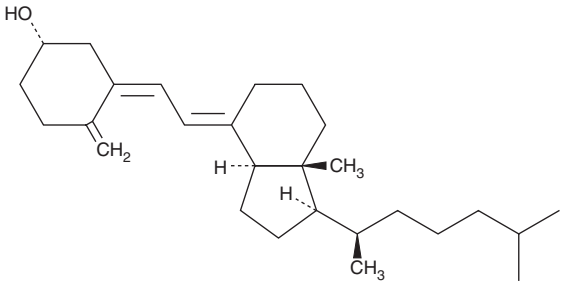
PRODUCT INFORMATION

Vitamin D_3

Item No. 11792

CAS Registry No.: 67-97-0
Formal Name: 3Z-[2E-[(1R,3aS,7aR)-1S-[1R,5-dimethylhexyl]octahydro-7a-methyl-4H-inden-4-ylidene]ethylidene]-4-methylene-cyclohexanol
Synonyms: Cholecalciferol, NSC 375571
MF: $C_{27}H_{44}O$
FW: 384.6
Purity: ≥98%
UV/Vis.: λ_{max}: 213, 265 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Animal/Lanolin



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Vitamin D_3 is supplied as a crystalline solid. A stock solution may be made by dissolving the vitamin D_3 in the solvent of choice, which should be purged with an inert gas. Vitamin D_3 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of vitamin D_3 in these solvents is approximately 30, 3, and 25 mg/ml, respectively.

Description

Vitamin D_3 is a biologically inactive precursor to calcitriol (Item No. 71820) that is converted to active metabolites *in vivo*.[1,2] Vitamin D_3 is obtained from dietary sources, including fish, or formed in the epidermis *via* photolytic conversion of 7-dehydro cholesterol (Item No. 14612) to previtamin D_3 by UVB radiation, followed by isomerization to vitamin D_3.[3,4] Vitamin D_3 can then be converted to 25-hydroxy vitamin D_3 (Item No. 9000683) in the liver by the cytochrome P450 (CYP) isoform CYP2R1 before being converted to calcitriol by CYP27B1 in the kidney.[2,3] Formulations containing vitamin D_3 have been used in the treatment of osteoporosis.

References

1. Lehmann, B., Genehr, T., Knuschke, P., *et al.* UVB-induced conversion of 7-dehydrocholesterol to 1α,25-dihydroxyvitamin D3 in an in vitro human skin equivalent model. *J. Invest. Dermatol.* **117(5)**, 1179-1185 (2001).
2. Holick, M.F. Vitamin D deficiency. *N. Engl. J. Med.* **357(3)**, 266-281 (2007).
3. Rosen, C.J. Vitamin D insufficiency. *N. Engl. J. Med.* **364(3)**, 248-254 (2011).
4. Chen, T.C., Chimeh, F., Lu, Z., *et al.* Factors that influence the cutaneous synthesis and dietary sources of vitamin D. *Arch. Biochem. Biophys.* **460(2)**, 213-217 (2007).

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