

“Where Quality and Service Meet”

IntegriVITAMIN Panthenol



Integrity Ingredients Corporation

“Where **Quality** and **Service** Meet”



About Us...

Integrity Ingredients Corporation was founded on the belief that our customers deserve two things - high quality raw materials and true customer service.

We offer an extensive line of polymers...

- Highly efficient thickeners/emulsifiers (IntegriGELS), which are available in a variety of formulating options, from broad pH to cationic and anionic.
- Gelling, thickening polymers (Integrity C900 Series and our new easy-to-disperse and electrolyte-resistant C800 Series.
- Conditioning polymers (IntegriQUATS)
- Exfoliating polymers (IntegriEXFOLIANTS)

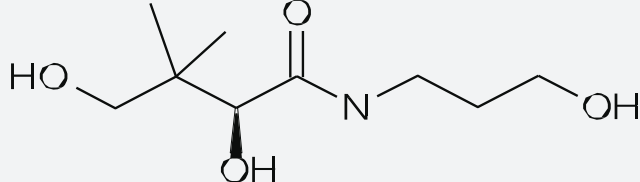
IntegriVITAMIN D-Panthenol

INCI Name: Panthenol

Properties:

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

Chemical Structure:



Specifications:

Chemical formula	C ₉ H ₁₉ NO ₄
Characters	Colorless or slightly yellowish, viscous hygroscopic liquid
Identification	Specific optical rotation
	TLC Test
	Copper Sulphate test
Appearance of solution	Clear and not more intensively colored than reference solution
pH value of solution	Not more than 10.5
Specific optical rotation ([α] _D ²⁰)	+29° to +31.5°
3-Aminopropanol (TLC)	Equivalent to not more than 0.5%
Heavy Metals	Not more than 10ppm
Water content	Not more than 1.0%
Assay (HPLC)	98.0% to 101.0%

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IntegriVITAMIN D-Panthenol

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%

Microbiological Limits:

- Total aerobic microbial count: Max. 100 cfu / g
- Total yeast and molds count: Max. 10 cfu / 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 use 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

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IntegriVITAMIN D-Panthenol

Formulating:

D-Panthenol is highly viscous, but fairly 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 the Pantothenic Acid stating that Panthenol is safe as presently used in cosmetic products.

A CIR (cosmetic ingredient review) report is available.

Physiologic 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 to 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

Continued...

IntegriVITAMIN D-Panthenol

Efficacy of D-Panthenol Cosmetics:

- Stimulates the wound-healing
- Very good moisturizing properties
- Anti-inflammatory and anti-irritation
- Humectant for hair
- Strong deposition onto the cuticle, 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 of Pantothenic Acid
- Increase the water retention of the keratin structure of the nails
- Improves flexibility and stability of nails

Usage Level:

0.2 - 3.0%

Packaging:

20 kg Pail



IntegriVITAMIN D 75% Panthenol

INCI Name: Panthenol

D 75% Panthenol is a slightly yellowish or colorless, clear solution of the pure substance in water. It is soluble in water, methanol, propylene glycol and ethanol. It is insoluble in fats and oils.

Quality Index:

Property	Specification
Appearance	Slightly yellowish or colorless, clear liquid
Assay	75.0 - 78.5%
Refractive Index (at 20°C)	1.466 - 1.475
Specific Rotation	+29.0° - +31.5°
pH (5% Water)	5.5 - 7.0
Heavy Metals	Max. 0.002%
Limit of Aminopropanol	Max. 1.0%
Organic Volatile Impurities	Meets USP requirements

Character:

D 75% Panthenol is the Pro-Vitamin of D-Pantothenic Acid (Vitamin B5), which plays a key role in the human intermediary metabolism. Deficiency of Vitamin B5 can result in many dermatological disorders. D 75% Panthenol is applied in all types of cosmetic preparations for hair, skin and nail care. In weakly acidic, aqueous solutions, D 75% Panthenol is considerably more stable than the salts of Pantothenic Acid. It is unstable in strong acids and bases.

Usage Levels: 0.2 - 4.0%

Package: 25 kg/pail

Storage:

D 75% Panthenol is stable to air and light. If it is stored at under 25°C in the tightly sealed, original container, it has the shelf life of 24 months.

IntegriVITAMIN DL-Panthenol

INCI Name: Panthenol

DL-Panthenol is a white and hygroscopic powder. It is a racemic mixture of the dextrorotatory and levorotatory isomeres of Panthenol, the alcohol analogue of Pantothenic Acid. It is freely soluble in water, ethanol, methanol and propylene glycol, and is soluble in ether, slightly soluble in glycerin, insoluble in vegetable oils, mineral oils and fats.

Quality Index:

Property	Specification
Appearance	A white and hygroscopic powder
Identification	Normal reaction
Assay	99.0% - 102.0%
Melting Range	+64.5° - +68.5°
Specific Rotation	-0.05° - +0.05°
Loss on Drying	Max. 0.5%
Residue on Ignition	Max. 0.1%
Limit of Aminopropanol	Max. 0.10%
Organic Volatile Impurities	Meets USP requirements

Character:

DL-Panthenol is the Pro-Vitamin of DL-Pantothenic Acid (Vitamin B5), which plays a key role in the human intermediary metabolism. Deficiency of Vitamin B5 can result in many dermatological disorders. DL-Panthenol is applied in pharmaceutical industry and almost all types of cosmetic preparations.

Usage Levels: 0.1 - 2.0%

Package: 20 and 25 kg/carton

Storage:

DL-Panthenol is stored in a cool, dry place. It should be protected from moisture. If DL-Panthenol is stored at under 25°C in the tightly sealed, original containers, it has a shelf life of 24 months.

IntegriVITAMIN DL-Panthenol 50%

INCI Name: Panthenol

DL 50% Panthenol is a slightly yellowish or colorless, clear, solution of the pure substance of water. It is readily miscible in water, ethanol and propylene glycol. It is insoluble in fats and oils. In weakly acidic, aqueous solutions, DL 50% Panthenol is considerably more stable than the salts of Pantothenic Acid. It is unstable in strong acids and bases.

Quality Index:

Property	Specification
Appearance	Slightly yellowish or colorless, clear liquid
Assay	50.0% - 53.5%
pH (5% Water)	5.5 - 7.0
Heavy Metals	Max. 10 ppm
Limit of Aminopropanol	Max. 1.2%
Organic Volatile Impurities	Meets USP requirements

Character:

DL 50% Panthenol is the Pro-Vitamin of DL-Pantothenic Acid (Vitamin B5), which plays a key role in the human intermediary metabolism. Deficiency of Vitamin B5 can result in many dermatological disorders. DL 50% Panthenol is applied in pharmaceutical industry and almost all types of cosmetic preparations.

Usage Levels: 0.5 - 4.0%

Package: 20 kg/pail or 200 kg/drum

Storage:

DL 50% Panthenol is stable to air and light. If it is stored at below 20°C in the tightly sealed, original containers, it has a shelf life of 24 months.

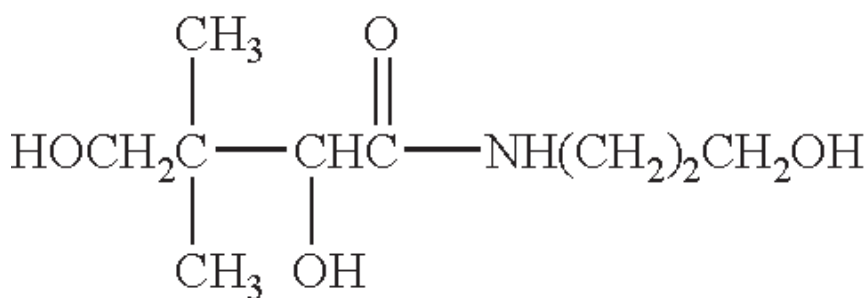
IntegriVITAMIN DL Panthenyl Ethyl Ether

INCI Name: Panthenyl Ethyl Ether / Ethyl Panthenol

Properties:

Ether form of dextrorotatory isomer of pantothenic acid, belonging to the group of water soluble vitamins, member of b-complex vitamins, specially designed for topical application.

Chemical Structure:



Specifications:

Chemical name	(R)-N-(3-Ethoxypropyl)-2,4-dihydroxy-3,3-dimethylbutyramid
Empirical formula	C ₁₁ H ₂₃ NO ₄ Molecular weight: 233.31
Appearance	A clear, colorless to light yellow, viscous liquid with a faint, characteristic odor, bitter taste

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IntegriVITAMIN DL Panthenyl Ethyl Ether

Identification	Ninhydrin reaction
Optical rotation	[a] 20D : + 27.5°- +29.5°
Refractive index	N20d: 1.474- 1.476
Heavy Metals	Not more than 20 ppm
Water	Not more than 0.5%
Residue on ignition	Not more than 0.1%
Assay	Not less than 98.0%

Other Physio-Chemical Properties:

3-Ethoxy propylamin	Not more than 0.5%
Boiling Point	15°C (0.05 mm Hg)
Acidity	pH of 10% solution: 9.0-11.0

Storage and Packaging:

Storage	Protect against humidity and heat, store in tight containers at room temperature (JP: 1°C to 30°C)
Standard Packaging	20kg PE-bottle net, cartonized 200kg PE-drum net, on special request
Expiry Date	In unopened original packaging and under adequate storage conditions minimum 2 years after production date

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IntegriVITAMIN DL Panthenyl Ethyl Ether

Formulating:

Standardization: Calculated on the different molecular weights on the relations among the derivatives and pantothenic acid are as follows:

1.000 g PANTOTHENIC ACID	Is equivalent to 1.064 g D-Pantothenyl Ethyl Ether
1.000 g D-PANTHENOL	Is equivalent to 1.137 g D-Pantothenyl Ethyl Ether
1.000 g D-CALCIUM PANTOTHENATE	Is equivalent to 0.979 g D-Pantothenyl Ethyl Ether

Stability: Relatively stable to oxygen and light, slightly hygroscopic, stable in neutral or slightly acidic (pH 4.0 – 7.5) less stable in acidic and alkaline aqueous solutions by hydrolytic cleavage, excessive exposure of heat exceeding 70° - 75°C may cause racemization.



Continued...

IntegriVITAMIN DL Panthenyl Ethyl Ether

Solubility:	Easily soluble in water, alcohol, propyleneglycol and glycerin, readily miscible in some typical cosmetic oils such as corn oil, sunflower oil, peanut oil and castor oil, insoluble in paraffin oil, di-/cyclomethicone, fats and mineral oil.
Microorganisms:	Bateria count not more thant 100/g. Fungi not more than 10/g. Pathol. causative organisms like pseudomonas aeruginosa, staphylococcus aureus, candida albicans, Escherichia coli are not traceable.
Toxicity:	DL Panthenyl Ethyl Ether is non-toxic (oral LD20rat>2000mg/kg; topical LD50rat>2000 mg/kg), non-irritant (dermal and eye), non-sensitising and non-phototoxic.
Handling:	
Properties:	DL Panthenyl Ethyl Ether is a viscous liquid, but fairly easy to handle at room temperature (900mPas at 20°C). Among the derivative of pantothenic acid, DL Panthenyl Ethyl Ether offers significant advantages with its acceptable viscosity (no warming-up), wide range of solubility and viscosity (cp).

Continued...

IntegriVITAMIN DL Panthenyl Ethyl Ether

Role in Cosmetic Formulations:

DL Panthenyl Ethyl Ether has excellent physical (solubility, anti-electrostatic, etc.) chemical (stability) and biological (transcutaneous absorption etc.) properties.

When DL Panthenyl Ethyl Ether is applied to the skin directly or in the cosmetic formulations, it is rapidly absorbed and changed to pantothenic acid (a constituent of coenzyme A) by hydrolysis and oxidation.

In skin care...

Pantothenic acid:

Stabilizes the metabolism of skin surface retains natural moisture balance of the skin penetrates well into deeper skin layer stimulates the formation of skin pigments.

In hair care...

Pantothenic acid:

Improves combability of wet hair; penetrates well into the hair shaft causes long lasting moisturizing effects promotes gloss and elasticity improves the structure of hair and has a repair effect.

Recommendations:

With concentrations of 0.5%, DL Panthenyl Ethyl Ether can be used either alone or in combination with other active ingredients to develop a large series of highly effective cosmetic product concepts.

Examples:

Skin care (creams and lotions).

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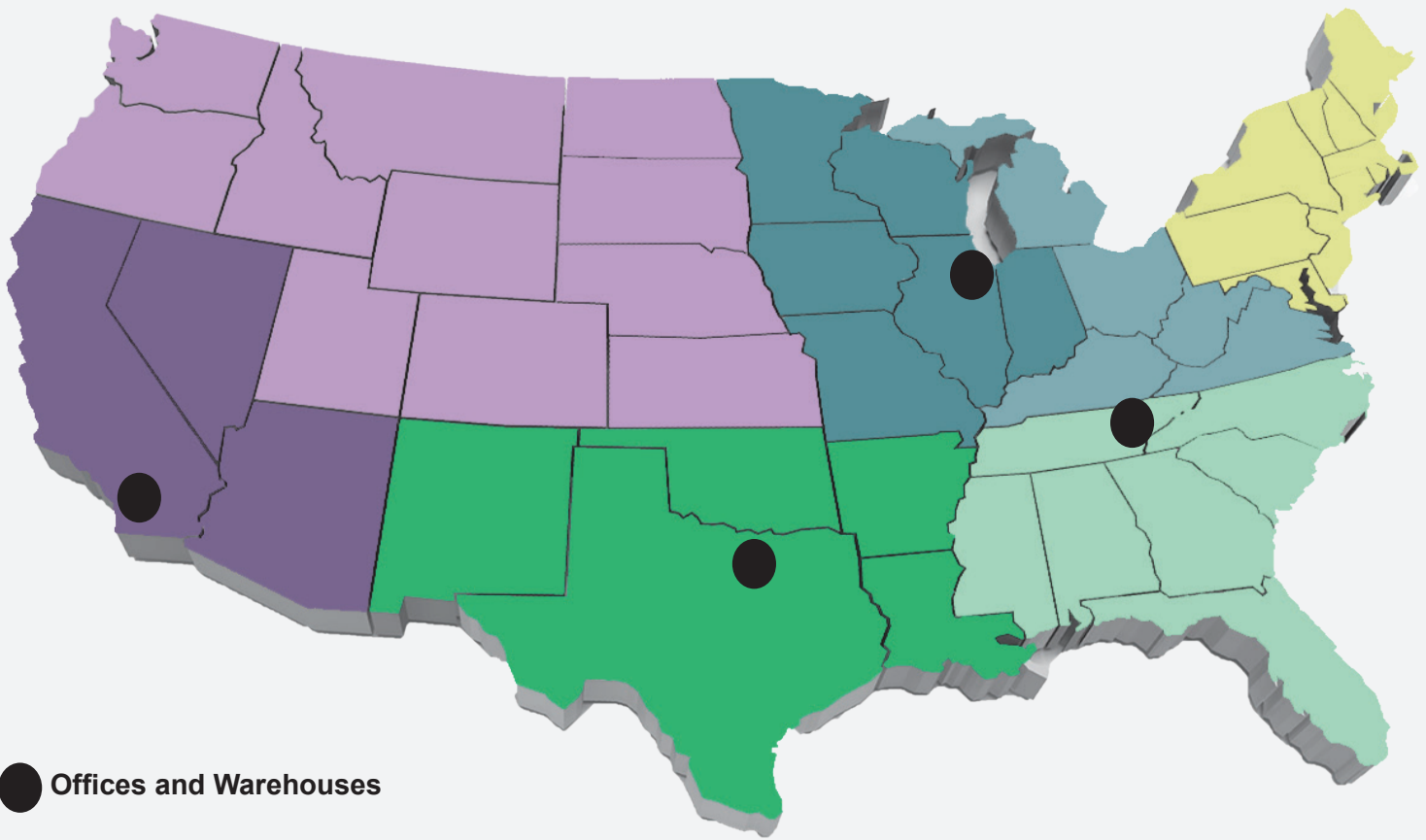


Technical Support...

Our in-house Technical and Applications Lab is always available to address the growing needs of our customers. Whether you have a raw material technical question or need formulating assistance, we are here and ready to help.

At Integrity Ingredients Corporation, we know the important role our ingredients have in your formulations. Our lab is solely dedicated to actively working with all of our ingredients in a variety of applications. By doing this, we can make accurate recommendations to our customers on how our ingredients will interact and perform with other ingredients and system types.

Our team at Integrity Ingredients Corporation recognizes that you have many choices when formulating or purchasing your raw materials, and we want to thank you for your interest in our products and services.



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