

Eurofins Sample Code: 473-2016-08180267
Sample Description: Composite Sample Jar (Eggshell Membrane Powder)
Client Sample Code: V6217 Composite
PO Number: 160817-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 08/18/2016
Reporting Date: 09/13/2016

Biova
 Attn: Tai Misra
 2325 North Loop Dr.
 Suite 6400
 Ames, IA 50010

CERTIFICATE OF ANALYSIS

AR-16-JD-033237-02

This analytical report supersedes AR-16-JD-033237-01.

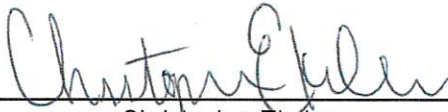
Test	Result	Theoretical Level
QD252 - Protein - Combustion		Completed: 09/01/2016
AOAC 990.03; AOAC 992.15		
* Protein	89.85 %	>85 %
QD250 - Ash		Completed: 09/01/2016
AOAC 942.05		
* Ash	5.30 %	<9 %
QD148 - Moisture by Vacuum Oven		Completed: 09/01/2016
AOAC 925.09		
* Moisture and Volatiles - Vacuum Oven	7.0 %	<9 %
QA00U - Bulk Density		Completed: 09/01/2016
USP 616		
Bulk Density (Loose)	0.270 g/ml	
Bulk Density (Tapped)	0.370 g/ml	
QD251 - Calcium by ICP		Completed: 09/01/2016
AOAC 965.17 / 985.01 mod.		
* Calcium	0.460 %	
QA133 - Arsenic (ICP-MS)		Completed: 09/01/2016
AOAC 2013.06		
Arsenic (As)	<0.02 mg/kg	
QA417 - Lead (ICP-MS)		Completed: 09/01/2016
AOAC 2013.06		
Lead (Pb)	<0.02 mg/kg	
QD610 - Mercury (ICP-MS)		Completed: 09/01/2016
AOAC 2013.06		
Mercury (Hg)	<0.010 mg/kg	
QD06E - Elastin by ELISA		Completed: 09/01/2016
Commercial Test Kit		
Elastin by ELISA	24 %	>20 %
QD172 - pH		Completed: 09/01/2016
AOAC 981.12		
pH	7.02	6.5-7.5

Eurofins Sample Code: 473-2016-08180267
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Test	Result	Theoretical Level
QD06C - Collagen Completed: 09/01/2016		
Commercial Test Kit		
Collagen	28 %	>20 %
QQ167 - Water Activity Completed: 09/13/2016		
Instrument instructions		
* Water Activity at 25°C	0.242	.03
* Water Activity at 25°C	0.249	
K0032 - Total Glycosaminoglycans (Chondroitin Sulfate) CPC Completed: 08/22/2016		
USP		
Total Glycosaminoglycans	24.9 % (w/w)	>5 % (w/w)
QA205 - Cadmium (ICP-MS) Completed: 09/01/2016		
AOAC 2013.06		
Cadmium (Cd)	<0.01 mg/kg	
QA259 - Fluorine (Ion Specific Electrode) Completed: 09/01/2016		
AOAC 975.08		
Fluorine (F)	<5.00 mg/kg	
K0144 - Solubility USP Completed: 08/22/2016		
USP		
Solubility	Freely Soluble	Soluble in water

*The test result is covered by our current A2LA accreditation.

Respectfully Submitted,
 Eurofins Scientific Inc.



Christopher Ekuban

QC Specialist

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Biological Testing
 Cert:3329:01



Chemical Testing
 Cert:2927:01

Eurofins Sample Code: 473-2016-08180268
Sample Description: Whirl-Pak bag 1 (Eggshell Membrane Powder)
Client Sample Code: V6217 WP1
PO Number: 160817-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 08/18/2016
Reporting Date: 08/23/2016

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CERTIFICATE OF ANALYSIS

AR-16-JD-031191-01

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 08/19/2016
AOAC 2003.01 * Enterobacteriaceae	< 10 cfu/g (est)	
UMA EK - Salmonella - AOAC 2003.09		Completed: 08/20/2016
AOAC 2003.09 * Salmonella spp.	Negative per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 08/20/2016
BAM Chapter 12 * Staphylococcus aureus	< 10 cfu/g (est)	<10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 7-Pour Plate		Completed: 08/20/2016
CMMEF Chapter 7 * Aerobic Plate Count	250 cfu/g	<400 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4 * Total Coliforms	< 3 MPN/g	<5 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4 * E. coli	< 3 MPN/g	<5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 08/20/2016
AACC 42-40 mod. Aerobic Spore-forming Mesophilic Count	170 cfu/g (est)	
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 08/21/2016
AACC Method 42-40 Aerobic Spore-forming Thermophilic Count	< 1 cfu/g (est)	
UMW78 - Moulds - AACC 42-50		Completed: 08/23/2016
AACC Method 42-50 * Mold	10 cfu/g (est)	<100 cfu/g
* Yeast	< 10 cfu/g (est)	<10 cfu/g

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Estimated counts are denoted by (est)

Eurofins Sample Code: 473-2016-08180268

Client Sample Code: V6217 WP1

Respectfully Submitted,
Eurofins Scientific Inc.



Stephan McDanel

Microbiologist

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Biological Testing
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Chemical Testing
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Eurofins Sample Code: 473-2016-08180269
Sample Description: Whirl-Pak bag 2 (Eggshell Membrane Powder)
Client Sample Code: V6217 WP2
PO Number: 160817-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 08/18/2016
Reporting Date: 08/23/2016

Biova
Attn: Tai Misra
2325 North Loop Dr.
Suite 6400
Ames, IA 50010

CERTIFICATE OF ANALYSIS

AR-16-JD-031192-01

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 08/19/2016
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g (est)	
UMA EK - Salmonella - AOAC 2003.09		Completed: 08/20/2016
AOAC 2003.09		
* Salmonella spp.	Negative per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 08/20/2016
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g (est)	<10 cfu/g
UMJP9 - Aerobic Plate Count - GMMEF Chapter 7-Pour Plate		Completed: 08/20/2016
GMMEF Chapter 7		
* Aerobic Plate Count	60 cfu/g (est)	<400 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	<5 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	<5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 08/20/2016
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	60 cfu/g (est)	
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 08/21/2016
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g (est)	
UMW78 - Moulds - AACC 42-50		Completed: 08/23/2016
AACC Method 42-50		
* Mold	< 10 cfu/g (est)	<100 cfu/g
* Yeast	< 10 cfu/g (est)	<10 cfu/g

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Estimated counts are denoted by (est)

Eurofins Sample Code: 473-2016-08180269

Client Sample Code: V6217 WP2

Respectfully Submitted,
Eurofins Scientific Inc.



Stephan McDanel

Microbiologist

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Chemical Testing
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Eurofins Sample Code: 473-2016-08180270
Sample Description: Whirl-Pak bag 3 (Eggshell Membrane Powder)
Client Sample Code: V6217 WP3
PO Number: 160817-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 08/18/2016
Reporting Date: 08/23/2016

Biova
 Attn: Tai Misra
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CERTIFICATE OF ANALYSIS

AR-16-JD-031193-01

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 08/19/2016
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g (est)	
UMA EK - Salmonella - AOAC 2003.09		Completed: 08/20/2016
AOAC 2003.09		
* Salmonella spp.	Negative per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 08/20/2016
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g (est)	<10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 7-Pour Plate		Completed: 08/20/2016
CMMEF Chapter 7		
* Aerobic Plate Count	30 cfu/g (est)	<400 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	<5 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	<5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 08/20/2016
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	100 cfu/g (est)	
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 08/21/2016
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g (est)	
UMW78 - Moulds - AACC 42-50		Completed: 08/23/2016
AACC Method 42-50		
* Mold	10 cfu/g (est)	<100 cfu/g
* Yeast	< 10 cfu/g (est)	<10 cfu/g

*The test result is covered by our current A2LA accreditation.

Estimated counts are denoted by (est)

Eurofins Sample Code: 473-2016-08180270**Client Sample Code:** V6217 WP3

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Eurofins Scientific Inc.



Stephan McDanel

Microbiologist

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Eurofins Sample Code: 473-2016-08180271
Sample Description: Whirl-Pak bag 4 (Eggshell Membrane Powder)
Client Sample Code: V6217 WP4
PO Number: 160817-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 08/18/2016
Reporting Date: 08/23/2016

Biova
 Attn: Tai Misra
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 Suite 6400
 Ames, IA 50010

CERTIFICATE OF ANALYSIS

AR-16-JD-031194-01

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01 Completed: 08/19/2016		
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g (est)	
UMA EK - Salmonella - AOAC 2003.09 Completed: 08/20/2016		
AOAC 2003.09		
* Salmonella spp.	Negative per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12 Completed: 08/20/2016		
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g (est)	<10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 7-Pour Plate Completed: 08/20/2016		
CMMEF Chapter 7		
* Aerobic Plate Count	40 cfu/g (est)	<400 cfu/g
UMKP7 - Coliforms - BAM Chapter 4 Completed: 08/20/2016		
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	<5 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4 Completed: 08/20/2016		
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	<5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M Completed: 08/20/2016		
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	30 cfu/g (est)	
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40 Completed: 08/21/2016		
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g (est)	
UMW78 - Moulds - AACC 42-50 Completed: 08/23/2016		
AACC Method 42-50		
* Mold	< 10 cfu/g (est)	<100 cfu/g
* Yeast	< 10 cfu/g (est)	<10 cfu/g

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Eurofins Sample Code: 473-2016-08180271**Client Sample Code:** V6217 WP4

Respectfully Submitted,
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Stephan McDanel

Microbiologist

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Chemical Testing
Cert:2927:01

Eurofins Sample Code: 473-2016-08180272
Sample Description: Whirl-Pak bag 5 (Eggshell Membrane Powder)
Client Sample Code: V6217 WP5
PO Number: 160817-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 08/18/2016
Reporting Date: 08/23/2016

Biova
 Attn: Tai Misra
 2325 North Loop Dr.
 Suite 6400
 Ames, IA 50010

CERTIFICATE OF ANALYSIS

AR-16-JD-031195-01

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 08/19/2016
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g (est)	
UMA EK - Salmonella - AOAC 2003.09		Completed: 08/20/2016
AOAC 2003.09		
* Salmonella spp.	Negative per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 08/20/2016
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g (est)	<10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 7-Pour Plate		Completed: 08/20/2016
CMMEF Chapter 7		
* Aerobic Plate Count	70 cfu/g (est)	<400 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	<5 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 08/20/2016
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	<5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 08/20/2016
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	30 cfu/g (est)	
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 08/21/2016
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g (est)	
UMW78 - Moulds - AACC 42-50		Completed: 08/23/2016
AACC Method 42-50		
* Mold	20 cfu/g (est)	<100 cfu/g
* Yeast	< 10 cfu/g (est)	<10 cfu/g

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Eurofins Sample Code: 473-2016-08180272**Client Sample Code:** V6217 WP5

Respectfully Submitted,
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Stephan McDanel

Microbiologist

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Chemical Testing
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