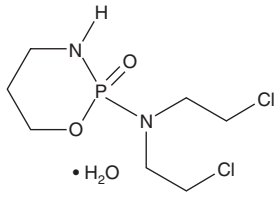
PRODUCT INFORMATION

Cyclophosphamide (hydrate)

Item No. 13849

CAS Registry No.: 6055-19-2
Formal Name: N,N-*bis*(2-chloroethyl)tetrahydro-2H-1,3,2-oxazaphosphorin-2-amine, monohydrate
MF: $C_7H_{15}Cl_2N_2O_2P \bullet H_2O$
FW: 279.1
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Synthetic



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

Laboratory Procedures

Cyclophosphamide (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the cyclophosphamide (hydrate) in the solvent of choice, which should be purged with an inert gas. Cyclophosphamide (hydrate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of cyclophosphamide (hydrate) in these solvents is approximately 1, 5, and 1.4 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of cyclophosphamide (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of cyclophosphamide (hydrate) in PBS (pH 7.2) is approximately 1.6 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Cyclophosphamide is a nitrogen mustard alkylating agent.[1] It acts as a prodrug and is converted to the active metabolite phosphoramide mustard (Item No. 34078) *via* 4-hydroxycyclophosphamide and aldophosphamide intermediates by cytochrome P450s (CYP450s) in the liver. Cyclophosphamide (50 mg/kg) induces the formation of DNA interstrand crosslinks in leukemia cells isolated from an L1210 leukemia mouse model.[2] It decreases the percentage of isolated peripheral blood lymphocytes expressing CD3, CD4, or CD19 when administered to mice at doses of 100 or 150 mg/kg.[3] Cyclophosphamide (200 mg/kg) induces nephrotoxicity and hepatotoxicity in rats.[4] It is teratogenic to embryos when administered to pregnant dams on day 11 of gestation at doses of 5, 10, or 20 mg/kg.[5] Formulations containing cyclophosphamide have been used in the treatment of cancer and autoimmune disorders.

References

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2. DeNeve, W., Valeriote, F., Edelstein, M., *et al. Cancer Res.* **49(13)**, 3452-3456 (1989).
3. Huyan, X.-H., Lin, Y.-P., Gao, T., *et al. Int. Immunopharmacol.* **11(9)**, 1293-1297 (2011).
4. Caglayan, C., Temel, Y., Kandemir, F.M., *et al. Environ. Sci. Pollut. Res. Int.* **25(21)**, 20968-20984 (2018).
5. Gibson, J.E. and Becker, B.A. *Teratology* **4(2)**, 141-150 (1971).

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