## **Certificate of Analysis**



## **Product Identification Chemical Structure**

HB0023 Catalog number Compound name (R)-CPPene

Chemical name D-4-[(2E)-3-Phosphono-2-propenyl]-2-piperazinecarboxylic acid

E0800-10-8 Batch number C<sub>8</sub>H<sub>15</sub>N<sub>2</sub>O<sub>5</sub>P.1.2H<sub>2</sub>O 271.81 Batch molecular formula

Batch molecular weight

P-OI OH
CO <sub>2</sub> H
ЙH

Method	QC requirement	QC Result
NMR	1H NMR in D <sub>2</sub> O at 400 MHz consistent with structure	Meets specification
Mass spectrum	Electrospray negative analysis consistent with structure	Meets specification
Microanalysis	Elemental analysis is within 0.4% for the batch molecular formula	Meets specification
TLC	TLC analysis in 50% PAW:BuOH shows one spot under ninhydrin	Meets specification: R <sub>f</sub> =0.1
Physical appearance	White to off-white solid	Meets specification: Off-white solid
Solubility	Soluble in water (100 mM)	Meets specification

Produced by Signature

Passed by Signature

Date

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.