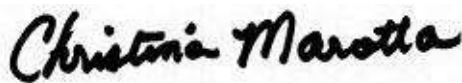


MP Biomedicals, LLC29525 Fountain Parkway
Solon, Ohio 44139Telephone: 440/337-1200
Toll Free: 800/854-0530

Certificate of Analysis

Product Description: L-Glutamine
Catalog Number: 101806
Lot: M9207**Formula:** $C_5H_{10}N_2O_3$
CAS #: 56-85-9
Physical Description: White Powder**Formula Weight:** 146.10
Storage: Room Temperature

Test	Specification	Result
Identity Test	Passes	Passes
Purity	$\geq 99\%$	99.75%
Residue on Ignition	$< 0.1\%$	0.06%
FTIR	Conforms to Standard	Conforms to Standard
Moisture	$< 0.5\%$	0.1%
Optical Rotation	$+30 \pm 5^\circ$ (c = 3.5, 1N HCl)	$+31.6^\circ$
pH (2% aq soln)	4.5 - 6.5	4.50

Heavy metals (Pb): ≤ 5 ppm
Recommended Retest Date: 05/12/201606/10/2014 - Christina Marotta
MP Biomedicals, LLC.
Technical DirectorThis is an electronically generated document
<mailto:biotech@mpbio.com>
<http://www.mpbio.com>Online Ordering, MSDSs, certificates of analysis and data sheets now available on our web site
Technical Service: 1-800-279-5490 (440-337-1200) Customer Service: 1-800-854-0530 (440-337-1200)