

PRODUCT INFORMATION



Vitamin D₃-d₇ Item No. 25427

CAS Registry No.: 1627523-19-6
Formal Name: (1S,3Z)-4-methylene-3-[(2E)-2-[(1R,3aS,7aR)-octahydro-7a-methyl-1-[(1R)-1-methyl-5-(methyl-d₃)hexyl-5,6,6,6-d₄]-4H-inden-4-ylidene]ethylidene]-cyclohexanol

Synonym: Cholecalciferol-d₇

MF: C₂₇H₃₇D₇O

FW: 391.7

Chemical Purity: ≥95% (Vitamin D₃)

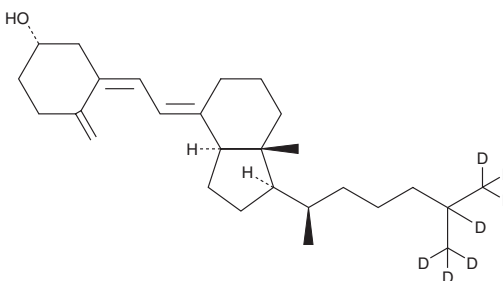
Deuterium

Incorporation: ≥99% deuterated forms (d₁-d₇); ≤1% d₀

Supplied as: A solid

Storage: -80°C

Stability: ≥2 years



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

Laboratory Procedures

Vitamin D₃-d₇ is intended for use as an internal standard for the quantification of vitamin D₃ (Item No. 11792) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Vitamin D₃-d₇ is supplied as a solid. A stock solution may be made by dissolving the vitamin D₃-d₇ in the solvent of choice, which should be purged with an inert gas. Vitamin D₃-d₇ is slightly soluble in chloroform and methanol.

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

1. Lehmann, B., Genehr, T., Knuschke, P., *et al.* UVB-induced conversion of 7-dehydrocholesterol to 1 α ,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).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 09/28/2018

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM