PICKERING LABORATORIES

CERTIFICATE OF ANALYSIS

Amino Acid Calibration Standard (with Norleucine) For Lithium Systems 011006P

Product: Native Sample Calibration Standard (With Norleucine) for Lithium Systems
Part Number: 011006P
Lot Number: 090911
Test Start Date: 9/11 - 9/14/09

Primary Application: This calibration standard is a solution of 43 amino acids and ammonia in 0.27 N Lithium citrate buffer, pH 2.36, with 0.08% phenol added as a preservative. This calibration standard is intended to be used for calibration of chromatographic instrumentation for determination of amino acids.

Acceptance Criteria: The concentrations for 43 amino acids and ammonia are within ± 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 µM/mL
β-Alanine	0.25
Alanine	0.25
D,L-α-amino-adipic acid	0.25
γ-Amino-butyric acid	0.25
α-Amino-*n*-butyric acid	0.25
D,L-β-Amino-*i*-butyric acid	0.25
α -Amino- β - guanidinopropionic acid	0.25
Ammonia	0.25
Anserine	0.25
Arginine	0.25
Asparagine	0.25
Aspartic acid	0.25
Carnosine	0.25
Citrulline	0.25
Creatinine	0.25
Cystathionine	0.25
Cystine	0.25
Ethanolamine	0.25
Glutamic acid	0.25
Glycine	0.25
Histidine	0.25

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Compound	Concentrations µM/mL
D,L-Homocystine	0.25
D,L&allo-Hydroxylysine	0.25
4-trans-L-Hydroxyproline	0.25
Isoleucine	0.25
Leucine	0.25
Lysine	0.25
Methionine	0.25
1-Methyl-histidine	0.25
3-Methyl-histidine	0.25
Norleucine	0.25
Ornithine	0.25
Phenylalanine	0.25
o-Phosphoethanolamine	0.25
D,L-*o*-Phosphoserine	0.25
Proline	0.25
Sarcosine	0.25
Serine	0.25
Taurine	0.25
Threonine	0.25
Tryptophan	0.25
Tyrosine	0.25
Urea	0.25
Valine	0.25

Analysis Certified by: Jim Murphy **Date:** 21 Sep 09

VP Operations
Title

ACCEPTED
PICKERING LABORATORIES, INC.
QUALITY ASSURANCE

Rev. 6, 7/15/08

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