Vitamin D₃
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: C₂₇H₄₄O
FW: 384.6
Purity: ≥98%
UV/Vis.: λₘₐₓ: 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 D₃ is supplied as a crystalline solid. A stock solution may be made by dissolving the vitamin D₃ in the solvent of choice, which should be purged with an inert gas. Vitamin D₃ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of vitamin D₃ in these solvents is approximately 30, 3, and 25 mg/ml, respectively.

Description

Vitamin D₃ is a biologically inactive precursor to calcitriol (Item No. 71820) that is converted to active metabolites in vivo.¹,² Vitamin D₃ is obtained from dietary sources, including fish, or formed in the epidermis via photolytic conversion of 7-dehydro cholesterol (Item No. 14612) to previtamin D₃ by UVB radiation, followed by isomerization to vitamin D₃.³,⁴ Vitamin D₃ can then be converted to 25-hydroxy vitamin D₃ (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 D₃ have been used in the treatment of osteoporosis.

References