



Iowa State University Research Park
2711 South Loop Drive, Suite 4400
Ames, Iowa 50010

CERTIFICATE OF ANALYSIS

Calcium 3-Hydroxy 3-Methyl Butyrate(HMB), Monohydrate

Item No.	HMB001	Mfg Date	Jun.23,2017
Lot No.	17060133	Retest Date	Jun.22,2020

	Item	Method	Specification	Results
Physical Properties	Appearance	Visual	White powder	Complies
	Bulk Density	USP<616>	NLT 0.55 g/ml	0.59 g/ml
	Tap Density	USP<616>	NMT 0.90 g/ml	0.74 g/ml
	Particle Size	USP<786>	100% through USS#20 (850 micron)	100%
Analytical	CaHMB	HPLC	98.0-103.0%	101.3%
	HMB	HPLC	77.0-82.0%	81.9%
	Dimethylacrylic acid	HPLC	NMT 150 ppm	3 ppm
	Calcium (Ca ²⁺)	USP<541>	13.0-15.0%	13.5%
	Acetate	HPLC	NMT 1%	0.2%
	Molsture	USP<921 I>	5.0-7.5%	5.1%
	Arsenic (As)	USP<730>/USP<852>	NMT 1.00 ppm	<0.20ppm
	Lead (Pb)	USP<730>/USP<852>	NMT 1.00 ppm	<0.20ppm
Microbial	Total Aerobic	USP<61>	NMT 1,000 cfu/g	<10 cfu/g
	Yeast & Mold	USP<61>	NMT 100 cfu/g	<10 cfu/g
	<i>E. coli</i>	USP<62>	Negative	Negative
	<i>Salmonella</i>	USP<62>	Negative	Negative

Prepared by Jianwei Su
 Approved by Xinhai yang Date Jul. 07, 2017
 QC Manager
 TSI (China) Co., Ltd.
Liza M Date Jul. 07, 2017
 Quality Manager
 TSI (China) Co., Ltd.

Manufactured by TSI (China), Co. Ltd. Shanghai, CHINA

John C. Fuller Jr. Date: 10-JUL-17
 John C. Fuller, Jr., PhD Research Scientist, Metabolic Technologies, Inc.

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[Redacted]

Attn: [Redacted]

Receive Date: 07/25/2017

Report Date: 08/08/2017

Job#: [Redacted] Sample: HMB-CA- Salt USA
100537

Lot#: ZHMB 17-10981 PO# 18212
MTI Lot Number 17060133

Analysis	Claim	Result
Calcium Hydroxy-3-Methylbutyrate Monohydrate	98.0-103.0%	98.3%

Method: ALC832A for Calcium Hydroxy-3-Methylbutyrate Monohydrate

Chemist: *[Signature]* for XG 8 Aug 17 Director, David JI: *[Signature]* 8/15/17