



CERTIFICATE OF ANALYSIS

Amino Acid Calibration Standard (acids and neutrals) For Lithium Systems 1700-0180

Product: Amino Acid Calibration Standard (acids and neutrals) for Lithium Systems

Part Number: 1700-0180

Lot Number: 007002

Test Start Date: 09 JUN 2010

Primary Application: This calibration standard is a solution of 27 amino acids in 0.1N Hydrochloric acid. This calibration standard is intended to be used for calibration of chromatographic instrumentation for determination of amino acids.

Acceptance Criteria: The concentrations for 27 amino acids are within $\pm 4\%$ of those stated below. These values are based on the results of HPLC analysis using certified NIST amino acids standard and Sigma amino acids standard.

Compound	Concentrations $\mu\text{M}/\text{mL}$
β -Alanine	2.5
Alanine	2.5
D,L- α -amino-adipic acid	2.5
γ -Amino-butyric acid	2.5
D,L- β -Amino- <i>i</i> -butyric acid	2.5
Asparagine	2.5
Aspartic acid	2.5
Citrulline	2.5
Cystathionine	2.5
Cystine	1.25
Glutamic acid	2.5
Glycine	2.5
4-trans-L-Hydroxyproline	2.5
Isoleucine	2.5
Leucine	2.5
Methionine	2.5
Phenylalanine	2.5
<i>o</i> -Phosphoethanolamine	2.5
D,L- <i>o</i> -Phosphoserine	2.5
Proline	2.5
Sarcosine	2.5
Serine	2.5
Taurine	2.5

Threonine	2.5
Tyrosine	2.5
Urea	2.5
Valine	2.5

Analysis Certified by:

Jim Murphy
VP Operations
Title

Date:

29 Jul 2010

ACCEPTED
PICKERING LABORATORIES, INC.
QUALITY ASSURANCE

Rev. 7,6/24/09