



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	Jul.16,2017
Lot No.	17070147	Retest Date	Jul.15,2020

	Item	Method	Specification	Results
Physical Properties	Appearance	Visual	White powder	Complies
	Bulk Density	USP<616>	NLT 0.55 g/ml	0.58g/ml
	Tap Density	USP<616>	NMT 0.90 g/ml	0.75g/ml
	Particle Size	USP<786>	100% through USS#20 (850 micron)	100%
Analytical	CaHMB	HPLC	98.0-103.0%	100.3%
	HMB	HPLC	77.0-82.0%	81.0%
	Dimethylacrylic acid	HPLC	NMT 150 ppm	3 ppm
	Calcium (Ca ²⁺)	USP<541>	13.0-15.0%	13.4%
	Acetate	HPLC	NMT 1%	0.2%
	Moisture	USP<921 I>	5.0-7.5%	5.4%
	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 Jiankei Su
 Approved by Xinmei Yang Date Jul. 26, 2017
 QC Manager
 TSI (China) Co., Ltd.
Lisa M Date Jul. 26, 2017
 Quality Manager
 TSI (China) Co., Ltd.

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

John C. Fuller, Jr. Date: 6-Aug-17
 John C. Fuller, Jr., PhD Research Scientist, Metabolic Technologies, Inc.

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[Redacted]

Attn: [Redacted]
Receive Date: 09/27/2017
Report Date: 10/12/2017

Job#: Sample: HMB-CA- Salt USA
102986

Lot#: 17-11313 PO# 18792
MTI Lot Number 17070147

Analysis	Claim	Result
Calcium Hydroxy-3-Methylbutyrate Monohydrate	98.0-103.0%	99.9%

Method: ALC832A for Calcium Hydroxy-3-Methylbutyrate Monohydrate

Technical Review:

hry 12 Oct 17

Management Review:

Peggy 12 Oct 17