Import and distribution for Serbia: Farmadria DOO
info@avenalab.com
+381 (0) 69 / 55 65 029
www.avenalab.com

TECHNICAL DATA SHEET

Product name: Urea

INCI name: Urea Pure

CAS: 57-13-6

Chemical classification: Amide

Functional category: Skin Conditioning Agents ~ Humectants, pH Adjusters / Buffering Agent

Description: White crystalline powder, with a mild ammonia odor. The powder is soluble in water, only partially in glycerin (500g/L in glycerin) and alcohol (10g/L in 95% alcohol, 167g/L in methanol). Synonyms: carbamide (resin), carbamic acid, ureaphil, carbonyl diamide.
Action on the skin: Physiologically unique, non-toxic, and hypoallergenic substance, crucial for maintaining the natural moisture of the skin and reducing TEWL. Used in cosmetic products for the care of sensitive and dry skin. Easily absorbed, it has the ability to bind a large amount of water. By incorporating water into its structure, it reduces the possibility of product contamination by microorganisms, allowing formulations with urea to be preserved with lower amounts of preservatives. It has a soothing effect on the skin with a cooling sensation. In higher concentrations, it can lead to skin irritation. It is the main component of the hydro-soluble fraction of the stratum corneum and represents a component of the natural moisturizing factor (NMF), a group of substances that maintain moisture balance in the skin. In healthy skin, urea constitutes about 7% of the natural moisturizing factor (NMF), but as the skin ages, its quantity decreases by about 50%. As a result of this reduction, the skin's capacity to bind water decreases, leading to uncomfortable tightness, roughness, itching, peeling, and irritation. Positively influences the proliferation of the basal layer of the epidermis.

Benefits:

- ***Hydration:*** Urea attracts and retains moisture from the environment, helping the skin stay hydrated. This is especially useful for individuals with dry or dehydrated skin.
- ***Exfoliation:*** Urea has mild exfoliating properties, aiding in the breakdown and

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removal of dead skin cells, contributing to a smooth and soft skin texture.

• ***Keratolytic properties:*** Urea can help soften and break down keratin, the protein that forms the structure of the skin, hair, and nails. It is effective in products designed to treat calluses, corns, and rough skin areas.

• ***Barrier function:*** Urea has shown the ability to improve the natural protective function of the skin.

• ***Antipruritic properties:*** Urea is used to relieve itching associated with various skin conditions, such as eczema and psoriasis. It helps soothe the skin and alleviate discomfort.

• ***Compatibility with other ingredients:*** Urea is well-tolerated and compatible with various skincare ingredients, making it versatile for formulators in creating effective and comprehensive skincare products. According to cosmetic databases (Cosmetics Info), short-term and long-term studies have shown that even in higher concentrations, urea appears to be safe for topical use with a low risk of side effects. In some cases, it may cause mild skin irritation and symptoms such as tingling, itching, or burning.

• ***Nail Hydration:*** Urea is sometimes included in nail care products to provide hydration to the nails and cuticles, preventing them from becoming dry and brittle.

Use in cosmetic products: The application of creams with urea significantly reduces TEWL, and clinically, the condition of dry skin improves significantly. It is an effective moisturizing agent, making it suitable for use in chronic dermatoses. It is commonly applied in concentrations of 2% - 10%. In higher concentrations, it exhibits pronounced keratolytic properties (skin-exfoliating), making it useful as an exfoliant. Products with 20-30% urea can reduce itching, break down keratin, reduce the thickness of the outermost layer of the skin, and improve skin conditions such as ichthyosis. Products with 40% urea content are proteolytic, meaning they break down proteins. A person can use a product with 40% urea to dissolve or peel dystrophic nails, which are thickened, discolored, or deformed. For external use only.

Original materials from which it is obtained: Ammonia and carbon dioxide

Method of obtaining: Urea is produced from synthetic ammonia and carbon dioxide. The obtained urea is then separated from the residues, unchanged ammonium carbamate.

Animal testing: The substance has not been tested on animals.

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GMO: Not GMO

Vegan: Does not contain components of animal origin.