# PRODUCT INFORMATION

## (±)-Thalidomide-$d_4$

*Item No. 29450*

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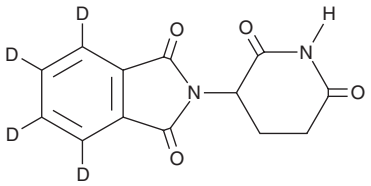
| **CAS Registry No.:** | 1219177-18-0 |
| **Formal Name:** | 2-(2,6-dioxo-3-piperidinyl)-1H-isoindole-1,3(2H)-dione-4,5,6,7-$d_4$ |
| **Synonym:** | N-Phthaloylglutamimide-$d_4$ |
| **MF:** | $C_{13}H_6D_4N_2O_4$ |
| **FW:** | 262.3 |
| **Chemical Purity:** | ≥98% ((±)-Thalidomide) |
| **Deuterium Incorporation:** | ≥99% deuterated forms ($d_1$-$d_4$); ≤1% $d_0$ |
| **Supplied as:** | A solid |
| **Storage:** | -20°C |
| **Stability:** | ≥4 years |




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

### Laboratory Procedures

(±)-Thalidomide-$d_4$ is intended for use as an internal standard for the quantification of (±)-thalidomide (Item No. 14610) 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).

(±)-Thalidomide-$d_4$ is supplied as a solid. A stock solution may be made by dissolving the (±)-thalidomide-$d_4$ in the solvent of choice, which should be purged with an inert gas. (±)-Thalidomide-$d_4$ is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of (±)-thalidomide-$d_4$ in these solvents is approximately 12 mg/ml.

### Description

(±)-Thalidomide-$d_4$ is intended for use as an internal standard for the quantification of (±)-thalidomide (Item No. 14610) by GC- or LC-MS. (±)-Thalidomide is an immunomodulatory compound with diverse biological activities, including anticancer, anti-inflammatory, and teratogenic properties.[1-3] It prevents polymorphonuclear leukocyte (PMN) chemotaxis when used at concentrations of 1, 10, and 100 µg/ml.[1] (±)-Thalidomide increases IL-2-induced proliferation and IFN-γ production in primary human T cells *in vitro*.[2] It enhances natural killer (NK) cell-mediated cytotoxicity in MM.1S multiple myeloma cells.[3] Thalidomide (4 mg/animal) reduces lung IL-6, TGF-β, VEGF, angiopoietin-1, angiopoietin-2, and collagen type Iα1 expression, inhibits pulmonary angiogenesis, and attenuates fibrosis in a mouse model of bleomycin-induced pulmonary fibrosis.[4] It induces apoptosis in primary human embryonic fibroblasts ($EC_{50}$ = 8.9 µM) and induces limb and eye defects in chicken embryos ($EC_{50}$ = 50 µg/kg egg weight).[5] Formulations containing thalidomide have been used in the treatment of multiple myeloma and erythema nodosum leprosum (ENL) in non-pregnant individuals.

### References


1. Faure, M., Thivolet, J., and Gaucherand, M. *Arch. Dermatol. Res.* **269(3)**, 275-280 (1980).
2. Haslett, P.A., Corral, L.G., Albert, M., *et al. J. Exp. Med.* **187(11)**, 1885-1892 (1998).
3. Davies, F.E., Raje, N., Hideshima, T., *et al. Blood* **98(1)**, 210-216 (2001).
4. Tabata, C., Tabata, R., Kadokawa, Y., *et al. J. Immunol.* **179(1)**, 708-714 (2007).
5. Knobloch, J., Shaughnessy, J.D., Jr., and Rüther, U. *FASEB J.* **21(7)**, 1410-1421 (2007).





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