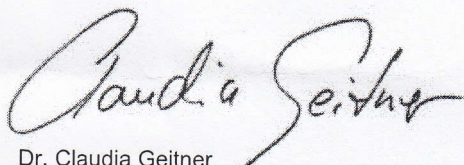


## Certificate of Analysis

 METAPHARMACEUTICAL IND SLPRODUCTO PARA USO :  
TECNICO

Product Name: N,N-BIS(PHOSPHONOMETHYL)GLYCINE  
Product Number: 15149  
Batch Number: BCBM6727V  
Brand: Aldrich  
CAS Number: 2439-99-8  
Formula:  $C_4H_{11}NO_8P_2$   
Formula Weight: 263.08  
Quality Release Date: 19 FEB 2014

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	WHITE
APPEARANCE (FORM)	POWDER	POWDER
TITRATION (T) NAOH 0.1M	98.0 - 102.0 %	99.6 %
CARBON CONTENT	18.26 % (THEORY)	18.31 %
HYDROGEN CONTENT	4.21 % (THEORY)	4.29 %
NITROGEN CONTENT	5.32 % (THEORY)	5.38 %
PROTON NMR SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS



Dr. Claudia Geitner  
Manager Quality Control  
Buchs, Switzerland

Sigma-Aldrich warrants that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.



## Certificate of Origin

**Product Number:** 15149  
**Product Name:** N,N-Bis(phosphonomethyl)glycine  
>= 98.0 % T  
**Lot Number:** BCBM6727V  
**Brand:** Aldrich

**Country of Manufacture:****RUSSIAN****Type of Manufacture**

Chemical synthesis / chemical transformation	Yes
Fermentation / from cell culture	No
Purification/extraction from biological material	No
Blending of various components (incl. Preparation of solutions)	No
Purification/extraction from non-biological natural inorganic/organic source	No
Is the product / material partly or fully of human or animal origin (i.e., tallow derived materials, tissue, tissue extract or fluid such as milk, blood, etc.)?	No
Does the manufacturing process involve any raw materials, sourcing materials, or reagents that are of human or animal origin (i.e., lubricants, cleaning agents, filtering agents, processing aids, enzymes or cultural media, fermentation)?	No
Is any of the equipment used for processing and / or storage of the product in contact at any time with other materials of human or animal origin (i.e., cleaning solutions, solutions for equipment, test media used in equipment validation, other human or animal-derived products / materials)?	No
Is the product / material, for any other reason, at any time during its manufacturing process, in contact with materials of human or animal origin including fermentation?	No
Does the closure container (e.g. bottles, caps, drum, etc.) involve any raw materials that are of human or animal origin?	No
Are there procedures in place to avoid cross contamination with other materials or residue of animal, human, GMO origin or Allergen materials?	No
Genetically modified organisms used	No
Have any gluten materials been applied during manufacturing?	No
During the manufacturing process is a catalyst(s) used?	No
Is the product/material directly produced or handled using ionizing radiation?	No
During the manufacturing process is a solvent(s) used?	Yes
Are processes in-place for monitoring the production process, traceability and batch consistency?	Yes
Is this product/material collected and/or processed in dedicated equipment?	Yes
Was this product/material collected and packaged in new or sterilized containers?	Yes
Distilled Water	Yes



Steam	Yes
Circulate	Yes
Have any allergen materials been applied during manufacturing?	No



Dr. Thomas Hellmann  
Director Quality Assurance-EMEA

This information is to be used for the purpose of determining animal or other biological origin only and not to be confused with "country of origin" for import/export purposes. Data provided in this document are property of Sigma-Aldrich.

The above information is believed to be correct to the best of our knowledge

Sigma-Aldrich shall not be held liable for any damage resulting from the sale, use, handling or from processing the above product(s).

This document does not make any warranty, express or implied, of fitness for any particular use of the product(s).

Purchaser must determine the suitability of the product(s) for its use under the applicable laws and regulations.