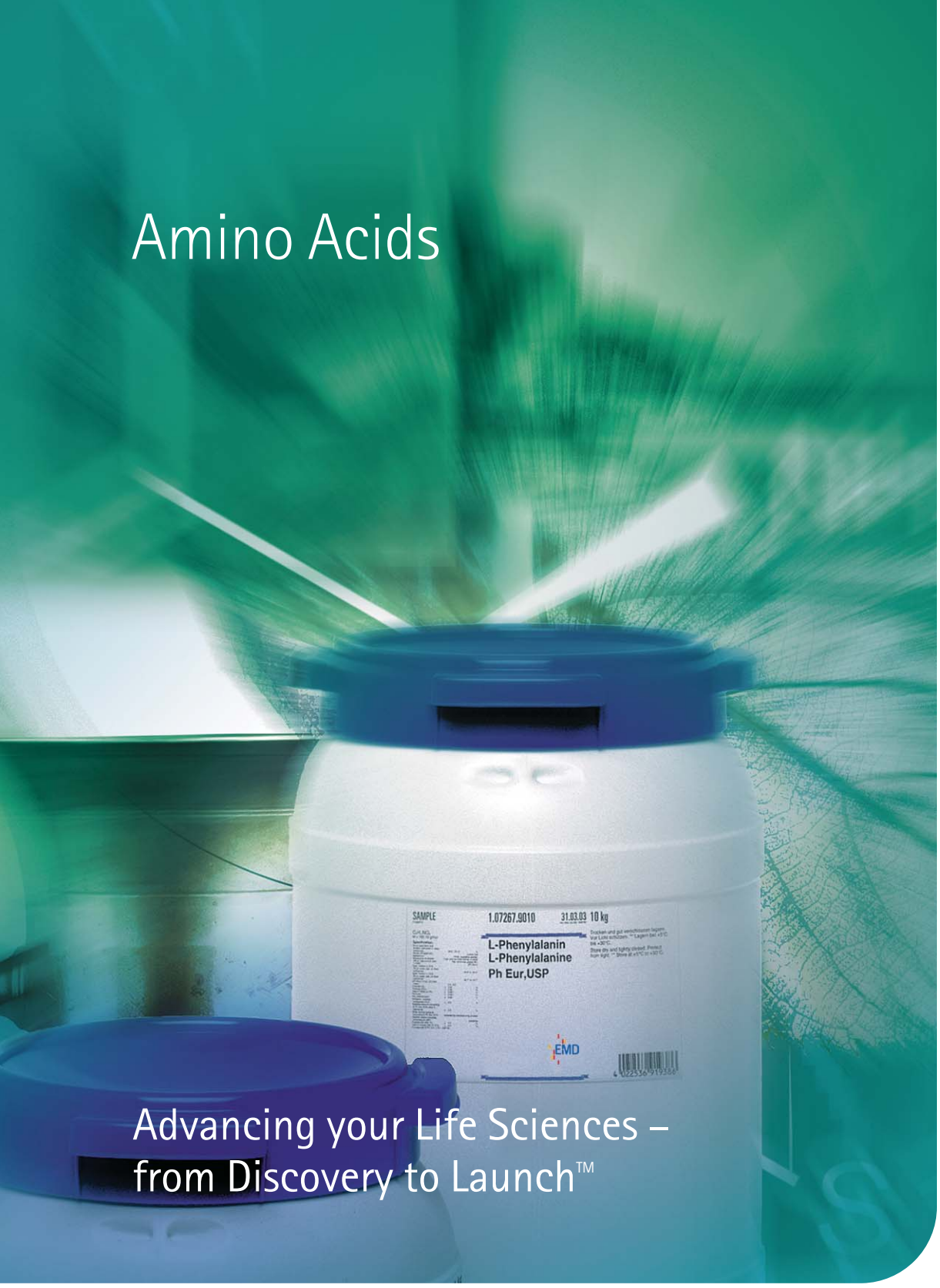
Amino Acids



Advancing your Life Sciences –
from Discovery to Launch™

EMD

Introduction

Amino acids are the building blocks of life and therefore are of fundamental significance to all organisms. They are the building blocks for proteins and other essential substances such as neurotransmitters, hormones and nucleic acids.

Comprehensively researched, amino acids play a major role in the areas of nutrition, medicine and plant protection. The L-amino acids and their derivatives are key biochemical compounds in the life sciences. During the last few years they have also become increasingly important as building blocks for biologically active peptides, i.e. innovative pharmaceuticals. They are used in large quantities as raw materials, excipients and active ingredients in the pharmaceutical and chemical industries. In the area of biotechnology, they are essential compounds in most fermentation and cell cultivation processes.

The quality demanded of such amino acids for use in pharmaceutical applications is prescribed by procedures contained in the most commonly used pharmacopoeias (USP, Ph Eur, etc.). In addition, when used in biotechnological applications particularly for the manufacture of active pharmaceutical ingredients, further requirements have to be fulfilled with respect to product properties. Our stringent analytical control procedures ensure our products are of the highest quality and that they maintain excellent batch to batch consistency.

We offer a comprehensive range of extra pure amino acids. Additionally, specifications of all the biochemistry grade L-amino acids have been redesigned for applications in research and development. This provides added reliability and facilitates scale-up of processes from the laboratory to production.

Our customized services

Depending on your needs, EMD can greatly enhance your operations by offering customized delivery of amino acids. They include customer-specific:

* Package sizes and types
* Certificates of analyses testing
* Pre-mixtures of amino acids

Amino acids from EMD Chemicals

· High quality
· Comprehensive specification
· Pharmacopoeia-tested quality
· Additional testing on request
· Special bulk packages on request
· Ready-to-use mixtures
· Easy scale-up – from research to production
· Manufactured in accordance with GMP

Origin documentation of amino acids

The methods of producing amino acids include extraction from natural raw materials, chemical synthesis as well as fermentation and enzymatic processes. Due to the different manufacturing procedures involved, various starting materials are used.

We confirm the type of starting material (animal/plant/synthetic) used. In addition, documentation is available on the manufacturing processes should this be required.

Product	Cat.-No.	Pack size
N-Acetyl-L-cysteine for biochemistry	1.12422.0025	25 g
	1.12422.0100	100 g
	1.12422.1000	1 kg
	1.12422.9010	10 kg
N-Acetyl-DL-tryptophan extra pure low in endotoxins, Ph Eur, BP	1.12488.1000	1 kg
	1.12488.9025	25 kg
N-Acetyl-DL-tryptophan for biochemistry	1.12423.0025	25 g
ß-Alanine for biochemistry	1.01008.0250	250 g
	1.01008.1000	1 kg
	1.01008.9025	25 kg
DL-Alanine for biochemistry	1.00963.0100	100 g
	1.00963.1000	1 kg
L-Alanine Ph Eur, USP	1.01700.0103	100 g
	1.01700.1003	1 kg
	1.01700.9013	10 kg
L-Alanine for biochemistry	1.01007.0025	25 g
	1.01007.0100	100 g
	1.01007.1000	1 kg
	1.01007.9010	10 kg
L-Arginine Ph Eur, USP	1.01587.0103	100 g
	1.01587.1003	1 kg
	1.01587.9013	10 kg
L-Arginine for biochemistry	1.01542.0100	100 g
	1.01542.1000	1 kg
	1.01542.9010	10 kg
L-Arginine monohydrochloride extra pure Ph Eur, BP, USP	1.01544.0250	250 g
	1.01544.1000	1 kg
	1.01544.5000	5 kg
	1.01544.9010	10 kg
L-Asparagine monohydrate extra pure Ph Eur	1.01565.0100	100 g
	1.01565.1000	1 kg
	1.01565.5000	5 kg
	1.01565.9010	10 kg
L-Asparagine monohydrate for biochemistry	1.01566.0100	100 g
L-Aspartic acid extra pure Ph Eur, BP, USP	1.00129.0100	100 g
	1.00129.1000	1 kg
	1.00129.5000	5 kg
	1.00129.9025	25 kg
L-Aspartic acid for biochemistry	1.00126.0100	100 g
	1.00126.1000	1 kg
	1.00126.9010	10 kg
L-Aspartic acid Monosodium salt for biochemistry	1.00142.0100	100 g
	1.00142.1000	1 kg
L-Cysteine hydrochloride monohydrate Ph Eur, USP	1.02735.0103	100 g
	1.02735.1003	1 kg
	1.02735.9013	10 kg
L-Cysteine hydrochloride monohydrate for biochemistry	1.02839.0025	25 g
	1.02839.0100	100 g
	1.02839.1000	1 kg
	1.02839.9010	10 kg
L-Cystine Ph Eur	1.02737.0103	100 g
	1.02737.1003	1 kg
	1.02737.9013	10 kg
L-Glutamic acid Ph Eur	1.01791.0100	100 g
	1.01791.1000	1 kg
	1.01791.9010	10 kg
L-Glutamic acid for biochemistry	1.00291.0250	250 g
	1.00291.1000	1 kg
	1.00291.5000	5 kg
	1.00291.9010	10 kg
L-Glutamine DAB, USP	1.00286.0103	100 g
	1.00286.1003	1 kg
	1.00286.9013	10 kg

Product
L-Glutamine for biochemistry
Glycine cryst. Ph Eur, BP, USP
L-Histidine Ph Eur, USP
L-Histidine for biochemistry
L-Histidine monohydrochloride extra pure Ph Eur, BP
L-Histidine monohydrate for biochemistry
L-Hydroxyproline for biochemistry
L-Isoleucine Ph Eur, USP
L-Isoleucine for biochemistry
L-Leucine Ph Eur, USP
L-Leucine for biochemistry
L-Lysine monohydrochloride extra pure Ph Eur, BP, USP
L-Lysine monohydrochloride for biochemistry
L-Methionine for biochemistry
L-Norleucine for biochemistry
L-Ornithine monohydrochloride for biochemistry
DL-Phenylalanine for biochemistry
L-Phenylalanine Ph Eur, USP
L-Phenylalanine for biochemistry

Cat.-No.	Pack size
1.00289.0025	25 g
1.00289.0100	100 g
1.00289.1000	1 kg
1.00289.9010	10 kg
5.00190.1000	1 kg
5.00190.5000	5 kg
5.00190.9025	25 kg
1.04352.0103	100 g
1.04352.1003	1 kg
1.04352.9013	10 kg
1.04351.0100	100 g
1.04354.0500	500 g
1.04354.5000	5 kg
1.04354.9010	10 kg
1.04350.0025	25 g
1.04350.0100	100 g
1.04350.0500	500 g
1.04350.9010	10 kg
1.04506.0010	10 g
1.04506.0100	100 g
1.05357.0103	100 g
1.05357.1003	1 kg
1.05357.9013	10 kg
1.05362.0025	25 g
1.05362.0100	100 g
1.05362.0500	500 g
1.05362.9010	10 kg
1.05020.0103	100 g
1.05020.1000	1 kg
1.05020.9010	10 kg
1.05360.0025	25 g
1.05360.0250	250 g
1.05360.9010	10 kg
1.05701.1000	1 kg
1.05701.5000	5 kg
1.05701.9025	25 kg
1.05700.0100	100 g
1.05700.1000	1 kg
1.05700.9010	10 kg
1.05700.9025	25 kg
1.05707.0025	25 g
1.05707.0100	100 g
1.05707.1000	1 kg
1.05707.9010	10 kg
1.24560.0250	250 mg
1.06906.0025	25 g
1.06906.0100	100 g
1.06906.1000	1 kg
1.06906.9010	10 kg
1.07257.0025	25 g
1.07257.0100	100 g
1.07267.0103	100 g
1.07267.1003	1 kg
1.07267.9013	10 kg
1.07256.0025	25 g
1.07256.0100	100 g
1.07256.1000	1 kg
1.07256.9010	10 kg

Product	Cat.-No.	Pack size
L-Proline Ph Eur, USP	1.07430.0103	100 g
	1.07430.1003	1 kg
	1.07430.9013	10 kg
L-Proline for biochemistry	1.07434.0010	10 g
	1.07434.0100	100 g
	1.07434.0500	500 g
	1.07434.9010	10 kg
L-Serine Ph Eur, USP	1.07647.0103	100 g
	1.07647.1003	1 kg
	1.07647.9013	10 kg
L-Serine for biochemistry	1.07769.0010	10 g
	1.07769.0100	100 g
	1.07769.1000	1 kg
	1.07769.9010	10 kg
L-Threonine for biochemistry	1.08411.0010	10 g
	1.08411.0100	100 g
	1.08411.1000	1 kg
	1.08411.9010	10 kg
L-Tryptophane extra pure Ph Eur, BP, USP	1.08396.0103	100 g
	1.08396.1003	1 kg
	1.08396.9013	10 kg
L-Tryptophane for biochemistry	1.08374.0010	10 g
	1.08374.0100	100 g
	1.08374.0500	500 g
	1.08374.9010	10 kg
	1.08374.9025	25 kg
L-Tyrosine Ph Eur, USP	1.08378.0103	100 g
	1.08378.1003	1 kg
	1.08378.9013	10 kg
L-Tyrosine for biochemistry	1.08371.0025	25 g
	1.08371.0100	100 g
	1.08371.1000	1 kg
	1.08371.9010	10 kg
L-Valine for biochemistry	1.08495.0025	25 g
	1.08495.0100	100 g
	1.08495.1000	1 kg
	1.08495.9010	10 kg

Abbreviations

BP:	British Pharmacopoeia
CAS No.:	Chemical Abstracts Service Registry Number
DAB:	German Pharmacopoeia
EINECS:	European Inventory of Existing Chemical Substances
Ph Eur:	European Pharmacopoeia
USP:	The United States Pharmacopoeia

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