

## TECHNICAL DATA SHEET

**Product Name:** Vitamin B5 powder

**INCI Name:** dl-panthenol

**CAS:** 16485-10-2

**Chemical Classification:** Amide, alcohol

**Functional Category:** Skin and hair conditioning agent

**Description:** DL-Panthenol is a white, hygroscopic powder. It is a racemic mixture of dextro- and levorotatory isomers of panthenol, the alcoholic analog of pantothenic acid. It dissolves easily in water, alcohol, methanol, and propylene glycol, is soluble in chloroform and ether; sparingly soluble in glycerin, and insoluble in vegetable oils, mineral oils, and fats. Exceptionally stable, it is renowned for its versatility and beneficial effects on the skin and hair. Widely used in cosmetics, personal care products, ointments, and baby care products for its moisturizing, softening, strengthening, and healing properties. It helps improve the skin's barrier, soothes and calms irritated skin, retains moisture in the hair, and enhances hair's elasticity and firmness. It also aids in the repair and restoration of damaged skin and hair.

### Benefits:

- **Hydration:** When applied to the skin, DL-Panthenol converts into vitamin B5 (pantothenic acid). This process allows DL-Panthenol to penetrate into deeper layers of the skin, where it acts as a humectant, drawing water from the environment and retaining moisture within the skin. This boosts hydration and skin elasticity, leaving the skin soft and smooth. Additionally, vitamin B5 helps in skin regeneration and maintaining a healthy skin barrier, protecting it from external irritants. Numerous studies have shown that even 1% panthenol rapidly increases skin hydration and simultaneously reduces transepidermal water loss (the amount of water that evaporates through the skin).
- **Soothing effect on the skin:** DL-panthenol can help alleviate skin irritations, redness, and inflammation. It is often used in products intended for sensitive or irritated skin.
- **Wound healing:** Supports the natural skin healing process. It promotes tissue

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renewal and regeneration, beneficial in products aimed at treating minor cuts, burns, and wounds. It can also help reduce the visibility of scars.

- **Hair care:** DL-panthenol is commonly found in hair care products like shampoos, conditioners, and hair masks. By retaining moisture, it helps improve hair elasticity and reduce split ends. It can enhance the appearance of hair by adding shine and reducing frizz.

- **Nail care:** It is also beneficial for nail health. It can help strengthen nails, prevent brittleness, and improve their flexibility. Often used in nail care products like cuticle creams and nail treatments.

**Usage in cosmetic products:** Recommended concentrations in skin care products range from 0.5% to 5%, in hair care products from 0.1% to 5%, and in nail care products 1%. It is easily incorporated into the water phase of a cosmetic product. It is stable in a pH range of 4.0 to 7.5 (optimal pH is 6.0).

**Source materials from which it is derived:** propanolamine, beta-dimethylbutyl prolactone

**Method of obtaining:** It is obtained synthetically by combining propanolamine and beta-dimethylbutyl prolactone.

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

**GMO:** Not GMO

**Vegan:** Does not contain animal-derived components