



Certificate of Analysis Lot#: V8247

Ovacore®

Biova LLC · 2325 N. Loop Dr. · Suite 6400 · Ames, Iowa 50010 · Ph: 1-877-OVACORE · Fax: 515-296-3992

Product Name: **Ovacore®** SKU: 309
 Source: Chicken Eggshell Membrane
 Physical Description: Water soluble, off white powder.
 Date of Manufacture: September 3, 2018

Expiration Date: September 3, 2022

TEST	SPECIFICATION	RESULT	METHOD
Chemistry:			
Total Protein	≥ 88.00%	90.83	Combustion AOAC 990.03; 992.15
Calcium	≤ 1 %	0.340	AOAC 965.17 mod. by ICP
Lead	≤ 0.2 ppm	0.02	AOAC 2013.06 (ICP-MS)
Mercury	≤ 0.1 ppm	0.010	AOAC 2013.06 (ICP-MS)
Arsenic	≤ 0.5 ppm	0.02	AOAC 2013.06 (ICP-MS)
Cadmium	≤ 0.1 ppm	0.02	AOAC 2013.06 (ICP-MS)
Microbiology:*			
Aerobic Plate Count	≤ 2,500 cfu/g	pass	CMMEF, 8.72 FDA BAM Chapter 4
Escherichia Coli	≤ 5 MPN/g	pass	AOAC 2003.09
Salmonella	negative/25g	pass	FDA BAM Chapter 4
Coliforms	≤ 10 (MPN/g)	pass	FDA BAM Chapter 12
Staphylococcus aureus	≤ 10 (cfu/g)	pass	AACC 42-40 mod AACC
Mesophilic Spore Count	≤ 1000 (cfu/g)	pass	42-40
Thermophilic Spore Count	≤ 10 (cfu/g)	pass	AACC 42-50
Yeast	≤ 10 (cfu/g)	pass	AACC 42-50
Mold	≤ 200 (cfu/g)	pass	AOAC 2003.01
Enterobacteriaceae	≤ 10 cfu/g	pass	

Verified By: John H. Bedernick Date: October 2, 2018

For Manufacturing or Research Use Only

*To provide the best and most consistent quality information, Biova utilizes a three tier sampling plan for microbiological testing. These specifications represent the established limits for result criteria.

Biova reserves the right to change specifications in the interest of continued quality improvement.

Eurofins Sample Code: 473-2018-09190270
Sample Description: Composite Sample Jar (Eggshell Membrane Powder)
Client Sample Code: V8247 Composite
PO Number: 180919-10-5050-JHB-02
Client Code: JD0000028

Entry Date: 09/19/2018
Reporting Date: 10/01/2018

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

CERTIFICATE OF ANALYSIS

AR-18-JD-041048-01

Test	Result	Theoretical Level
QD252 - Protein - Combustion Completed: 09/26/2018		
AOAC 990.03; AOAC 992.15		
Protein	90.83 %	≥ 88 %
Nitrogen - Combustion	14.17 %	
Protein Factor	6.41	6.41
QD250 - Ash Completed: 09/26/2018		
AOAC 942.05		
Ash	5.23 %	≤ 8 %
QD148 - Moisture by Vacuum Oven Completed: 09/26/2018		
AOAC 925.09		
Moisture and Volatiles - Vacuum Oven	6.4 %	≤ 9 %
QA00U - Bulk Density Completed: 09/28/2018		
USP 616		
Bulk Density (Loose)	0.240 g/ml	≥ 0.6 g/ml
Bulk Density (Tapped)	0.393 g/ml	≥ 0.6 g/ml
QD251 - Calcium by ICP Completed: 09/26/2018		
AOAC 984.27, 927.02, 985.01, 965.17 mod		
Calcium	0.340 %	≤ 1 %
QA133 - Arsenic (ICP-MS) Completed: 09/28/2018		
AOAC 2013.06		
Arsenic (As)	<0.02 ppm	≤ 0.5 ppm
QA417 - Lead (ICP-MS) Completed: 09/28/2018		
AOAC 2013.06		
Lead (Pb)	<0.02 ppm	≤ 0.2 ppm
QD610 - Mercury (ICP-MS) Completed: 09/28/2018		
AOAC 2013.06		
Mercury (Hg)	<0.010 ppm	≤ 0.1 ppm
QD06E - Elastin by ELISA Completed: 09/26/2018		
Commercial Test Kit		
Elastin by ELISA	26 %	≥ 20 %
QD172 - pH Completed: 09/26/2018		
AOAC 981.12		
pH	6.75	6.5-7.6

Eurofins Sample Code: 473-2018-09190270
 Client Sample Code: V8247 Composite

Test	Result	Theoretical Level
QD06C - Collagen		Completed: 09/26/2018
Commercial Test Kit Collagen	25 %	≥ 15 %
QQ167 - Water Activity		Completed: 09/26/2018
AOAC 978.18 Water Activity at 25°C	0.174	≤ 3
K0032 - Total Glycosaminoglycans as Chondroitin Sulfate sodium by CPC Titration		Completed: 10/01/2018
USP Chondroitin Sulfate Sodium	23.8 % (w/w)	≥ 5 % (w/w)
QA205 - Cadmium (ICP-MS)		Completed: 09/28/2018
AOAC 2013.06 Cadmium (Cd)	0.02 ppm	≤ 0.1 ppm
K0144 - Solubility USP		Completed: 10/01/2018
USP Solubility	Freely Soluble	Soluble in water

Respectfully Submitted,
 Eurofins Scientific Inc.



Christopher Ekuban
 Lab Supervisor

Results shown in this report relate solely to the item submitted for analysis. All results are reported on an "As Received" basis unless otherwise stated. Reports shall not be reproduced except in full without written permission of Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.

Eurofins Sample Code: 473-2018-09190271
Sample Description: Whirl-Pak bag 1 (Eggshell Membrane Powder)
Client Sample Code: V8247 WP1
PO Number: 180919-10-5050-JHB-02
Client Code: JD0000028

Entry Date: 09/19/2018
Reporting Date: 09/28/2018

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

CERTIFICATE OF ANALYSIS

AR-18-JD-039782-02

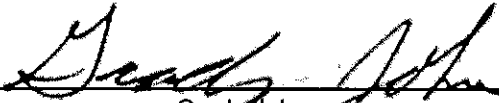
This analytical report supersedes AR-18-JD-039782-01.

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 09/27/2018
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g	
UMA EK - Salmonella - AOAC 2003.09		Completed: 09/21/2018
AOAC 2003.09		
* Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 09/21/2018
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72		Completed: 09/21/2018
CMMEF Chapter 8.72		
* Aerobic Plate Count	< 10 cfu/g	≤ 2,500 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	≤ 5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 09/21/2018
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	50 (est) cfu/g	≤ 25 cfu/g
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 09/22/2018
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g	≤ 10 cfu/g
UMW78 - Moulds - AACC 42-50		Completed: 09/24/2018
AACC Method 42-50		
* Mold	80 (est) cfu/g	≤ 200 cfu/g
* Yeast	< 10 cfu/g	≤ 10 cfu/g

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

Eurofins Sample Code: 473-2018-09190271
Client Sample Code: V8247 WP1

Respectfully Submitted,
Eurofins Scientific Inc.



Grady Johnson
Supervisor



Biological Testing
Cert:3329:01

Results shown in this report relate solely to the item submitted for analysis.
All results are reported on an "As Received" basis unless otherwise stated.
Reports shall not be reproduced except in full without written permission of
Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.

Eurofins Sample Code: 473-2018-09190272
Sample Description: Whirl-Pak bag 2 (Eggshell Membrane Powder)
Client Sample Code: V8247 WP2
PO Number: 180919-10-5050-JHB-02
Client Code: JD0000028

Entry Date: 09/19/2018
Reporting Date: 09/28/2018

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

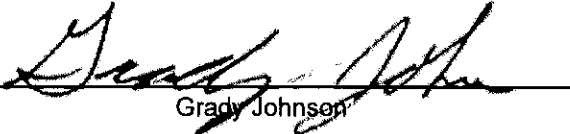
CERTIFICATE OF ANALYSIS

AR-18-JD-039783-02

This analytical report supersedes AR-18-JD-039783-01.

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 09/27/2018
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g	
UMA EK - Salmonella - AOAC 2003.09		Completed: 09/21/2018
AOAC 2003.09		
* Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 09/21/2018
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72		Completed: 09/21/2018
CMMEF Chapter 8.72		
* Aerobic Plate Count	50 (est) cfu/g	≤ 2,500 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	≤ 5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 09/21/2018
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	10 (est) cfu/g	≤ 25 cfu/g
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 09/22/2018
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g	≤ 10 cfu/g
UMW78 - Moulds - AACC 42-50		Completed: 09/24/2018
AACC Method 42-50		
* Mold	190 cfu/g	≤ 200 cfu/g
* Yeast	< 10 cfu/g	≤ 10 cfu/g

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

Eurofins Sample Code: 473-2018-09190272**Client Sample Code:** V8247 WP2Respectfully Submitted,
Eurofins Scientific Inc.

Grady Johnson

Supervisor

Biological Testing
Cert:3329:01

Results shown in this report relate solely to the item submitted for analysis.
All results are reported on an "As Received" basis unless otherwise stated.
Reports shall not be reproduced except in full without written permission of
Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.

Eurofins Sample Code: 473-2018-09190273
Sample Description: Whirl-Pak bag 3 (Eggshell Membrane Powder)
Client Sample Code: V8247 WP3
PO Number: 180919-10-5050-JHB-02
Client Code: JD0000028

Entry Date: 09/19/2018
Reporting Date: 09/28/2018

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

CERTIFICATE OF ANALYSIS

AR-18-JD-039784-02

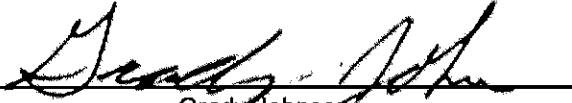
This analytical report supersedes AR-18-JD-039784-01.

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 09/27/2018
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g	
UMA EK - Salmonella - AOAC 2003.09		Completed: 09/21/2018
AOAC 2003.09		
* Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 09/21/2018
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72		Completed: 09/21/2018
CMMEF Chapter 8.72		
* Aerobic Plate Count	20 (est) cfu/g	≤ 2,500 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	≤ 5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 09/21/2018
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	10 (est) cfu/g	≤ 25 cfu/g
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 09/22/2018
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g	≤ 10 cfu/g
UMW78 - Moulds - AACC 42-50		Completed: 09/24/2018
AACC Method 42-50		
* Mold	50 (est) cfu/g	≤ 200 cfu/g
* Yeast	< 10 cfu/g	≤ 10 cfu/g

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

Eurofins Sample Code: 473-2018-09190273
Client Sample Code: V8247 WP3

Respectfully Submitted,
Eurofins Scientific Inc.



Grady Johnson
Supervisor



Biological Testing
Cert: 3329:01

Results shown in this report relate solely to the item submitted for analysis.
All results are reported on an "As Received" basis unless otherwise stated.
Reports shall not be reproduced except in full without written permission of
Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.

Eurofins Sample Code: 473-2018-09190274
Sample Description: Whirl-Pak bag 4 (Eggshell Membrane Powder)
Client Sample Code: V8247 WP4
PO Number: 180919-10-5050-JHB-02
Client Code: JD0000028

Entry Date: 09/19/2018
Reporting Date: 09/28/2018

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

CERTIFICATE OF ANALYSIS

AR-18-JD-039785-02

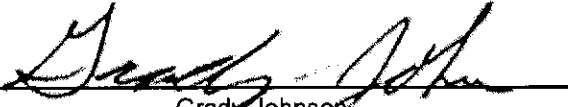
This analytical report supersedes AR-18-JD-039785-01.

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 09/27/2018
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g	
UMAEK - Salmonella - AOAC 2003.09		Completed: 09/21/2018
AOAC 2003.09		
* Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 09/21/2018
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72		Completed: 09/21/2018
CMMEF Chapter 8.72		
* Aerobic Plate Count	40 (est) cfu/g	≤ 2,500 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	≤ 5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 09/21/2018
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	50 (est) cfu/g	≤ 25 cfu/g
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 09/22/2018
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g	≤ 10 cfu/g
UMW78 - Moulds - AACC 42-50		Completed: 09/24/2018
AACC Method 42-50		
* Mold	70 (est) cfu/g	≤ 200 cfu/g
* Yeast	< 10 cfu/g	≤ 10 cfu/g

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

Eurofins Sample Code: 473-2018-09190274
Client Sample Code: V8247 WP4

Respectfully Submitted,
Eurofins Scientific Inc.



Grady Johnson
Supervisor



Biological Testing
Cert:3329:01

Results shown in this report relate solely to the item submitted for analysis.
All results are reported on an "As Received" basis unless otherwise stated.
Reports shall not be reproduced except in full without written permission of
Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.

Eurofins Sample Code: 473-2018-09190275
Sample Description: Whirl-Pak bag 5 (Eggshell Membrane Powder)
Client Sample Code: V8247 WP5
PO Number: 180919-10-5050-JHB-02
Client Code: JD0000028

Entry Date: 09/19/2018
Reporting Date: 09/28/2018

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

CERTIFICATE OF ANALYSIS

AR-18-JD-039786-02

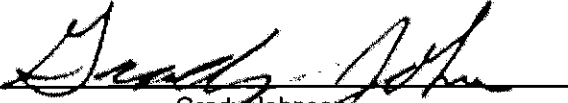
This analytical report supersedes AR-18-JD-039786-01.

Test	Result	Theoretical Level
UMABD - Enterobacteriaceae - AOAC 2003.01		Completed: 09/27/2018
AOAC 2003.01		
* Enterobacteriaceae	< 10 cfu/g	
UMAEK - Salmonella - AOAC 2003.09		Completed: 09/21/2018
AOAC 2003.09		
* Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12		Completed: 09/21/2018
BAM Chapter 12		
* Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72		Completed: 09/21/2018
CMMEF Chapter 8.72		
* Aerobic Plate Count	30 (est) cfu/g	≤ 2,500 cfu/g
UMKP7 - Coliforms - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4		Completed: 09/21/2018
FDA BAM Chapter 4		
* E. coli	< 3 MPN/g	≤ 5 mpn/g
UMZT1 - Aerobic Spore-forming Mesophilic Count - AACC 42-40-M		Completed: 09/21/2018
AACC 42-40 mod.		
Aerobic Spore-forming Mesophilic Count	10 (est) cfu/g	≤ 25 cfu/g
UMNK5 - Aerobic Spore-forming Thermophilic Count - AACC 42-40		Completed: 09/22/2018
AACC Method 42-40		
Aerobic Spore-forming Thermophilic Count	< 1 cfu/g	≤ 10 cfu/g
UMW78 - Moulds - AACC 42-50		Completed: 09/24/2018
AACC Method 42-50		
* Mold	90 (est) cfu/g	≤ 200 cfu/g
* Yeast	10 (est) cfu/g	≤ 10 cfu/g

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

Eurofins Sample Code: 473-2018-09190275
Client Sample Code: V8247 WP5

Respectfully Submitted,
Eurofins Scientific Inc.



Grady Johnson
Supervisor



Biological Testing
Cert:3329:01

Results shown in this report relate solely to the item submitted for analysis.
All results are reported on an "As Received" basis unless otherwise stated.
Reports shall not be reproduced except in full without written permission of
Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.