

## Scientific Documentation

### **L-Arginine, Free Base, cGMP, USP, EP, JP, bioCERTIFIED (TM)**

Not appropriate for regulatory submission.

Please visit [www.spectrumchemical.com](http://www.spectrumchemical.com) or contact Tech Services for the most up-to-date information contained in this information package.

Spectrum Chemical Mfg Corp  
769 Jersey Avenue  
New Brunswick, NJ 08901  
Phone 732.214.1300



## **Table of Contents**

Product Specification  
Certificate of Analysis  
Safety Data Sheet (SDS)  
Certification of Current Good Manufacturing Practices (cGMP)  
Manufacturing Process Flowchart  
Technical Statements  
Elemental Impurities Statement  
Residual Solvents Statement  
General Label Information – Sample Label

# Specification for L-Arginine, Free Base, cGMP, USP, EP, JP, bioCERTIFIED (TM) (A9601)

Item Number	A9601
Item	L-Arginine, Free Base, cGMP, USP, EP, JP, bioCERTIFIED (TM)
CAS Number	74-79-3
Molecular Formula	C <sub>6</sub> H <sub>14</sub> N <sub>4</sub> O <sub>2</sub>
Molecular Weight	174.20
MDL Number	
Synonyms	

Test	Specification	
	Min	Max
ASSAY (DRIED BASIS, USP)	98.5	101.5 %
Assay (Dried Basis, JP, EP)	99.0	101.0 %
Specific Rotation (20°C, EP)	+25.5° to +28.5°	
Specific Rotation (20°C, JP)	+26.9° to +27.9°	
Specific Rotation (25°C, USP)	+26.3° to +27.7°	
pH (JP)	10.5	12.0
LOSS ON DRYING (USP, EP)		0.5 %
LOSS ON DRYING (JP)		0.3 %
Appearance of Solution (EP, JP)		TO PASS TEST
RESIDUE ON IGNITION (USP)		0.3 %
Residue on Ignition/Sulfated Ash (JP, EP)		0.1 %
CHLORIDE (USP)		0.05 %
CHLORIDE (JP)		0.21 %
Sulfate (USP, EP)		0.03 %
SULFATE (JP)		0.028 %
Organic Impurities (USP):		
INDIVIDUAL IMPURITIES		0.5 %
TOTAL IMPURITIES		2.0 %
Ninhydrin-Positive Substances (EP):		

Test	Specification	
	Min	Max
Any Ninhydrin-Positive substance		0.2 %
TOTAL		0.5 %
RELATED SUBSTANCES (JP), RELATED COMPOUNDS (USP) CONFORMS		TO PASS TEST
ARSENIC		1.5 ppm
Heavy Metals (as Pb, JP)		10 ppm
AMMONIUM (EP)		TO PASS TEST
AMMONIUM (JP)		0.2 %
Iron (USP)		30 ppm
Iron (EP, JP)		10 ppm
ELEMENTAL IMPURITIES		AS REPORTED
MICROBIAL LIMITS:		
TOTAL AEROBIC BACTERIA COUNT (TABC)		1000 CFU/g
YEAST AND MOLD		100 CFU/g
COLIFORMS		Negative/g
ESCHERICHIA COLI		Negative/10 g
SALMONELLA		Negative/25 g
IDENTIFICATION		TO PASS TEST
EXPIRATION DATE		
DATE OF MANUFACTURE		
APPEARANCE		
RESIDUAL SOLVENTS		TO PASS TEST

***Spectrum Chemical Mfg Corp***

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<b>Corporate Headquarters:</b>	<b>West Coast Facility:</b>
769 Jersey Ave.	14422 S. San Pedro St.
New Brunswick, NJ 08901	Gardena, CA 90248
732.214.1300	310.516.8000

## Certificate Of Analysis

Item Number	A9601	Lot Number	4LH0018
Item	L-Arginine, Free Base, cGMP, USP, EP, JP, bioCERTIFIED (TM)	CAS Number	74-79-3
Molecular Formula	C <sub>6</sub> H <sub>14</sub> N <sub>4</sub> O <sub>2</sub>	Molecular Weight	174.20

TEST	SPECIFICATION		RESULT
	MIN	MAX	
ASSAY (DRIED BASIS, USP)	98.5	101.5 %	99.9 %
Assay (Dried Basis, JP, EP)	99.0	101.0 %	99.9 %
Specific Rotation (20°C, EP)	+25.5° to +28.5°		+27.3°
Specific Rotation (20°C, JP)	+26.9° to +27.9°		+27.3°
Specific Rotation (25°C, USP)	+26.3° to +27.7°		+26.8°
pH (JP)	10.5	12.0	10.8
LOSS ON DRYING (USP, EP)		0.5 %	0.2 %
LOSS ON DRYING (JP)		0.3 %	0.2 %
Appearance of Solution (EP, JP)		TO PASS TEST	PASSES TEST
RESIDUE ON IGNITION (USP)		0.3 %	0.05 %
Residue on Ignition/Sulfated Ash (JP, EP)		0.1 %	0.04 %
CHLORIDE (USP)		0.05 %	<0.05 %
CHLORIDE (JP)		0.21 %	<0.05 %
Sulfate (USP, EP)		0.03 %	<0.03 %
SULFATE (JP)		0.028 %	<0.028 %
Organic Impurities (USP):			.
INDIVIDUAL IMPURITIES		0.5 %	0.0 %
TOTAL IMPURITIES		2.0 %	0.0 %
Ninhydrin-Positive Substances (EP):			.
Any Ninhydrin-Positive substance		0.2 %	<0.2 %
TOTAL		0.5 %	<0.5 %
RELATED SUBSTANCES (JP), RELATED COMPOUNDS (USP) CONFORMS		TO PASS TEST	PASSES TEST

TEST	SPECIFICATION		RESULT
	MIN	MAX	
ARSENIC		1.5 ppm	<0.05 ppm
Heavy Metals (as Pb, JP)		10 ppm	<10 ppm
AMMONIUM (EP)		TO PASS TEST	PASSES TEST
AMMONIUM (JP)		0.2 %	<0.2 %
Iron (USP)		30 ppm	<30 ppm
Iron (EP, JP)		10 ppm	<10 ppm
ELEMENTAL IMPURITIES		AS REPORTED	COMPLIES WITH STANDARD
MICROBIAL LIMITS:			.
TOTAL AEROBIC BACTERIA COUNT (TABC)		1000 CFU/g	<1000 CFU/g
YEAST AND MOLD		100 CFU/g	<100 CFU/g
COLIFORMS		Negative/g	NEGATIVE
ESCHERICHIA COLI		Negative/10 g	NEGATIVE
SALMONELLA		Negative/25 g	NEGATIVE
IDENTIFICATION		TO PASS TEST	PASSES TEST
EXPIRATION DATE			04-OCT-2024
DATE OF MANUFACTURE			05-OCT-2021
APPEARANCE			WHITE POWDER
RESIDUAL SOLVENTS		TO PASS TEST	PASSES TEST

Certificate of Analysis Results Entered By:

SVANGOOR  
Swetha Vangoor  
15-SEP-22 07:47:30

Spectrum Chemical Mfg Corp  
777 Jersey Avenue  
New Brunswick 08901 NJ



Certificate of Analysis Results Approved By:

AWILLIAMS  
Allison Williams  
15-SEP-22 10:33:16

**All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.**

**Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate Personal Protective Equipment (PPE) is used before handling any chemical.**

# SAFETY DATA SHEET

# spectrum®



Revision date 07-September-2021

Revision Number 1

## 1. Identification

### Product identifier

**Product Name** L-ARGININE, FREE BASE, CGMP, BIOCERTIFIED(TM)

### Other means of identification

**Product Code(s)** A9601

**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended use** No information available

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

#### Supplier Address

Spectrum Chemical Mfg. Corp.  
14422 South San Pedro St.  
Gardena, CA 90248  
(310) 516-8000

### Emergency telephone number

**Emergency Telephone** Chemtrec 1-800-424-9300

## 2. Hazard(s) identification

### Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

### Hazards not otherwise classified (HNOC)

Not applicable

### Label elements

#### Hazard statements

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

The product contains no substances which at their given concentration, are considered to be hazardous to health.

**Appearance** Crystalline powder

**Physical state** Solid

**Odor** No information available

**Other information**

No information available.

**3. Composition/information on ingredients****Substance**

Chemical name	CAS No	Weight-%	Trade secret
L-Arginine	74-79-3	100	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

**4. First-aid measures****Description of first aid measures**

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

**Most important symptoms and effects, both acute and delayed**

Symptoms	No information available.
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**Indication of any immediate medical attention and special treatment needed**

Note to physicians	Treat symptomatically.
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**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Large Fire</b>	CAUTION: Use of water spray when fighting fire may be inefficient.
<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.
<b>Specific hazards arising from the chemical</b>	No information available.
<b>Hazardous combustion products</b>	Carbon Monoxide, Carbon Dioxide. Nitrogen oxides (NOx).
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	none.
<b>Sensitivity to static discharge</b>	none.
<b>Special protective equipment for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**6. Accidental release measures**



## **Personal precautions, protective equipment and emergency procedures**

**Personal precautions**                      Ensure adequate ventilation.

## **Methods and material for containment and cleaning up**

**Methods for containment**                      Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**                      Pick up and transfer to properly labeled containers.

## **7. Handling and storage**

### **Precautions for safe handling**

**Advice on safe handling**                      Handle in accordance with good industrial hygiene and safety practice.

### **Conditions for safe storage, including any incompatibilities**

**Storage Conditions**                      Sensitive to light. Store in light-resistant containers. Keep container tightly closed in a dry and well-ventilated place.

## **8. Exposure controls/personal protection**

### **Control parameters**

**Exposure Limits**                      The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

### **Appropriate engineering controls**

**Engineering controls**                      Showers  
Eyewash stations  
Ventilation systems.

### **Individual protection measures, such as personal protective equipment**

**Eye/face protection**                      No special protective equipment required.

**Skin and body protection**                      No special protective equipment required.

**Respiratory protection**                      No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations**                      Handle in accordance with good industrial hygiene and safety practice.

## **9. Physical and chemical properties**

### **Information on basic physical and chemical properties**

**Physical state**                      Solid

<b>Appearance</b>	Crystalline powder
<b>Color</b>	White
<b>Odor</b>	No information available
<b>Odor threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	no data available	None known
Melting point / freezing point	235 - 244 °C / 455 - 471.2 °F	None known
Boiling point / boiling range	no data available	None known
Flash point	no data available	None known
Evaporation rate	no data available	None known
Flammability (solid, gas)	no data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Vapor density	no data available	None known
Relative density	no data available	None known
Water solubility	Soluble in water	None known
Solubility(ies)	Insoluble in diethyl ether	None known
Partition coefficient	-4.2	None known
Autoignition temperature	no data available	None known
Decomposition temperature		None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	No data available	None known
<u>Other information</u>		
Explosive properties	No information available	
Oxidizing properties	No information available	
Softening point	No information available	
Molecular weight	174.20	
VOC Content (%)	No information available	
Liquid Density	No information available	
Bulk density	No information available	

## 10. Stability and reactivity

<b>Reactivity</b>	No information available.
<b>Chemical stability</b>	Stable under recommended storage conditions.
<b>Possibility of hazardous reactions</b>	None under normal processing.
<b>Conditions to avoid</b>	None known based on information supplied.
<b>Incompatible materials</b>	None known based on information supplied.
<b>Hazardous decomposition products</b>	None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Specific test data for the substance or mixture is not available.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available.

## Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** No information available.

## Acute toxicity

### **Numerical measures of toxicity**

No information available

## Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Skin corrosion/irritation** No information available.

**Serious eye damage/eye irritation** No information available.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

**Other adverse effects** No information available.

**Interactive effects** No information available.

## **12. Ecological information**

### **Ecotoxicity**

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
L-Arginine 74-79-3	-	LC50: =2.8g/L (96h, Danio rerio)	-	-

**Persistence and degradability** No information available.

**Bioaccumulation** Inherently biodegradable.

**Other adverse effects** No information available.

## **13. Disposal considerations**

### Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## **14. Transport information**

DOT not regulated

TDG not regulated

MEX not regulated

<u>ICAO (air)</u>	not regulated
<u>IATA</u>	not regulated
<u>IMDG</u>	not regulated
<u>RID</u>	not regulated
<u>ADR</u>	not regulated
<u>ADN</u>	not regulated

## 15. Regulatory information

### International Inventories

<b>TSCA</b>	Complies
<b>DSL/NDL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	This product complies with ENCS:
<b>IECSC</b>	This product complies with China:
<b>KECL</b>	Complies
<b>PICCS</b>	Complies
<b>AICS</b>	All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

#### **Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

### US Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

#### **SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

#### **CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

#### **CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

### US State Regulations

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

This product does not contain any substances regulated under applicable state right-to-know regulations

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

**16. Other information****NFPA**

**Health hazards** 0

**Flammability** 0

**Instability** 0

**Physical and chemical properties** -

**HMIS**

**Health hazards** 0

**Flammability** 0

**Physical hazards** 0

**Personal protection** X

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA TWA (time-weighted average)

STEL

STEL (Short Term Exposure Limit)

Ceiling Maximum limit value

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

Japan GHS Classification

Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organization for Economic Co-operation and Development Environment, Health, and Safety Publications

Organization for Economic Co-operation and Development High Production Volume Chemicals Program

Organization for Economic Co-operation and Development Screening Information Data Set

World Health Organization

**Revision date**

07-September-2021

**Revision Note**

No information available.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**



**Certification of Compliance with current Good Manufacturing Practices**

Dear Valued Customer:

Spectrum Chemical Mfg Corp certifies that the following product(s) is produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

Catalog Number	Product Name
A9601	L-Arginine, Free Base, cGMP, bioCERTIFIED™

Spectrum is an FDA registered and inspected Drug Establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

Spectrum-Gardena, CA: 2020632  
Spectrum-New Brunswick, NJ: 2246824

Thank you for your interest in Spectrum products. If we may be of further assistance, please feel free to contact the Quality Assurance department at 310-516-8000 or via email at [qualityassurance@spectrumchemical.com](mailto:qualityassurance@spectrumchemical.com)

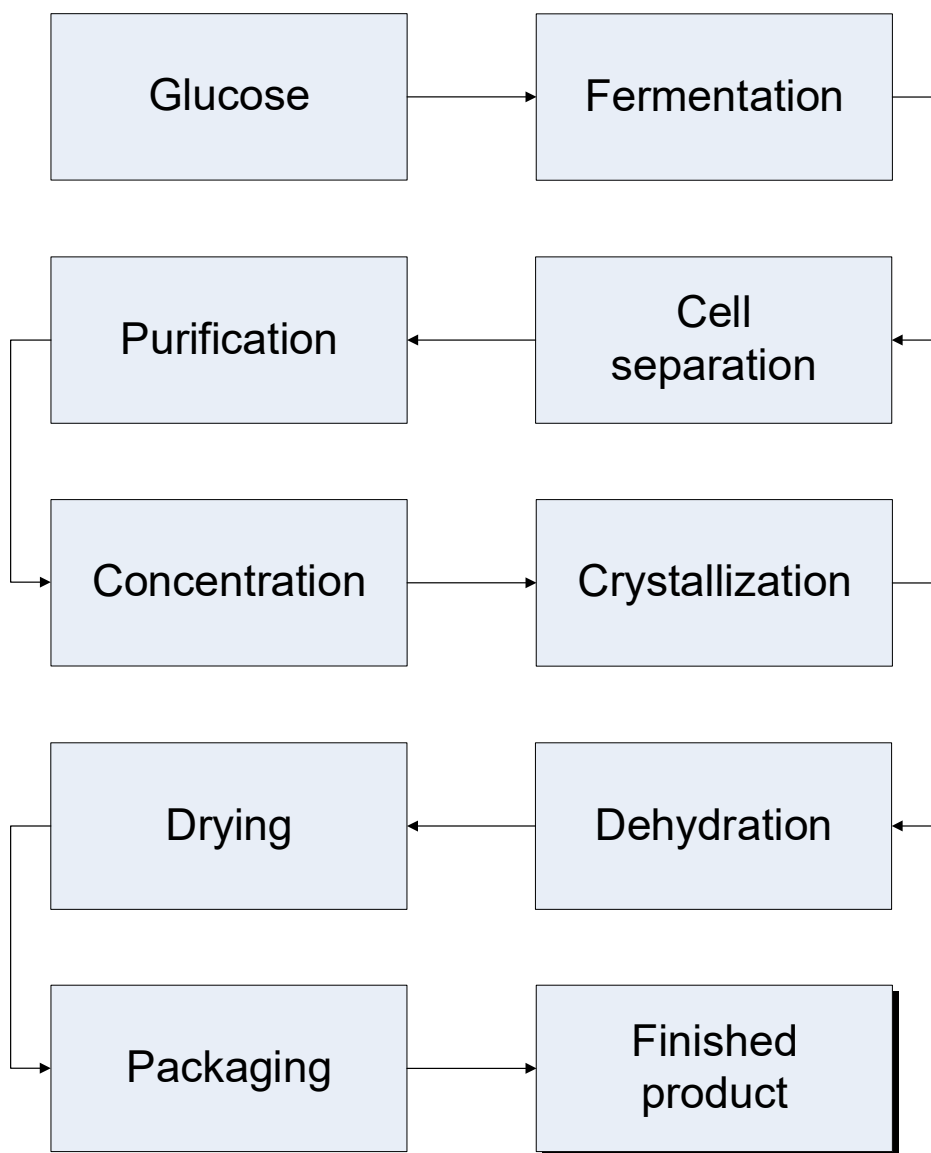
Sincerely,

A handwritten signature in black ink, appearing to read "Oralia Chavez", written in a cursive style.

Oralia Chavez  
Quality Assurance Specialist

## Manufacturing Process Flowchart

### L-Arginine, Free Base, cGMP, bioCERTIFIED™ - A9601



#### CORPORATE HEADQUARTERS

769 Jersey Avenue  
New Brunswick, NJ 08901  
PHONE 732.214.1300  
FAX 732.246.7132

#### WEST COAST FACILITY

14422 South San Pedro Street  
Gardena, California 90248  
PHONE 310.516.8000  
FAX 310.516.9843



## **A9601, L-Arginine, Free Base, cGMP, bioCERTIFIED™**

### **Source Statement**

The above mentioned catalog item is manufactured by microbial fermentation of glucose (corn origin). No animal derived products are used in the manufacturing process.

### **BSE/TSE Statement**

The above mentioned catalog item does not contain nor is manufactured using any animal derived products and is therefore, BSE/TSE free.

### **Allergen Statement**

The above mentioned catalog item does not contain any of the following:

- Milk
- Egg
- Fish
- Shellfish
- Tree Nuts
- Wheat
- Peanuts
- Cereals containing Gluten
- Celery
- Mustard
- Sesame Seed
- Latex
- Sulfites > 10 ppm

### **GMO Statement**

The above mentioned catalog item is not subject to GMO labeling under EU regulations.

### **Melamine Statement**

The above mentioned catalog does not use or add melamine to the manufacturing process and is considered melamine-free.

### **Animal Testing Statement**

The above mentioned catalog item has not been tested on animals.



## Organic Compliance Statement

The above mentioned catalog item has not been produced using irradiation or ethylene oxide (EtO).

## Shelf Life Statement

The above mentioned catalog item is typically assigned a shelf life of 36 months from the date of manufacture. The actual assigned shelf life for any specific lot should be referenced on the Certificate of Analysis.

## Other Chemicals Statement

Spectrum does not have any reason to suspect the above mentioned catalog item contains any of the following chemicals. This product does not come into contact with these chemicals during packaging or storage:

- |                  |                 |
|------------------|-----------------|
| • Aflatoxins     | • Parabens      |
| • Antibiotics    | • Phthalates    |
| • CMR Substances | • Preservatives |



**RE: Elemental Impurities - L-Arginine, Free Base, cGMP, bioCERTIFIED™ (Cat# A9601)**

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

The above material complies with the USP<232>, <233> Elemental Impurities and the ICH Q3D Elemental Impurities Guideline. The following elemental impurities are likely to be present:

Elemental Impurity		Class	Expected Concentration
Cadmium	Cd	1	< 1 ppm
Lead	Pb	1	< 3 ppm
Arsenic	As	1	< 1 ppm
Mercury	Hg	1	< 0.1 ppm
Cobalt	Co	2A	Lot specific analysis*
Vanadium	V	2A	Lot specific analysis*
Nickel	Ni	2A	Lot specific analysis*
Thallium	Tl	2B	Not tested
Gold	Au	2B	Not tested
Palladium	Pd	2B	Not tested
Iridium	Ir	2B	Not tested
Osmium	Os	2B	Not tested
Rhodium	Rh	2B	Not tested
Ruthenium	Ru	2B	Not tested
Selenium	Se	2B	Not tested
Silver	Ag	2B	Not tested
Platinum	Pt	2B	Not tested
Lithium	Li	3	Not tested
Antimony	Sb	3	Not tested
Barium	Ba	3	Not tested
Molybdenum	Mo	3	Not tested
Copper	Cu	3	Not tested
Tin	Sn	3	Not tested
Chromium	Cr	3	Not tested

Elements indicated as "Not tested" are not intentionally added to the manufacturing process.

\*Refer to CofA for lot specific analysis

**CORPORATE HEADQUARTERS**

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Other elemental impurities considered by USP <232>, <233> and ICH Q3D which are not addressed in the above mentioned table are not likely to be present. These substances are not used in the production process, are not intentionally added or known to be present in the above mentioned material.

This information is subject to change and is intended for risk assessment only. It is responsibility of the end user to evaluate suitability of any chemical for the intended use as well as to assess compound-specific limits of daily intake of metal impurities. For lot-specific information, please refer to the respective Certificate of Analysis.

If you have any further questions, please contact us by telephone at 1(800)772-8786 Option 2, or by email at [TechServices@spectrumchemical.com](mailto:TechServices@spectrumchemical.com).

Sincerely,

Technical Services  
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature.

CORPORATE HEADQUARTERS

769 Jersey Avenue  
New Brunswick, NJ 08901  
PHONE 732.214.1300  
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WEST COAST FACILITY

14422 South San Pedro Street  
Gardena, California 90248  
PHONE 310.516.8000  
FAX 310.516.9843



**RE: Residual Solvents - L-Arginine, Free Base, cGMP, bioCERTIFIED™ (Cat# A9601)**

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

The above mentioned catalog item complies with the requirements of USP <467> Residual Solvents and ICH Q3C Residual Solvents Guideline. The following solvents are likely to be present:

Residual Solvent	Class	Expected Concentration
Methanol	2	< 3000 ppm

No Class 1, Class 3 or other solvents are used or produced in the manufacturing process of this material.

For lot-specific information, please refer to the respective Certificate of Analysis.

If you have any further questions, please contact us by telephone at 1(800)772-8786 Option 2, or by email at [TechServices@spectrumchemical.com](mailto:TechServices@spectrumchemical.com).

Sincerely,

Technical Services  
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature.

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PHONE 310.516.8000

FAX 310.516.9843

## Label Information

The Spectrum label presents technical and safety information in an easily understood format. Our technical specialists stay abreast of the latest requirements of the Globally Harmonized System for Classification and Labelling of Chemicals (GHS), as well as the Occupational Safety and Health Administration (OSHA), the Food and Drug Administration (FDA) and other government regulatory agencies in order to ensure compliance, accuracy and concise hazard communication. Below you will find a typical label example for this catalog item.

**USE CARE:** This material has been evaluated per GHS/OSHA criteria and is not classified as hazardous. All chemicals may pose unknown hazards and must be used with caution. Use personal protection and safe handling methods consistent with proper workplace safety practices. Consult SDS for additional properties and precautions. If adverse reaction occurs seek medical attention.

**KEEP FROM CHILDREN**

**A9601**

**SIZ SY**

**L-Arginine**

Free Base

cGMP, bioCERTIFIED™

CAS 74-79-3



**CAUTION:** For manufacturing, processing or repackaging. Further processing and testing required for use in parenteral applications.

**Read and understand the label and Safety Data Sheet (SDS) prior to use.**

**Chemical Emergency: (800)424-9300**

[www.SpectrumChemical.com](http://www.SpectrumChemical.com)

$C_6H_{14}N_4O_2$

F.W. 174.20

Not sterile.

Assay (Dried Basis) ..... 98.5-101.5%  
Specific Rotation (20°C) ..... +26.0° to +27.9°  
Specific Rotation (25°C) ..... +26.3° to +27.7°  
pH ..... 10.5-12.0

Loss on Drying ..... 0.5%  
Residue on Ignition ..... 0.2%  
Chloride ..... 0.05%  
Sulfate ..... 0.03%

Insoluble Foreign Matter:  
Length of Fibers ..... 5 mm  
Total Insolubles ..... 5 mg/100 g

Organic Impurities:  
Individual Impurities ..... 0.5%  
Total Impurities ..... 2.0%

Arsenic ..... 1.5 ppm  
Heavy Metals (as Pb) ..... 15 ppm  
Lead ..... 5 ppm  
Iron ..... 30 ppm

Elemental Impurities ..... As reported  
Residual Solvents ..... To pass test

Microbial Limits:  
Total Aerobic Bacteria ..... 1000 CFU/g  
Yeast and Mold ..... 100 CFU/g  
Coliforms ..... Negative/g  
Escherichia coli ..... Negative/10 g  
Salmonella ..... Negative/25 g

LIGHT SENSITIVE: Keep tightly closed in light-resistant containers.

G 1/K8GHS

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Lot No. XQ####

### Spectrum Chemical Mfg Corp

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