

# BioReNuva<sup>®</sup>

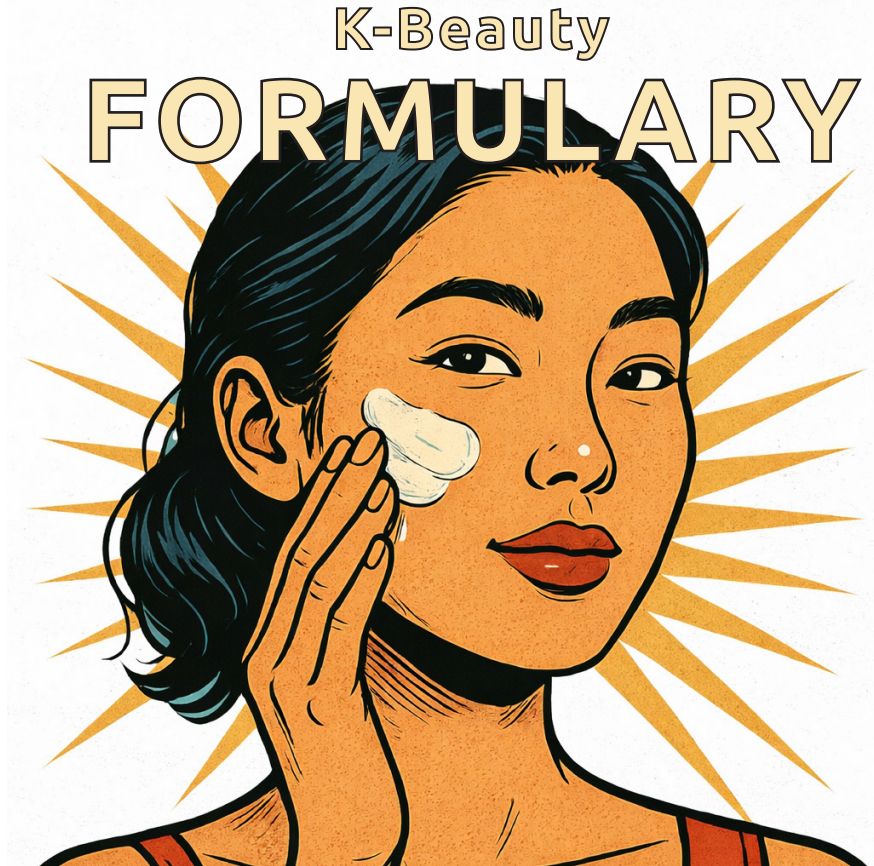
Biosurfactants For Beauty Care

## 2026 K-Beauty Formulary

- Pore Cleansing with Sophorolipids
- Pore Cleansing with Rhamnolipids
- Creamy Bubble Cleanser
  - Liquid
  - Gel
- Pore Cleansing Oil
  - Liquid
  - Gel

ReNuva™ SL-A70 (Sophorolipids)

ReNuva™ RL-50 (Rhamnolipids)



## Pore Cleansing w/ Sophorolipids

Formula No. HC-0825-1

Phase	Ingredients	%	INCI	Function
A	DI Water	85.52	Aqua	Solvent
	Carbomer 980	0.05	Carbomer	Thickener
	Tromethamine (10%)	0.45	Tromethamine	pH Adjuster
	Glycerin	0.50	Glycerin	Humectant
	DL-Panthenol	0.05	Panthenol	Humectant
	Betaine	0.05	Betaine	Moisturizer
	1,2 Hexanediol	1.20	1,2-Hexanediol	Emollient
B	DI Water	10.00	Aqua	Solvent
	ReNuva SL-A70	2.00	Glycolipids	Biosurfactant
	Salicylic Acid	0.50	Salicylic Acid	Exfoliant
	Preservative	0.10	Ethylhexylglycerin	Preservative
	Parfum	0.08		Fragrance

### The Skin Science That Drives Our Design

This Pore Cleansing Pad is a non-irritating first step for daily pore care—cleansing, tightening, and sebum control—with support for long-term acne management. Pore biofilm can block the follicle entrance and canal, trapping sebum and comeocytes and increasing inflammatory risk. BHA (salicylic acid) helps dissolve these plugs.

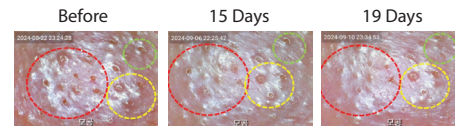
The key ingredient, ReNuva SL-A70, has a low critical micelle concentration (CMC) and forms micro-micelles in-pore even at minimal levels. These micelles capture sebum, oxidized lipids, residual makeup, and other impurities. By reducing surface tension from 72.8 mN/m to 30–40 mN/m, SL-A70 weakens the sebum–skin interface for more efficient residue removal. As a water-soluble emollient, it minimizes irritation and supports deep hydration—ideal for oily, acne-prone, and sensitive skin.

### ReNuva SL-A70 Performance

#### 1. Antimicrobial behavior of ReNuva SL-A70 against P. acnes

At 1 and 2%, ReNuva SL-A70 eliminated P.acnes bacteria in a challenge test (ND = not detected), while the control without SL-A70 showed heavy growth (TNTC = Too Numerous to Count).

#### 2. Pore-tightening efficacy of ReNuva SL-A70



#### 3. Solubility efficacy of ReNuva SL-A70

ReNuva SL-A70 can effectively solubilize Salicylic Acid (BHA) at a 5:1 ratio.

# Pore Cleansing w/ Rhamnolipids

Formula No. HC-0825-2

# BioReNuva®

Contact [info@biorenuva.com](mailto:info@biorenuva.com) for prototype samples

Phase	Ingredients	%	INCI	Function
A	DI Water	88.00	Aqua	Solvent
	Dipropylene Glycol	5.00	Dipropylene Glycol	Humectant
	1,2 Hexanediol	2.00	1,2-Hexanediol	Emollient
	ReNuva RL-50	5.00	Glycolipids	Biosurfactant

## The Skin Science That Drives Our Design

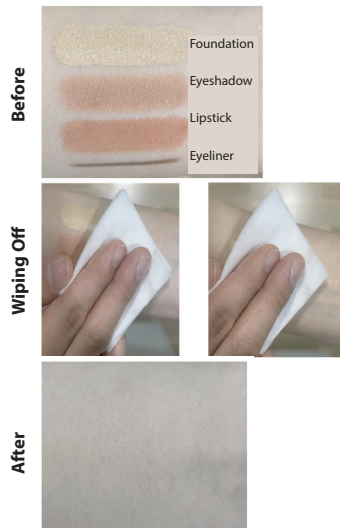
This Rhamnolipids built Pore Clear Cleansing Pad is a low-irritation, first-step daily cleanser that targets pores—cleansing, tightening, and sebum control—while supporting acne-prone skin. Unlike pads heavy in harsh surfactants or high AHA/BHA, it lifts stubborn residues, including intra-pore biofilms that cleansing oils miss.

The key active, ReNuva RL-50, is a moisturizing biosurfactant with a CMC 20–300× lower than typical surfactants, forming ultra-small micelles at minimal doses. These micelles penetrate follicles to capture sebum, oils, and other insoluble debris for thorough yet gentle cleansing.

RL-50 helps protect the skin barrier, supports normal desquamation to limit corneocyte buildup, and disrupts biofilms while showing antibacterial activity against Cutibacterium acnes. The formula is PEG-free and free of conventional surfactants, making it suitable for sensitive, acne-prone, and even baby skin.

## ReNuva RL-50 Performance

### Makeup Removal Efficacy Test



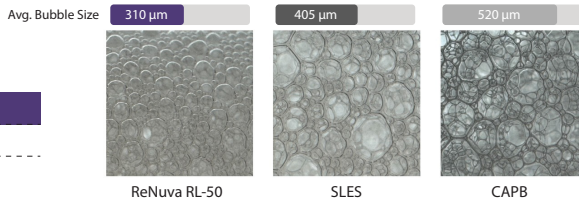
## Creamy Bubble Cleanser

Formula No. HC-0825-3A and HC-0825-3B

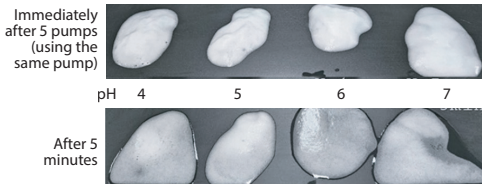
Phase	Ingredients	Liquid %	Pudding Gel %	INCI	Function
A	DI Water	91.61	91.00	DI Water	Solvent
	Keltrol F	0.15	-	Xanthan Gum	Thickener
	1,2 Hexanediol	2.00	2.00	1,2-Hexandiol	Emollient
	Cellulose Gum	-	0.70	Cellulose Gum	Thickener
	ReNuva RL-50	5.00	5.00	Glycolipids	Biosurfactant
B	Citric Acid (10%)	1.24	1.30	Citric Acid	pH Adjuster

### ReNuva RL-50 Performance

#### 1. Comparison of Foam Structure and Bubble Size:



#### 2. Foam Retention Comparison



- RL-50 exhibits strong foam stability across pH 4-7
- Foam stability is further improved when natural gums are used at concentration 0.15% or higher.

### The Skin Science That Drives Our Design

The key ingredient in this formulation, ReNuva RL-50, is a natural moisturizer and biosurfactant classified as a rhamnolipid. Unlike conventional surfactants, RL-50 has a critical micelle concentration (CMC) that is 20 to 300 times lower, allowing it to rapidly form small micelles. These micelles penetrate deep into the pores, encapsulating sebum, oils, and insoluble impurities, and effectively cleansing pore residues without irritating the skin.

ReNuva RL-50 produces dense, creamy foam with excellent foam retention and cleansing ability. As a natural moisturizer, it prevents dryness or tightness, leaving the skin feeling hydrated and comfortable. When biofilm forms inside the pores, it traps sebum and dead skin cells, accelerating the formation of comedones (whiteheads and blackheads). The micelles formed by RL-50 penetrate and disrupt the biofilm structure, thereby eliminating acne-causing bacteria. Thanks to its surfactant-free and PEG-free formulation, RL-50 is suitable for sensitive skin, acne-prone skin, and even baby skin, offering exceptional cleansing with minimal irritation.

# Pore Cleansing Oil

Formula No. HC-0825-4A and HC-0825-4B

# BioReNuva®

Contact [info@biorenuva.com](mailto:info@biorenuva.com) for prototype samples

Phase	Ingredients	A%	B%	INCI	Function
A	Ethylhexyl Palmitate	86.00	-	Ethylhexyl Palmitate	Emollient
	Olive Oil Ultra Refined	-	88.00	Olea Europaea (Olive) Fruit Oil	Emollient
	Sorbeth-30 Tetraoleate	10.00	10.00	Sorbeth-30 Tetraoleate	Emulsifier
B	DI Water	2.00	1.00	Aqua	Solvent
	ReNuva RL-50	2.00	1.00	Glycolipids	Biosurfactant

## The Skin Science That Drives Our Design

When pores clog, oxygen drops and the follicle shifts anaerobic—acne-related bacteria form biofilms that can be up to ~1,000× more tolerant to antibiotics, making residues hard to clear and fueling recurrence.

This cleansing oil targets that root cause with 1% ReNuva RL-50. Conventional oils lift makeup and oxidized sebum but do little to disrupt the polysaccharide-protein biofilm matrix.

RL-50, a rhamnolipid biosurfactant with an ultra-low CMC (20–300× lower than typical surfactants), rapidly generates fine micelles that penetrate follicles, loosen biofilms, and solubilize sebum and insoluble debris—enhancing pore clearance and helping prevent re-clogging. It also helps retain post-cleanse moisture, supporting a comfortable oil–water balance.

## ReNuva RL-50 Performance

### 1. Mascara Removal Efficacy Test



### 2. Sophorolipids vs Rhamnolipids Comparison Table

Category	Sophorolipids		Rhamnolipids
Strain	Starmerella bombicola		Pseudomonas aeruginosa
	ReNuva SL-A70	ReNuva SL-L70	ReNuva RL-50
INCI	Glycolipids		
Description	70% Acid + 30% Lactone	70% Lactone + 30% Acid	
HLB	16-18	9-11	12-14
c. Acnes MIC	0.5%	0.05%	<0.05%
Malassezia fungus MIC	0.75%	0.5%	
Reco. Usage Level	1-3%		3%
Reco. Formula Type	Leave On/Wash Off		

# BioReNuva®

BioReNuva pioneers biotech beauty ingredients. Using advanced metabolic engineering and precision fermentation we re-program yeast and bacterial strains to over-produce ultra-pure bio-surfactants, bio-emulsifiers and bio-solubilizers.

Our glycolipids deliver low-color, low-odor, skin-safe cleansing, superior emulsification, natural solubility and clinically proven moisturization & sebum control while cutting carbon footprint vs. petro ingredients. From lab-bench insight to scaled supply, we arm formulators with data, applicaton concepts, and real-world performance.

Contact Us: [info@biorenuva.com](mailto:info@biorenuva.com)

