

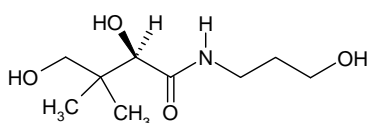
D-Panthenol/Dexpanthenol

D-Panthenol is the more stable alcohol form of Pantothenic Acid (Vitamin B5), when applied topically D-Panthenol is absorbed by the skin where it is converted into Pantothenic Acid.

CAS No. / EINECS	81-13-0 / 201-327-3
CN Code	2936 2400
INCI/CTFA	Panthenol

SPECIFICATION*

Chemical structure



Chemical formula	$C_9H_{19}NO_4$	Molecular weight	205,3
Characters	colourless or slightly yellowish, viscous hygroscopic liquid		
Identification	Specific optical rotation TLC Test Copper sulphate test		
Appearance of solution	clear and not more intensively coloured than reference solution		
pH-value of solution	not more than 10,5		
Specific optical rotation ($[\alpha]_D^{20}$)	+29° to +32°		
3-Aminopropanol (TLC)	equivalent to not more than 0,5%		
Heavy metals	not more than 20ppm		
Water content	not more than 1,0%		
Sulphated ash	not more than 0,1%		
Assay (HPLC)	98,0% to 101,0%		
Related substances	D-Pantolactone	not more than 1,0%	
	Pantoic Acid	not more than 0,15%	
	any other impurity	not more than 1,0%	
	total impurities	not more than 1,5%	

*meets the quality requirements of the current Ph. Eur. monograph for Dexpanthenol

Producer: Daiichi Fine Chemical Co.,Ltd.; Japan



Microbiological limits

- Total aerobic microbial count: max. 100cfu/g
- Total yeast and moulds count: max. 10cfu/g

Storage and packaging

- Expiry date
in unopened original packaging and under adequate storage conditions minimum 3 years after production date
- Storage condition
store in tight container at room temperature (JP: 1°C to 30°C)
- Crystallization
long storage at low temperature may cause crystallization. This is not a quality problem.
D-Panthenol liquefies when heated at 70°C for several hours
- Standard packaging
10kg/20kg PE pail; 200kg PE drum

REACH

D-Panthenol has been pre-registered. The final REACH registration will consider and assess the uses recommended by COLIPA.

Formulating

D-Panthenol is a highly viscous, very water soluble material. To make it easy to handle it could be mixed with warm water, but also exposed to heat in water bath. Exposure to heat exceeding 70°C-75°C may cause racemization. D-Panthenol is stable in neutral or less acidic aqueous solution (ph 4-6), less stable in acidic or alkaline aqueous solution by hydrolytic cleavage. The recommended usage level of D-Panthenol is 0,3% to 5,0% (pharmaceutical: up to 10%)

Toxicological Data

The Expert Panel released the Final Report on the Safety Assessment of Pantothenic Acid stating that Panthenol is safe as presently used in cosmetic products.

A CIR (cosmetic ingredient review) report is available.

Physiological function

- D-Panthenol is the more stable alcohol form of Pantothenic Acid (Vitamin B5), when applied topically D-Panthenol is absorbed by the skin where it is converted into Pantothenic Acid.
- in nature only the biological D-form is present, the L-form has no vitamin activity
- conversion from Pantothenic Acid to Coenzyme A in the body

Efficacy of D-Panthenol in cosmetic products*

- stimulates the wound-healing
- very good moisturizing properties
- anti-inflammatory and anti irritation
- humectant for hair
- strong deposition onto the cuticula, makes the hair easier to comb, glossy hair
- deep penetration into the hair cortex, strengthens the hair shaft
- penetrates the scalp and provide the hair roots with Pantothenic Acid
- increase the water retention of the keratin structure of the nails
- improves flexibility and stability of nails

*literature data

The data submitted in these publication are based on our current knowledge and experience. They do not constitute a guarantee in the legal sense of the term and, in view of the manifold factors that may affect processing and application, do not relieve those to whom we supply our products from the responsibility of carrying out their own tests and experiments. Any relevant patents rights and existing legislation and regulations must be observed.

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