

**Lonza**

# LaraCare® A200



# LaraCare® A200 – Approved by Ecocert

## A Natural Enhancer for Skin Actives

Extracted from the Larch tree harvested in North America, LaraCare® A200 (INCI: Galactoarabinan) is a highly functional polysaccharide. This natural polysaccharide, galactoarabinan (GA), is a natural polymer linked with sugar units consisting of galactose and arabinose in the ratio of 6:1, respectively. It provides many unique properties and benefits in personal care applications.

LaraCare® A200 is a natural, mild, non-irritating and water-dispersible polymer which promotes AHA exfoliation on skin without irritation, could improve the appearance of skin superficial fine lines, reduces transepidermal water loss (TEWL) and provides SPF enhancement.

## Efficacy and Suggested Applications

### Moisture Control and Humectancy

LaraCare® A200 works to enhance the skin's barrier properties. Clinical testing has shown its effectiveness for reducing TEWL, and thus, it contributes moisturization benefits to skin care formulations.

### Clinical Test Protocol:

Site: Lower lateral leg

Exposure Time: One application

Test Formulations:

Base without GA (control)

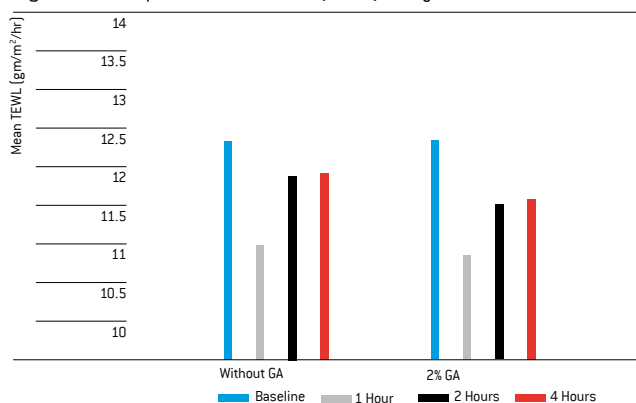
Base + 2% GA

Protocol: Transepidermal Water Loss (TEWL) measurements at 1, 2 and 4 hours after the single application.

### Study Results (as shown in Figure 1)

- Both formulations, Base without GA and Base + 2% GA, significantly reduced TEWL at 1 hour after product application.
- Only the Base + 2% GA formula maintained a significant TEWL reduction at 2 and 4 hours after product application.

Figure 1. Transepidermal Water Loss (TEWL) Study



### Enhancement of AHA Exfoliation

Traditionally, AHAs have been used extensively to increase skin exfoliation. However, they are also well known to cause skin irritation, particularly at their effective higher concentration and at lower pH conditions. Formulations containing LaraCare® A200 in combination with a relatively high concentration of AHA (lactic acid) improved exfoliation without an accompanying increase in skin irritation.

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## Clinical Test Protocol:

Site: Inner forearm

Exposure time: 4 days

Test formulations:

Base + 8% AHA (control)

Base + 8% AHA + 2% GA

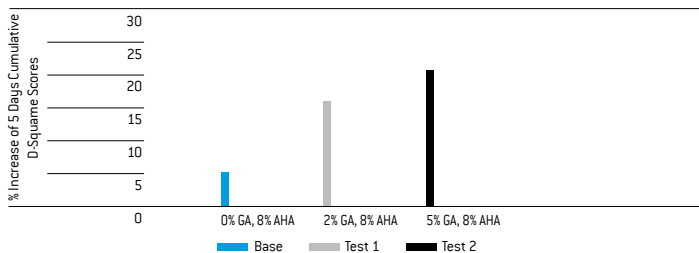
Base + 8% AHA + 5% GA

Protocol: D-squame disk visual scoring

## Study Results (as shown in Figure 2):

– After 5 days, Tests 1 and 2 shows that 2% and 5% GA provided a cumulative increase in exfoliation of 16.42% and 20.46%, respectively. This is statistically significant vs. the control formulation, Base + 8% AHA.

Figure 2. Exfoliation Enhancement of Galactoarabinan



## Skin Treatment Efficacy Evaluation

A clinical study has shown LaraCare® A200's efficacy in reducing the appearance of the skin's superficial fine lines.

## Clinical Test Protocol:

Site: Eyes (crow's feet area)

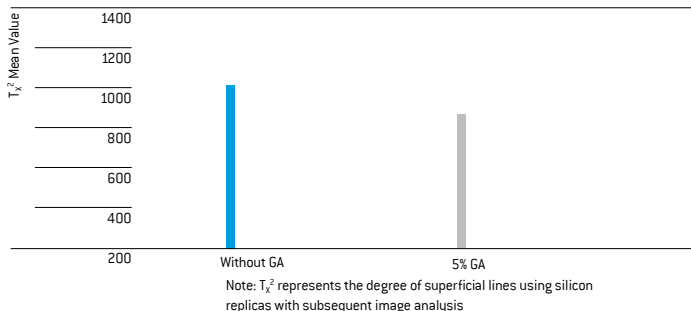
Exposure time: 8 weeks

Test formulation:

Base + 5% GA

Protocol: Contour and texture analysis of skin replica casts (prepared using a silicone-based resin) of the eye area at baseline and after the eight-week treatment period to determine the effect of the formulation on the appearance of superficial fine lines.

Figure 3. Skin Replica Image Analysis of Fine Lines



## Study Results (as shown in Figure 3):

– Image analysis of the skin replicas showed an improvement of 19% in superficial fine lines after eight weeks of applying the test formula containing 5% GA.

## Sunscreen Formulation SPF Enhancement

LaraCare® A200 has the ability to aid reduction of emulsion droplet size, as well as ability to improve particulate dispersibility and uniformity. The uniform distribution of sunscreen on the skin surface, promoted by incorporation of LaraCare® A200 in skin care formulations, appears to contribute to an SPF enhancement.

## Droplet and Particle Size Results (as shown in Figure 4 and 5):

– Emulsion droplet size is reduced to 2-3 microns from incorporation of GA (Figure 4).  
– Dispersion of titanium dioxide in the emulsion with GA is more even, much more fine, and without agglomerates (Figure 5).

## Results of GA's Effect upon SPF Enhancement:

– The formulations given in Table 1 include common organic and inorganic sunscreens with various surface treatments at moderate concentration levels. The composition of the base emulsion is shown in Table 2.  
– Test Protocol: In-vitro testing using the SPF-290 SPF Analyzer by Optometrics Corporation, LLC.  
– Results in Table 1 show SPF enhancements ranging from approximately 5% to as much as 60%. Higher GA levels gave a larger SPF increase.

Figure 4. The Effect of Galactoarabinan upon Oil Droplets

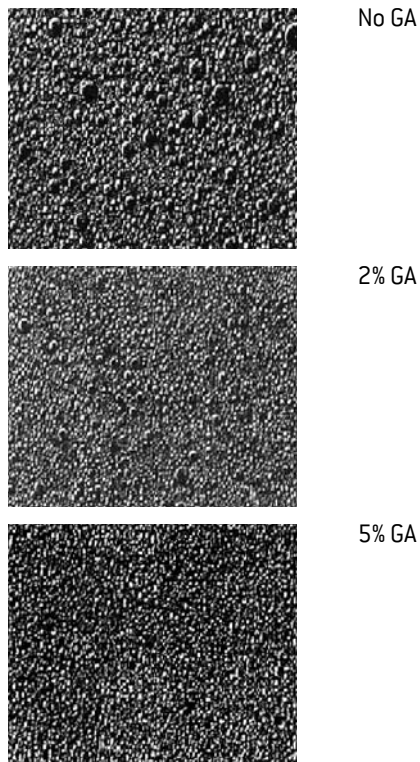


Figure 5. Emulsion Incorporating Titanium Dioxide with and without Galactoarabinan

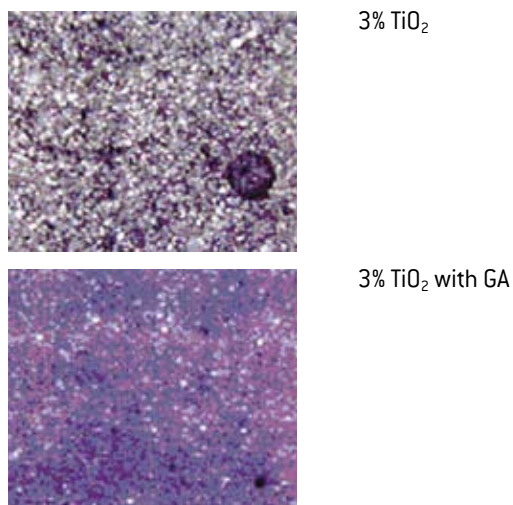


Table 1. Effect of GA on Sunscreen Blend (Sunscreen/Inactives) SPF

Sunscreen	% GA	SPF	% Increase
Ethylhexyl methoxycinnamate 5%, Ethylhexyl salicylate 5%	0%	5.54	—
	2%	7.69	38.8
	5%	8.60	55.2
Titanium dioxide (and) aluminum hydroxide (and) stearic acid 10%	0%	8.60	—
	2%	9.48	10.23
	5%	12.13	41.05
Ethylhexyl methoxycinnamate 5%, Homosalate 5%, Titanium dioxide (and) aluminum hydroxide (and) hydrated silica (and) alginic acid 3%	0%	16.74	—
	2%	18.41	9.98
	5%	27.00	61.29
Ethylhexyl methoxycinnamate 5%, Ethylhexyl salicylate 5%, Titanium dioxide (and) aluminum hydroxide (and) hydrated silica 3%	0%	12.95	—
	2%	13.76	6.25
	5%	16.15	24.71

Table 2. SPF Emulsion Test Base

Ingredient	W/W %
Water	qs
Ethylhexyl palmitate	6.0
Glyceryl stearate (and) cetearyl alcohol (and) stearyl lactylate	5.0
Glycerin	3.0
Polysorbate 20	1.0
Xanthan Gum	0.5
Preservative	qs

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## Product Performance and Formulation Guidelines

### LaraCare® A200 Performance in Formulations:

- Dispersible in water and easy to incorporate into the water phase of personal care formulations.
- Helps to stabilize the emulsion by enabling a smaller oil droplet size.
- Helps to preserve the primary particle size of dispersed inorganic powders by reducing the agglomeration tendency of these particulates.

### LaraCare® A200 Formulations Guidelines:

- Add to water phase for emulsion formulations.
- Typical use levels up to 5%. Expect that use levels as low as 1% in water may be hazy.
- Tolerable to pHs 3 – 13.
- Tolerable to up to 16% NaCl.
- Tolerates typical emulsion processing conditions for shear and temperature.
- May affect product viscosity of formulations that contain some synthetic rheology modifiers or natural gum thickeners.

## Active Matter

INCI Name:	Galactoarabinan
Chemical Name:	Arabinogalactan
Botanic Name:	Genus Larix

## Product Specifications

Assay:	>95% Galactoarabinan
Physical State:	
Texture	Free Flowing Powder
Foreign Matter	None
Odor	Slightly Aromatic
Color	Off-White to White
Particle Size	< 20% +40M
Moisture	2-6%
Viscosity (5% solution)	max 5.0cps
	Brookfield LVT Dial Viscometer
	Spindle SC4-18 / 25 °C

### Microbiological:

A.P.C.	max 100 CFU/g
Yeast	max 10 CFU/g
Mold	max 100 CFU/g

### Heavy Metals:

Arsenic	max 0.4 ppm
Lead	max 0.1 ppm
Cadmium	max 4.1 ppm
Mercury	max 0.3 ppm
Total	max 5 ppm

## Toxicological Information

### Refer to MSDS

Dermal Irritation: There have been no known irritation effects.

- RIPT testing on 58 individuals showed no evidence of irritation or sensitization.
- Neutral Red Uptake Bioassay found LaraCare® A200 to be very mild to human epidermal keratinocytes (skin cells).

Ocular Irritation: MatTek Corporation EPI-Ocular® in-vitro skin model classified LaraCare® as a “non-irritant”.

Mutagenicity: Ames Test results showed that it is not mutagenic-positive.

## Ecological and Ecotoxicological information

### Refer to MSDS

For further information, please contact your local Lonza representative. Contact Lonza via email at [contact@lonza.com](mailto:contact@lonza.com), visit the Lonza web site at [www.lonza.com](http://www.lonza.com), or you can reach Lonza at +41 61 316 8111.



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