

## Certificate of Analysis

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**Product Name:** Cyclophosphamide

**Catalog No.:** 4091

**Batch No.:** 2

**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:**  $C_7H_{15}Cl_2N_2O_2P \cdot H_2O$

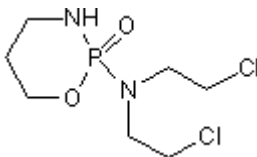
**Batch Molecular Weight:** 279.11

**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 100% purity

**<sup>1</sup>H NMR:** Consistent with structure

**Mass Spectrum:** Consistent with structure

**Microanalysis:**

	Carbon Hydrogen Nitrogen		
Theoretical	30.12	6.14	10.04
Found	30.27	6.12	9.75

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**Description:**

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:**

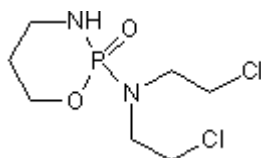
Batch Molecular Formula: C<sub>7</sub>H<sub>15</sub>Cl<sub>2</sub>N<sub>2</sub>O<sub>2</sub>P.H<sub>2</sub>O

Batch Molecular Weight: 279.11

Physical Appearance: White solid

**Minimum Purity:** >99%

**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. Our standard recommendations are:

**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:**

**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.

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

**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.

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