



Certificate of Analysis

BiovaFlex® AG

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

Product Name:	BiovaFlex® AG	SKU:	330
Source:	Chicken Eggshell Membrane	Lot #:	Z9105-2
Physical Description:	Water soluble, off white powder		
Date of Manufacture:	April 13, 2019	Expiration Date:	April 13, 2023

TEST	SPECIFICATION	RESULT	METHOD
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Identity:			
Protein (N = 6.41) ^A	≥ 88%	96.25	Combustion- AOAC 990.03; 992.15
Moisture	≤ 9%	8.7	AOAC 925.09
Ash	≤ 8%	5.44	AOAC 942.05

Impurities:			
Heavy Metals (Lead)	≤ 1.0 ppm	<0.02	AOAC 2013.03 (ICP – MS)
Calcium	≤ 1%	0.189	AOAC 2013.03 (ICP – MS)

Microbiology:*			
Aerobic Plate Count	≤ 2500 cfu/g	pass	CMMEF, 4 th Ed., 2001 Method 7.6
Escherichia Coli	≤ 3 MPN/g	pass	FDA BAM Chapter 4
Salmonella	Negative / 25g	pass	AOAC 2003.09
Coliforms	≤ 10 MPN/g	pass	FDA BAM Chapter 4
Staphylococcus Aureus	≤ 10 cfu/g	pass	FDA BAM Chapter 12
Yeast	≤ 10 cfu/g	pass	AACC 42-50
Mold	≤ 200 cfu/g	pass	AACC 42-50

Specific Tests:			
Collagen ^A	≥ 15%	18	Sircol™ Soluble Collagen Assay
Elastin ^A	≥ 20%	27	Elastin Assay by ELISA
Total Glycosaminoglycans ^A	≥ 5%	23.5	USP, CPC Titration
pH	6.5 -7.6	6.78	AOAC 981.12
Solubility	Soluble in Water	pass	USP 10% sol @ 25°C

Verified by: John H. Beckwith Date: July 11, 2019

****FOR RESEARCH OR MANUFACTURING 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. Results are also a summary of 5 replicates analyzed at Eurofins Microbiology Laboratory.

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

^AAnalyses reported on a dry basis.

QA053-F
 Revised: May 17, 2019
 Supersedes: January 7, 2019

Eurofins Sample Code: 473-2019-07020324
Sample Description: Whirl-Pak bag 1 (Eggshell Membrane Powder)
Client Sample Code: Z9105-2 WP1
PO Number: 190702-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 07/02/2019
Reporting Date: 07/07/2019

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

CERTIFICATE OF ANALYSIS

AR-19-JD-031145-01

Test	Result	Theoretical Level
UMAEK - Salmonella - AOAC 2003.09 Completed: 07/04/2019		
AOAC 2003.09 Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12 Completed: 07/04/2019		
BAM Chapter 12 Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72 Completed: 07/04/2019		
CMMEF Chapter 8.72 Aerobic Plate Count	20 (est) cfu/g	≤ 5,000 cfu/g
UMKP7 - Coliforms - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 E. coli	< 3 MPN/g	≤ 5 mpn/g
UMW78 - Moulds - AACC 42-50 Completed: 07/07/2019		
AACC Method 42-50 Mold	< 10 cfu/g	≤ 200 cfu/g
Yeast	< 10 cfu/g	≤ 10 cfu/g

Eurofins Sample Code: 473-2019-07020324**Client Sample Code:** Z9105-2 WP1

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.
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Eurofins Scientific, Inc. Measurement of Uncertainty can be obtained upon request.



Biological Testing
Cert:3329:01

Eurofins Sample Code: 473-2019-07020325
Sample Description: Whirl-Pak bag 2 (Eggshell Membrane Powder)
Client Sample Code: Z9105-2 WP2
PO Number: 190702-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 07/02/2019
Reporting Date: 07/07/2019

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CERTIFICATE OF ANALYSIS

AR-19-JD-031146-01

Test	Result	Theoretical Level
UMA EK - Salmonella - AOAC 2003.09 Completed: 07/04/2019		
AOAC 2003.09 Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12 Completed: 07/04/2019		
BAM Chapter 12 Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72 Completed: 07/04/2019		
CMMEF Chapter 8.72 Aerobic Plate Count	40 (est) cfu/g	≤ 5,000 cfu/g
UMKP7 - Coliforms - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 E. coli	< 3 MPN/g	≤ 5 mpn/g
UMW78 - Moulds - AACC 42-50 Completed: 07/07/2019		
AACC Method 42-50 Mold	< 10 cfu/g	≤ 200 cfu/g
Yeast	< 10 cfu/g	≤ 10 cfu/g

Eurofins Sample Code: 473-2019-07020325**Client Sample Code:** Z9105-2 WP2Respectfully Submitted,
Eurofins Scientific Inc.

Christopher Ekuban

Lab Supervisor

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Biological Testing
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Eurofins Sample Code: 473-2019-07020326
Sample Description: Whirl-Pak bag 3 (Eggshell Membrane Powder)
Client Sample Code: Z9105-2 WP3
PO Number: 190702-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 07/02/2019
Reporting Date: 07/07/2019

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CERTIFICATE OF ANALYSIS

AR-19-JD-031147-01

Test	Result	Theoretical Level
UMAEK - Salmonella - AOAC 2003.09 Completed: 07/04/2019		
AOAC 2003.09 Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12 Completed: 07/04/2019		
BAM Chapter 12 Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72 Completed: 07/04/2019		
CMMEF Chapter 8.72 Aerobic Plate Count	30 (est) cfu/g	≤ 5,000 cfu/g
UMKP7 - Coliforms - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 E. coli	< 3 MPN/g	≤ 5 mpn/g
UMW78 - Moulds - AACC 42-50 Completed: 07/07/2019		
AACC Method 42-50 Mold	< 10 cfu/g	≤ 200 cfu/g
Yeast	< 10 cfu/g	≤ 10 cfu/g

Eurofins Sample Code: 473-2019-07020326**Client Sample Code:** Z9105-2 WP3Respectfully Submitted,
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Biological Testing
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Eurofins Sample Code: 473-2019-07020327
Sample Description: Whirl-Pak bag 4 (Eggshell Membrane Powder)
Client Sample Code: Z9105-2 WP4
PO Number: 190702-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 07/02/2019
Reporting Date: 07/07/2019

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CERTIFICATE OF ANALYSIS

AR-19-JD-031148-01

Test	Result	Theoretical Level
UMAEK - Salmonella - AOAC 2003.09 Completed: 07/04/2019		
AOAC 2003.09 Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12 Completed: 07/04/2019		
BAM Chapter 12 Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72 Completed: 07/04/2019		
CMMEF Chapter 8.72 Aerobic Plate Count	60 (est) cfu/g	≤ 5,000 cfu/g
UMKP7 - Coliforms - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 E. coli	< 3 MPN/g	≤ 5 mpn/g
UMW78 - Moulds - AACC 42-50 Completed: 07/07/2019		
AACC Method 42-50		
Mold	< 10 cfu/g	≤ 200 cfu/g
Yeast	< 10 cfu/g	≤ 10 cfu/g

Eurofins Sample Code: 473-2019-07020327
Client Sample Code: Z9105-2 WP4

Respectfully Submitted,
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Biological Testing
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Eurofins Sample Code: 473-2019-07020328
Sample Description: Whirl-Pak bag 5 (Eggshell Membrane Powder)
Client Sample Code: Z9105-2 WP5
PO Number: 190702-10-5050-JHB-01
Client Code: JD0000028

Entry Date: 07/02/2019
Reporting Date: 07/07/2019

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 Ames, IA 50010

CERTIFICATE OF ANALYSIS

AR-19-JD-031149-01

Test	Result	Theoretical Level
UMA EK - Salmonella - AOAC 2003.09 Completed: 07/04/2019		
AOAC 2003.09 Salmonella spp.	Not Detected per 25 g	Negative /25 g
UMHBM - Staphylococcus aureus - BAM Chapter 12 Completed: 07/04/2019		
BAM Chapter 12 Staphylococcus aureus	< 10 cfu/g	≤ 10 cfu/g
UMJP9 - Aerobic Plate Count - CMMEF Chapter 8.72 Completed: 07/04/2019		
CMMEF Chapter 8.72 Aerobic Plate Count	140 (est) cfu/g	≤ 5,000 cfu/g
UMKP7 - Coliforms - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 Total Coliforms	< 3 MPN/g	≤ 10 mpn/g
UMVUE - Escherichia coli - BAM Chapter 4 Completed: 07/04/2019		
FDA BAM Chapter 4 E. coli	< 3 MPN/g	≤ 5 mpn/g
UMW78 - Moulds - AACC 42-50 Completed: 07/07/2019		
AACC Method 42-50 Mold	10 (est) cfu/g	≤ 200 cfu/g
Yeast	< 10 cfu/g	≤ 10 cfu/g

Eurofins Sample Code: 473-2019-07020328**Client Sample Code:** Z9105-2 WP5Respectfully Submitted,
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Biological Testing
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