

Title: <b>Lutein 20 mg</b>	
Allergy Research Group® / NutriCology®	
Document No.: 74600CA	Revision: 009
Date Issued: 15APR2020	Supersedes: 008

## Certificate of Analysis

<b>Part Number</b>	74600		
<b>Lot Number</b>	30083		
<b>Product Count &amp; Form</b>	60 Softgels		
<b>Packaging, Closure</b>	75 cc bottle, desiccant		
<b>Storage Condition</b>	Room Temperature		
<b>Shelf Life</b>	24 months	Expiration Date	02/23
<b>Label Number, Size</b>	74600L, B		
<b>Retain Sample</b>	2 bottles per label (4 bottles total)		

### ANALYSIS

#### Physical

Attribute	Method / SOP	Specification	Test Result
Product Color, Size	QC011	Clear, brown-orange, oval 6, S2	Complies
Product Weight	SOP 514	Meets USP <2091> 283.5 – 346.5 mg	Passes, 320.3 mg*
Disintegration time	SOP 522	Meets USP <2040>	Passes, 5 min*

\*Based on CMO CoA

#### Purity/Strength per Softgel

Active Ingredients	Label Claim	Release Limits	Test Result
Lutein (Floraglo)	20 mg	100-150% LC by HPLC	20.48 mg/softgel
Zeaxanthin	1 mg	100-150% LC by input	100-150% LC by input*
Vitamin E (as Mixed Tocopherols)	1 IU	100-150% LC by input	100-150% LC by input*

#### Other Ingredients:

Safflower Oil, Gelatin, Glycerin, Purified Water, Yellow Beeswax

\*Production and Process Control

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**Identification \ Chemical \ Heavy Metals**

Attribute	Method / SOP	Specification	Test Result
Identity	Bulk Certificate of Analysis Review	Approved	Approved
Identity	Near Infrared Spectroscopy	Matches Reference	Matches Reference*
Arsenic (inorganic)	ICP-MS per USP <2232>	≤ 15 mcg/day	BQL <sup>1</sup>
Cadmium	ICP-MS per USP <2232>	≤ 5 mcg/day	BQL <sup>1</sup>
Mercury (total)	ICP-MS per USP <2232>	≤ 15 mcg/day	BQL <sup>1</sup>
Lead	ICP-MS per USP <2232>	≤ 10 mcg/day	BQL <sup>1</sup>

\*Production and Process Control, <sup>1</sup>Below Quantitative Level

**Microbiology**

Attribute	Method / SOP	Specification	Test Result
Total Aerobic Count	USP/ AOAC/ FDA BAM	≤ 1 x 10 <sup>4</sup> CFU/g	< 10 CFU/g
Total Yeast & Mold	USP/ AOAC/ FDA BAM	≤ 1 x 10 <sup>3</sup> CFU/g	< 10 CFU/g
Coliform	USP/ AOAC/ FDA BAM	≤ 1 x 10 <sup>2</sup> CFU/g	< 10 CFU/g
Escherichia coli	USP/ AOAC/ FDA BAM	None Detected	None Detected
Staphylococcus aureus	USP/ AOAC/ FDA BAM	None Detected	None Detected
Salmonella	USP/ AOAC/ FDA BAM	None Detected	None Detected

Approval: 	Digitally signed by Casey Van Wagoner Date: 2020.04.15 12:40:55 -06'00'	Date: 15APR2020
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If you liked our service, please tell a friend. If you didn't, please tell us!

## Test Certificate

Description: Lutein 20mg  
Sample ID: 44600/E00330083  
Lot No:  
Location:  
Received: 3/18/2020  
Completed: 3/24/2020

Client: Allergy Research Group  
2300 N Loop Rd.  
Alameda, CA 94502

Lab No: 191423-01

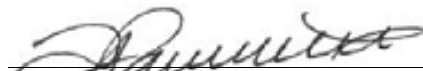
<b>Analysis</b>	<b>Result</b>	<b>Per Unit</b>	<b>Specifications</b>	<b>Method</b>
Total Aerobic Microbial Count	<10	CFU/g	<= 100,000 CFU/g	USP <2021>
Coliform	<10	CFU/g	<= 1,000 CFU/g	AOAC 991.14
E.Coli	Absent	per 10 grams	Absent	USP <2022>
Staphylococcus aureus	Absent	per 10 grams	Absent	USP <2022>
Salmonella	Absent	per 10 grams	Absent	USP <2022>
Total Yeast & Mold	<10	CFU/g	<= 100,000 CFU/g	USP <2021>
Yeast *	<10	CFU/g	<= 100,000 CFU/g	
Mold *	<10	CFU/g	<= 100,000 CFU/g	

\* For informational purposes only.

**THESE RESULTS APPLY ONLY TO THE SAMPLE SUBMITTED AND NOT TO THE PRODUCT FROM WHICH IT WAS TAKEN. THESE RESULTS ARE PROVIDED ONLY FOR THE BENEFIT OF CLIENT, WITHOUT REPRESENTATION OR WARRANTY OF ANY KIND, EXCEPT FOR THE EXPRESS LIMITED WARRANTY PROVIDED SOLELY TO CLIENT IN ADVANCED LABORATORIES' TERMS OF SERVICE.**

**THIS CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL FROM ADVANCED LABORATORIES.**

Results Approved By:

  
Alisa Farnsworth-Quality Technician

Dated:

3/24/2020

Printed: 3/24/2020 4:35:35 PM



If you liked our service, please tell a friend. If you didn't, please tell us!

## Test Certificate

Description: Lutein 20mg  
Sample ID: 44600/E00330083  
Lot No:  
Location:  
Received: 3/18/2020  
Completed: 3/26/2020Client: Allergy Research Group  
2300 N Loop Rd.  
Alameda, CA 94502

Lab No: 191427-01

Analysis	Result	Per Unit	Specifications	Method
Mercury	0.005	ug/g	< 50 ug/g	ICP-MS USP <730>
Lead	0.003	ug/g	< 50 ug/g	ICP-MS USP <730>
Arsenic	0.028	ug/g	< 50 ug/g	ICP-MS USP <730>
Cadmium	0.003	ug/g	< 50 ug/g	ICP-MS USP <730>
† Lutein	20.48	mg/softgel	>= 20 mg/softgel	HPLC

\* For informational purposes only.

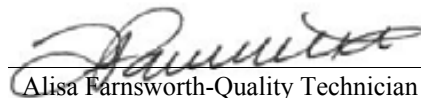
Analysis performed on a composite sample made from ten softgels.  
Average fill weight = 319.1 mg

Lutein analysis performed using HPLC by method adapted from Steghens, J.P., vanKappel, A.L., Riboli, E., Collombel, C., "Simultaneous Measurement of Seven Carotenoids, Retinol and Alpha-tocopherol by High-Performance Liquid Chromatography," as published in the Journal of Chromatography, B: Biomedical Applications, 694: 71-81, 1997; utilizing a sample mixed 0.2 ml ethanol then shaken for 5 min. H<sub>2</sub>O (0.2 ml) and hexane (0.5 ml) were added and shaken for 5 min, and the organic phase separated. After second extraction with 0.3 ml hexane, combined extract was evaporated in vacuo and residue was dissolved in 0.3 ml hexane/ethanol/methanol (1:5:44). This solution was analyzed on two columns of 3 µm Adsorbosphere HS C18 (10 cm \* 4.6 mm i.d. and 15 cm \* 4.6 mm i.d. in series) at 37°C. The mobile phase (0.9 ml/min) was methanol/acetonitrile (2:3), containing 0.5% acetic acid for 7.1 min, then a step gradient to 24% of CH<sub>2</sub>Cl<sub>2</sub> in the same solvent for 10.3 min, with detection at 292, 325, 450 and 473 nm. Authentic chemical reference material obtained from Sigma-Aldrich.

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Results Approved By:

  
Alisa Farnsworth-Quality Technician

Dated:

3/26/2020

Tests marked with † were done at Atlas Bioscience Labs, LLC, a joint venture with Advanced Laboratories. -  
1775 S. Pantano Rd - Ste #110, Tucson, AZ 85710

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