-92-0



Application Areas:

Human Nutrition: Although both Niacin and Niacinamide are naturally present in various staple foods, the bioavailability of the same is a major concern, Many natural staple foods contain bound Niacin/Niacinamide which may not be available to the human body. Hence It has been generally

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Cosmetics: Nutracosmetics are a new class of products in the health and beauty aids category. Nutracosmetics incorporate nutraceutical ingredients in topical delivery systems with the elegance, skin feel and ancillary benefits of cosmetics. Niacinamide have shown encouraging results in achieving desired cosmetic results and is currently being formulated into skin creams, hair care and other personal care products.

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Pharmaceutical (Diabetes Control): Diabetes mellitus is a group of metabolic disorders that result in hyperglycemia due to decreased insulin production or inefficient insulin utilisation. It has long been known that there are several compounds, which may produce acute insulin deficiency, and thereby diabetes, by destructing β -cells of the pancreas in experimental animals. A constant finding has been that this experimental damage is closely related to a sharp decrease in intracellular NAD levels.

The active coenzyme forms of Niacinamide (NAD, NADP) are essential for normal carbohydrate, lipid and protein metabolism. Pharmacological doses of Niacinamide are therefore being studied for their potential benefit in the prevention and treatment of diabetes. Niacinamide was first linked to preventing the development of diabetes in experimental animals in the 1950s, a finding confirmed in the 1980s which led to further clinical studies.

It is conceivable that Niacinamide may have a place in preventing type-1 diabetes in predisposed subjects