

Certificate of Analysis

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Product Name: Cyclophosphamide

Catalog No.: 4091

Batch No.: 5

CAS Number: 50-18-0

IUPAC Name: 2-[Bis(2-chloroethyl)amino]tetrahydro-2H-1,3,2-oxazaphosphorine 2-oxide

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₇H₁₅Cl₂N₂O₂P.H₂O

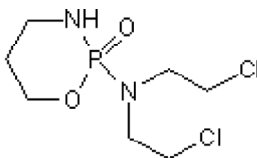
Batch Molecular Weight: 279.11

Physical Appearance: White solid

Solubility: water to 100 mM
DMSO to 100 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.9% purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

Carbon Hydrogen Nitrogen

Theoretical	30.12	5.94	9.92
Found	29.73	6.14	10.04

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

bio-techne.com

info@bio-techne.com

techsupport@bio-techne.com

North America

Tel: (800) 343 7475

China

info.cn@bio-techne.com

Tel: +86 (21) 52380373

Europe Middle East Africa

Tel: +44 (0)1235 529449

Rest of World

www.tocris.com/distributors

Tel: +1 612 379 2956

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Description:

Cyclophosphamide is a nitrogen mustard alkylating agent and prodrug. Phosphoramidate mustard (active metabolite) forms DNA cross-links leading to cell death. Inhibits aldehyde dehydrogenase 1 (ALDH1) through its degradation product acrolein. Chemotherapeutic for the treatment of breast cancer; regulates Bax and Bcl-2 expression when administered with etoposide (Cat. No. 1226) in breast cancer cell lines.

Physical and Chemical Properties:

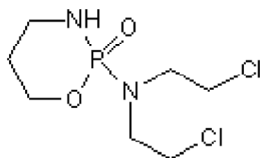
Batch Molecular Formula: C₇H₁₅Cl₂N₂O₂P.H₂O

Batch Molecular Weight: 279.11

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Store at -20°C

Solubility & Usage Info:

water to 100 mM

DMSO to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Gibson *et al* (1999) Regulation of BAX and BCL-2 expression in breast cancer cells by chemotherapy. *Breast Cancer Research and Treatment* **55** 107. PMID: 10481938.

Ren *et al* (1999) Inhibition of human aldehyde dehydrogenase 1 by the 4-hydroxycyclophosphamide degradation product acrolein. *Drug Metab. Disp.* **27** 133.

Hengstler *et al* (1992) DNA strand breaks and DNA cross-links in peripheral mononuclear blood cells of ovarian cancer patients during chemotherapy with cyclophosphamide/carboplatin. *Cancer Res.* **15** 52.

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