



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**

<b>Item No.</b> HMB001	<b>Mfg Date</b> Apr.25,2017
<b>Lot No.</b> 17040085	<b>Retest Date</b> Apr.24,2020

Item	Method	Specification	Results
<b>Physical Properties</b>			
Appearance	Visual	White powder	Complies
Bulk Density	Loose Fill	NLT 0.55 g/ml	0.59g/ml
Tap Density	Van Kel	NMT 0.90 g/ml	0.79g/ml
Particle Size	Ro Tap	100% through USS#20 (850 micron)	100%
<b>Analytical</b>			
CaHMB	HPLC	98.0-103.0%	100.4%
HMB	HPLC	77.0-82.0%	80.4%
Dimethylacrylic acid	HPLC	NMT 150 ppm	Negative
Calcium (Ca <sup>2+</sup> )	Titration	13.0-15.0%	13.5%
Acetate	HPLC	NMT 1%	0.2%
Moisture	USP<921 I>	5.0-7.5%	5.6%
Arsenic (As)	AA/ICP	NMT 1.00 ppm	<0.20ppm
Lead (Pb)	AA/ICP	NMT 1.00 ppm	<0.20ppm
<b>Microbial</b>			
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 Xinwei Yang Date May 22, 2017  
 QC Manager  
 Jiangyin TSI Pharmaceutical Co., Ltd.  
Lisa M Date May 22, 2017  
 QA Manager  
 Jiangyin TSI Pharmaceutical Co., Ltd.

Manufactured by TSI (China), Co. Ltd. Shanghai, CHINA  
 Plant: Jiangyin TSI Pharmaceuticals Co., Ltd., 2 Jinxiu Road, Shizhuang Park, Jiangyin, Jiangsu, CHINA

John C Fuller Jr. Date: 30 Jun 17  
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[Redacted]

Attn: [Redacted]

Receive Date: 08/03/2017

Report Date: 08/17/2017

Job#: Sample: HMB-CA- Salt USA  
100892

Lot#: ZHMB-17-11050 PO#  
18293  
MTI Lot Number 17040085

Analysis	Claim	Result
Calcium Hydroxy-3-Methylbutyrate Monohydrate	98.0-103.0%	98.2%

Method: ALC832A for Calcium Hydroxy-3-Methylbutyrate Monohydrate

Chemist:

Xiang Gu 08/17/2017

Director, David Ji:

[Signature] 08/17/2017