

## Certificate of Analysis

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**Product Name:** MK 217

**Catalog No.:** 4014

**Batch No.:** 1

**CAS Number:** 129318-43-0

**IUPAC Name:** *P,P*-(4-Amino-1-hydroxybutylidene)*bis*-phosphonic acid monosodium salt

### 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:**  $C_4H_{12}NNaO_7P_2 \cdot 2\frac{1}{2}H_2O$

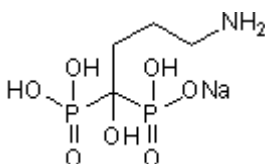
**Batch Molecular Weight:** 316.12

**Physical Appearance:** White solid

**Solubility:** water to 50 mM

**Storage:** Desiccate at -20°C

**Batch Molecular Structure:**



### 2. ANALYTICAL DATA

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

**Mass Spectrum:** Consistent with structure

**Microanalysis:**

	Carbon	Hydrogen	Nitrogen
Theoretical	15.2	5.42	4.43
Found	15.02	5.55	4.34

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

## Product Information

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### Description:

Osteoclast-mediated bone resorption inhibitor. Binds and blocks farnesyl diphosphate synthase (FPPS) in the HMG-CoA pathway ( $IC_{50}$  = 460 nM for recombinant human FPPS); causes macrophage apoptosis. Inhibits prenylation and sterol biosynthesis in purified osteoclasts.

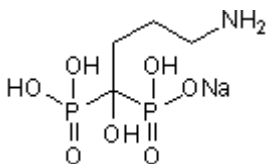
### Physical and Chemical Properties:

Batch Molecular Formula:  $C_4H_{12}NNaO_7P_2 \cdot 2\frac{1}{2}H_2O$

Batch Molecular Weight: 316.12

Physical Appearance: White solid

### Batch Molecular Structure:



**Storage:** Desiccate at -20°C

### Solubility & Usage Info:

water to 50 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:

**Fisher et al** (1999) Alendronate mechanism of action; geranylgeraniol, an intermediate in the mevalonate pathway, prevents inhibition of osteoclast formation, bone resorption, and kinase activation *in vitro*. *Proc.Natl.Acad.Sci.* **96** 133.

**Bergstrom et al** (2000) Alendronate is a specific, nanomolar inhibitor of farnesyl diphosphate synthase. *Arch.Biochem.Biophys.* **373** 231. PMID: 10620343.

**Fournier et al** (2008) Lowering bone mineral affinity of bisphosphonates as a therapeutic strategy to optimize skeletal tumor growth inhibition *in vitro*. *Cancer Res.* **68** 8945. PMID: 18974139.

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#### 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](http://www.tocris.com/distributors)

Tel: +1 612 379 2956