

Certificate of Analysis

Rational Nutrition LLC

800 N King Street
Suite 304 #4106
Wilmington Delaware 19801 United States

Sample Name:	MMSport Jan 2026	Eurofins Sample:	16136959
Project ID	RATIONAL_N-20260119-0001	Receipt Date	21-Jan-2026
PO Number	MM Sport - Jan 2026	Receipt Condition	Ambient temperature
Lot Number	Batch 1	Login Date	19-Jan-2026
Sample Serving Size	10 g	Date Started	20-Jan-2026
Description	Finished Sticks	Sampled	Sample results apply as received
		Number Composited	4
		Online Order	901-2026-E005436

Analysis	Result
Elements by ICP Emission Spectrometry (ICP-OES)	
Potassium	469 mg/Serving Size
Sodium	684 mg/Serving Size
Magnesium	110 mg/Serving Size
Determination of Cyanocobalamin by LC-MS/MS	
Vitamin B12	0.494 mg/Serving Size
Determination of Methylcobalamin and Adenosylcobalamin by ICPMS *	
Methylcobalamin	<0.00200 mg/Serving Size
Free amino acids	
Tyrosine	1130 mg/Serving Size
Taurine	
Taurine	1600 mg/Serving Size
Theanine	
Theanine	215 mg/Serving Size
Citicoline by UPLC *	
Citicoline	747 mg/Serving Size
Determination of Pyridoxal-5-Phosphate (P5P) by UPLC *	
Pyridoxal-5-Phosphate	<0.0500 mg/Serving Size
Vitamin B6 (calculated from P5P)	<0.0342 mg/Serving Size
Pyridoxine HCL (calculated from P5P)	<0.0416 mg/Serving Size
Aerobic Plate Count *	
Aerobic Plate Count	500 (est) CFU/g
E. coli *	
Escherichia Coli	Absent /10 g
Enterobacteriaceae (Bile-Tolerant Gram-Negative Bacteria) *	
Enterobacterial Count	<10 MPN /g
Salmonella USP *	
Salmonella	Absent /10 g
Staphylococcus *	
Staphylococcus Aureus	Absent /10 g

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Analysis	Result
Yeast and Mold Count *	
Combined Yeast and Mold Count	<100 CFU/g
Preparatory Testing of Nutritional and Dietary Supplements *	
E. coli Suitability Result	PASS
Total Combined Yeast-Molds Count	PASS
Salmonella Suitability Result	PASS
Aerobic Plate Suitability Result	PASS
Bile-Tolerant Gram-Neg Bacteria Suitability Result	PASS
Staphylococcus Suitability Result	PASS
Elements by ICP Mass Spectrometry	
Mercury	<5.00 ppb
Lead	22.1 ppb
Cadmium	7.53 ppb
Arsenic	120 ppb
Chromium *	221 ppb

Method References Testing Location

Aerobic Plate Count (USPC2021)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

USP Current revision, Chapter 2021.

To satisfy the requirements of the USP, the Preparatory Test must be completed on each matrix.

**Based on the results of the preparatory test, the detection limit stipulated is adequate for the enumeration of the specified microorganisms.

Citicoline by UPLC (OC_CITIC_S)

Food Integrity Innovation-Brea
2951 Saturn Street, Unit C Brea, CA 92821 USA

Internal Method

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Method References

Testing Location

Determination of Cyanocobalamin by LC-MS/MS (B12_LCMS_S)

Food Integrity Innovation-Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

Internally Developed Method

Other supporting references:

Vitamin B12: AOAC 2011,10. Determination of Vitamin B12 in Infant Formula and Adult Nutritionals by HPLC

Determination of Methylcobalamin and Adenosylcobalamin by ICPMS (B12 ICPMS_S)

Food Integrity Innovation-Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

Internally Developed Method

M. M. Wolle, J. Escavage, P. Gray, "Determination of Vitamin B12 in Multivitamins using HPLC-ICP-MS," 2023 FDA Science Forum, poster presentation (modified).

Other supporting references:

X. Qui, H. Zhang, Y. Yin, H. Brandes, T. Marsala, K. Stenerson, H. Cramer, H. You, "Determination of active vitamin B 12 (cobalamin) in dietary supplements and ingredients by reversed-phase liquid chromatography: Single-laboratory validation," Food Chemistry, Volume 298, 15 November 2019, 125010 (modified).

Determination of Pyridoxal-5-Phosphate (P5P) by UPLC (OC_B65PO_S)

Food Integrity Innovation-Brea

2951 Saturn Street, Unit C Brea, CA 92821 USA

Internally Developed Method

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Method References

Testing Location

E. coli (USPE2022)

Eurofins Micro Lab - Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

USP Current revision, Chapter 2022.

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Elements by ICP Emission Spectrometry (ICP-OES) (ICP_S)

Food Integrity Innovation-Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

Official Methods of Analysis of AOAC INTERNATIONAL, Method 984.27, 985.01, and 2011.14, AOAC INTERNATIONAL, Gaithersburg, MD, USA. (Modified)

Elements by ICP Mass Spectrometry (ICP_MS_S)

Food Integrity Innovation-Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

Official Methods of Analysis, Methods 2011.19 and 993.14, and 2015.01, AOAC INTERNATIONAL, (Modified).

Enterobacteriaceae (Bile-Tolerant Gram-Negative Bacteria) (USPN2021)

Eurofins Micro Lab - Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

USP Current revision, Chapter 2021.

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Free amino acids (FAALC_S)

Food Integrity Innovation-Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

R. Schuster, "Determination of Amino Acids in Biological, Pharmaceutical, Plant and Food Samples by Automated Precolumn Derivatization and HPLC", *Journal of Chromatography*, 431:271-284 (1988).

Henderson, J.W., Ricker, R.D. Bidlingmeyer, B.A., Woodward, C., "Rapid, Accurate, Sensitive, and Reproducible HPLC Analysis of Amino Acids, Amino Acid Analysis Using Zorbax Eclipse-AAA columns and the Agilent 1100 HPLC," Agilent Publication, 2000.

Preparatory Testing of Nutritional and Dietary Supplements (USPA_PT)

Eurofins Micro Lab - Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

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Method References

Testing Location

Preparatory Testing of Nutritional and Dietary Supplements (USPC_PT)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

Preparatory Testing of Nutritional and Dietary Supplements (USPE_PT)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

Preparatory Testing of Nutritional and Dietary Supplements (USPM_PT)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

Preparatory Testing of Nutritional and Dietary Supplements (USPN_PT)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

Preparatory Testing of Nutritional and Dietary Supplements (USPS_PT)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

Salmonella USP (USPS2022)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

USP Current revision, Chapter 2022.

To satisfy the requirements of the USP, the Preparatory Test must be completed on each matrix.

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Staphylococcus (USPA2022)

Eurofins Micro Lab - Madison
6304 Ronald Reagan Ave Madison, WI 53704 USA

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Method References

Testing Location

Taurine (UPLC_FT_S)

Food Integrity Innovation-Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

Laboratory Developed Method.

Supporting References:

Official Methods of Analysis of AOAC INTERNATIONAL, Method 999.12, AOAC International Gaithersburg, MD, USA, (Modified);

R. Schuster, "Determination of Amino Acids in Biological, Pharmaceutical, Plant and Food Samples by Automated Precolumn Derivatization and HPLC", Journal of Chromatography, 431:271-284, (1988) (Modified);

Acquity UPLC H-Class and H-Class Bio Amino Acid Analysis, Revision B, Waters Waters Corporation, 2012.

Theanine (UPLC_THE_S)

Food Integrity Innovation-Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

Laboratory Developed Method.

Supporting References:

Acquity UPLC H-Class and H-Class Bio Amino Acid Analysis, Revision B, Waters Waters Corporation, 2012.

Yeast and Mold Count (USPM2021)

Eurofins Micro Lab - Madison

6304 Ronald Reagan Ave Madison, WI 53704 USA

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Testing Location(s)	Authorized on Behalf of Eurofins by
Food Integrity Innovation-Brea Eurofins Food Chemistry Testing US, Inc. 2951 Saturn Street Unit C Brea CA 92821 800-675-8375	Marisa Feller - President Eurofins Botanical Testing Brea
Food Integrity Innovation-Madison Eurofins Food Chemistry Testing Madison, Inc. 6304 Ronald Reagan Ave Madison WI 53704 800-675-8375	Edward Ladwig - President Eurofins Food Chemistry Testing Madison

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