**PRODUCT INFORMATION**

**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.:** λ_max: 213, 265 nm  
- **Supplied as:** A crystalline solid  
- **Storage:** -20°C  
- **Stability:** ≥2 years

*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. Vitamin D₃ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. 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*. 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. 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. Formulations containing vitamin D₃ have been used in the treatment of osteoporosis.

**References**