
Technical Information

Dexpanthenol Ph.Eur.

March 2025 | Supersedes issue dated January 2010 | Last change MarComm-2024-00640

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1. Introduction

Dexpanthenol is a colorless to slightly yellow liquid with a very high viscosity. It is the D-enantiomer of panthenol and serves as an active pharmaceutical ingredient in various pharmaceutical dosage forms, with topical applications in creams and ointments being the most prominent.

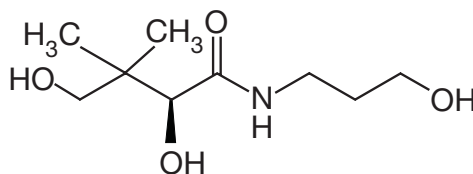
Dexpanthenol is also referred to as D-panthenol, D-pantothenyl alcohol, or provitamin B₅, as it is the corresponding alcohol of pantothenic acid (vitamin B₅). Pantothenic acid is a component of Coenzyme A, which acts as a cofactor in numerous biochemical and enzyme-catalyzed reactions, facilitating the transfer of acetyl groups for processes such as the composition and decomposition of fatty acids, oxidative metabolism of carbohydrates, and biosynthesis of steroids. Dexpanthenol is synthesized through the reaction of D-pantolactone with aminopropanol.

2. Chemical and Physical Properties

Names

D- panthenol, D- pantothenyl alcohol (+)-panthenol; dexpanthenol; N-pantoyl-3-propanolamine (R)-2,4-dihydroxy-N-(3-hydroxypropyl)-3,3-dimethylbutanamide

Chemical structure



CAS number

81-13-0

Molecular formula:

C₉H₁₉NO₄

Molar mass:

205.3 g/mol

Solubility

Dexpanthenol is very hydrophilic and well soluble in water.

3. Handling Instructions

Dexpanthenol Ph.Eur. is hygroscopic and light sensitive. It should be stored in the original sealed packaging or in airtight containers, and protected from light and humidity.

For simplifying the handling of the highly viscous material, gentle warming can be applied.

The actual version of the safety data sheet is accessible via [MyProductWorld](#)

4. Example Application

Dexpanthenol Gel-Cream (5%)

1. Composition

Dexpanthenol Ph.Eur.....	5 g
Liquid paraffin.....	10 g
Kollisolv® PEG 400.....	15 g
Kolliphor® P 407.....	18 g
Water.....	52 g

2. Preparation

Dissolve Dexpanthenol Ph.Eur. and Kollisolv® PEG 400 in water, then add liquid paraffin and stir while gently heating to a temperature of 60 – 70 °C. Slowly and gradually add Kolliphor® P 407 (poloxamer 407) while maintaining temperature and stirring continuously until it is fully dissolved. Allow the formulation to cool to room temperature while continuing to stir until all bubbles have disappeared.


3. Properties

Soft turbid gel-cream. No change of appearance and viscosity over 3 months at 40 °C.

5. Stability & Safety

The product is typically stable for 36 months after date of production provided storage under recommended conditions. The actual retest period, recommended storage conditions and the actual version of the safety data sheet are accessible via [MyProductWorld](#). The actual version of the safety data sheet is additionally sent with every consignment.

6. Available Articles and Packaging

Product name	PRD number*	Article number	Article	Packaging
	30276997	50658225	25 kg commercial article	32 l HDPE bucket
		50691668	20 kg commercial article	20 l HDPE bucket
		53810622	0,25 kg non-commercial technical sample	aluminum bottle

*BASF's commercial product number

7. Documents, Quality & Regulatory Information



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[MyProductWorld](#): article numbers, sample order, safety data sheet, sustainability information

[RegXcellence](#): specification, compliance documents, regulatory product summary

[ZoomLab](#): formulation assistance to predict starting formulations and expedite drug development.

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March 2025