



## Certificate of Analysis

Chondroitin Sulfate Sodium, Shark

Lot #: SN-SC-112612

*Guosir DePaco, Ph.D.*  
President & CEO  
Summit Nutritionals International, Inc.

Date of Manufacturing:  
Expiration / re-test date:  
Molecular Formula:  
Molecular Weight in Daltons:  
Grade:  
Lot Size:  
Country of Origin:

November 26, 2012  
November 26, 2015  
(C<sub>14</sub>H<sub>21</sub>NO<sub>14</sub>S)<sub>n</sub>  
16,000  
USP Food/Nutraceutical  
5500/kg  
USA

### Description

Appearance:  
Particle Size:  
Solubility:

Powder  
100% thru 80 Mesh  
H<sub>2</sub>O

### Analytical:

Color:  
Odor:  
Texture:  
Taste:  
pH:  
Protein: (anhydrous basis)  
Fat:  
Moisture:  
Crude Fat/Oil:  
Sodium:  
Sulfur:  
Sulfate:  
Chloride:  
Bulk Density - Tapped:  
Bulk Density - Un-tapped:

### Specification

White  
Deodorized  
Powder  
Characteristic  
5.5 to 7.5  
<1%  
<0.2%  
<7%  
<2%  
<4%  
5.5 - 7.5%  
<0.24%  
<0.5%  
0.65 ~ 0.70 g/ml  
0.55 ~ 0.60 g/ml

### Results

Conforms  
Conforms  
Conforms  
Conforms  
6.29  
0.5%  
0.1%  
5.7%  
1.1%  
3.0%  
6.5%  
Conforms  
Conforms  
0.70 g/ml  
0.60 g/ml

### Chondroitin Sulfate by Advanced Laboratories, NC\*

Chondroitin Sulfate: (By Enviro-Test)

### Specification

>90%

### Results

91.08%

### Chondroitin Sulfate by Atlas Bioscience, AZ\*

Chondroitin Sulfate: (By Carbazole)  
Loss on Drying:

### Specification

>90%  
<10%

### Results

90.86%  
4.88%

### Chondroitin Sulfate by BioCenticals, MT\*

Chondroitin Sulfate: (By HPLC Schuster)  
Loss on Drying:

### Specification

>90%  
<10%

### Results

91.89%  
4.10%

### Chondroitin Sulfate by Sani Pure Food Laboratories, NJ\*

Chondroitin Sulfate: (By CPC Titration)  
Loss on Drying:  
Species: (Tepnel Species ELISA)

### Specification

>90%  
<10%

### Results

91.77%  
4.65%

Shark Cartilage

Shark Cartilage

### Heavy Metals:

Lead:  
Cadmium:  
Arsenic  
Mercury:

### Specification

<0.5 ppm  
<1 ppm  
<1 ppm  
<0.01 ppm

### Results

0.3 ppm  
0.62 ppm  
0.68 ppm  
Conforms

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Member of the Somerset County Chamber of Commerce  
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HEADQUARTERS USA: Campus View Plaza Building, 1250 Route 28 - Suites 305B, 306 & 308, Branchburg, New Jersey 08876 - USA - Tel: 1-908-252-0090 - Fax: 1-908-252-0091

EUROPE BRANCH: Rua José Carvalho Araújo, 236 - Edifício Regala, Piso 3 - Sala 20, 2750-396 Cascais - Portugal - Tel: +351 21 482 1965 - Fax: +351 21 482 1966



## Certificate of Analysis

Chondroitin Sulfate Sodium, Shark  
Lot #: SN-SC-112612

### Microbiological Standards:

Total Plate Count:  
Yeast:  
Mold:  
E.Coli:  
Salmonella:  
Staphylococci:

### Specification

<1000 cfu/g  
Negative  
Negative  
Negative  
Negative  
Negative

### Results

Conforms  
Negative  
Negative  
Negative  
Negative  
Negative

### Organic Volatile Impurities:

<10 ppm

Conforms

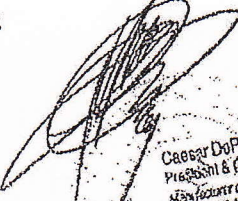
\*This product conforms to California's Proposition 65, which regulates toxic substances\*

\*\*The Parameters specified on this Certificate of Analysis were tested according to USP Methodology\*\*

\* The within results have been obtained through testing conducted by Advanced Laboratories ("Advanced")/Atlas Bioscience Laboratories ("Atlas"), BioCenticals Research & Development Analytical Laboratory ("BioCenticals") & Sani Pure Food Laboratories ("Sani-Pure"). The information contained herein is intended for informational purposes only and Summit specifically disclaims any reliance upon same by the customer and/or any end user of the materials referenced herein. Summit Nutritionals International Inc. ("Summit") does not intend, or contemplate that the customer, or any end user, rely upon the accuracy of the information contained herein. The material referenced herein is sold in "as-is" condition, and any purchaser and/or end user foregoes testing upon the within material at its own peril. In turn, no guarantee or warranty, either express or implied, is provided hereunder, or with respect to any of the information, testing methods, or conditions under which said testing was conducted. Rather, for any such guaranty, Summit recommends contacting any of the above mentioned laboratories directly. As a result of the foregoing, please be advised that Summit shall not entertain any claims for any damages resulting from non-conformity of said material in the event same is reported subsequent to the thirty (30) day time period prescribed by Summit within which to do so or in the event that such materials are no longer in their raw material form. Please be guided accordingly.

\*Store at room temperature (40 ° ± 2°, Celsius Degrees), Humidity at 70 ± 5%, protect from light\*

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Caesar DePaolo, Ph.D.  
President & CEO  
Summit Nutritionals International Inc.

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**IEH - Sani-Pure Food Laboratories**

CHEMISTS TO THE FOOD INDUSTRIES

178-182 Saddle River Road • Saddle Brook, New Jersey 07663-4619

VOICE (201) 843-2525 • FAX (201) 843-4934 • E-MAIL: sanipure.labs@verizon.net

**Certificate of Laboratory Analysis**  
FOR INFORMATIONAL PURPOSES ONLYSummil Nutritionals  
1250 Route 28  
Suite 305 B  
Branchburg, NJ 08876Date Received: 12/12/2012  
Date Tested: 12/12/2012  
Date Reported: 12/15/2012  
Lab Reference No: ISP-12347-74-3  
Page Number: 1 of 1Product Identification: CHONDROITIN SULFATE SODIUM SHARK  
Lot Number: SN-SC-112612

TEST REQUIRED	RESULT	REQUIREMENT	REFERENCE METHOD
Loss on Drying	4.65%	not more than 10.0%	Oven Drying 4 hrs @ 105° C
Chondroitin Sulfate	91.77%	90.0% to 105.0%, dry basis	USP CPC Titration
Species	SHARK	obtained from Shark cartilage	Tepnel Species ELISA

Respectfully submitted,

  
Ronald A. Schnitzer  
Director

Unless otherwise noted, all samples were received in acceptable condition. The result(s) in this report relate only to the portion of the sample(s) tested. This report does not constitute a release of product for consumption. This report shall not be reproduced except in full, without approval of the laboratory.

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ADVANCED LABORATORIES, INC.  
"Unconventional by Design"  
FDA Registration #2000040668

8969 Cleveland Road, Clayton, NC 27520  
Phone: 919-989-7793 Fax: 919-989-9226  
Email: nclab@advancedlabsinc.com

### Test Certificate

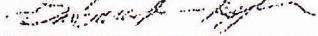
Sample Description:	Chondroitin Sulfate Sodium, Shark	Client Name	Cesear DePaco
Sample ID:	SN-SC-112612	and Address:	Summit Nutritionals
Sample Lot No:	SN-SC-112612		1250 Route 28
Location:			Suite 305B
Received Date:	12/3/12 11:21		Branchburg, NJ 08876
Completed Date:	12/10/2012	Lab No:	25168-03
PO No:	Lyndsey		

Analysis	Result	Per Unit	Method
†Chondroitin Sulfate	91.08	% wt	Enviro Test Monograph

CPC analysis performed in accordance with Enviro-Test monograph "Determination of Chondroitin Sulfate In Supplements by Cetyl-Pyridinium-Chloride Titration"; utilizing spectrophotometric titration against 0.1% cetyl pyridinium chloride observing an endpoint detection at 420nm, using second derivative of titration curve at point of zero axis intersection. Authentic reference materials obtained from Sigma-Aldrich.

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.

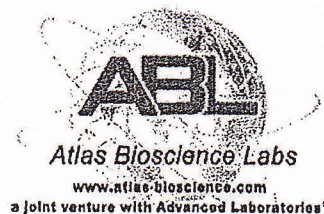
THIS CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL FROM ADVANCED LABORATORIES.

Results Approved By:   
Barbara Taylor-Technical Manager

Dated: 12/10/2012

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

Printed: 12/10/2012 2:52:10 PM



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## ANALYTICAL REPORT

TO: Summit Nutritionals Intl. Inc.  
1250 Route 28 - Ste 305B  
Branchburg, NJ 08876  
EMAIL: services@summitnutritionals.com  
DATE: December 6, 2012

Sample:	Lot Number:
<b>Chondroitin Sulfate Sodium, Shark</b>	<b>SN-SC-112612</b>

Analyte	Result*	Unit
Chondrotin sulfate (calc as 45% uronic acid)	90.86	% wt

\* reported on dry basis - loss on drying = 4.88%

Analysis performed by carbazole determination of uronic acid content (Ref: Bitter, T. and Muir, H. (1962) *Anal. Biochem.* 4:330-4). Using tetraborate reagent digestion of sample followed by heating and addition of carbazole reagent. Absorbance read at 530nm. Glucuronic acid standard 40 µg/mL freshly prepared in water utilized as reference obtained from Sigma-Aldrich.

Dinesh Patel, Ph.D.  
Laboratory Director

This Report is issued in accordance with the Standard Terms and Conditions including but not limited to our services and reports (i) are for the benefit of the client only and may not be used by any other party for any purpose and (ii) relate solely to the sample(s) in our possession and cannot be applied to any other material. Report shall not be reproduced except in full, without written approval of the laboratory. \*\*\* END OF REPORT \*\*\*

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**BioCeuticals Research & Development Analytical Laboratory**

*Division of All American Pharmaceutical & Natural Foods Corporation*

**2376 Main Street**

**Area 12**

**Billings, MT 59105 U.S.A.**

**(406) 245-5793**

***PRODUCT ANALYSIS***

**To: Lyndsey Rickards**  
**Company: Summit Nutritionals**  
**Date: 12-10-12**

Product Name: Chondrotin Sulfate Sodium Shark	Lot Number: SN-SC-112612	P.O. Number: Lyndsey Rickards
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Analyte	Results	Unit
Chondroitin Sulfate Sodium	91.89	% / wt

**\*\*Analysis was reported on a dry basis—loss on drying was 4.10%**

Chondroitin analysis performed by HPLC utilizing Schuster octane sulfonic acid ion-pairing method using a RP-HPLC with a C18 column (250mmx4.6mm). Mobile phases: buffer A; aqueous solution of sodium dihydrogenphosphate and 1-octanesulfonic acid as cation-pairing reagent, pH 2.0. Buffer B; water/acetonitrile 50/50). A gradient was run from 0-40% buffer B in 30 minutes at a flow rate of 1 ml/min and injection volume of 10.00 ul.

External reference material obtained from Sigma-Aldrich.

This Product Analysis is subject to our Standard Terms

***Jeff Golini***

Jeff Golini  
Executive Scientist