

Certificate of Analysis

This product conforms to all EP (European Pharmacopeia), USP (United States Pharmacopeia), JP (Japanese Pharmacopeia), FCC (United States Food Chemical Codex) specifications, and meets Kosher standards. This material is certified to have not more than 1 part per million arsenic.

Product Name	L-Tryptophan, USP
Lot No.	J031B031
CAS Registry Number	73-22-3
Expiry Date	12/13/2009

<u>Item</u>	<u>Limit</u>	<u>Actual Result</u>
Assay	99.0 to 101.0%	100.3%
EBT	not detected	not detected
Appearance	passed test	Passed test
Identification	passed test	Passed test
Specific Rotation (D-Line, 20°)	-32.5° to -30.5°	-31.2°
Specific Rotation (D-Line, 25°)	-32.8° to -29.4°	-30.9°
State of Solution, clear	95.0%	NLT 95.0%
Chloride (Cl)	NMT 0.020%	NMT 0.020%
Ammonium (NH ₄)	NMT 0.02%	NMT 0.02%
Sulfate (SO ₄)	NMT 0.020%	NMT 0.020%
Iron (Fe)	NMT 20ppm	NMT 10ppm
Heavy Metals (Pb)	NMT 10ppm	NMT 10ppm
Other amino acids	conforms	conforms
Loss on Drying	NMT 0.20%	0.03%
Residue on Ignition	NMT 0.10%	0.01%
pH	5.5 to 6.4	6.0
Total Microorganisms	NMT 100CFU/g	NMT 100CFU/g
Mold	NMT 10ppm	NMT 10ppm
Coliform		Negative
Endotoxin	LT 6.0EU/g	LT 6.0EU/g
Product Grade		Nonpyrogenic

We certify that this product conforms to the USP Organic Volatile Impurities requirement. The foregoing is a copy of the certificate of analysis as provided by our supplier.

Ronald Sturtz

President
BIOS Biochemicals Corp.