

Advancing Sustainable Surfactant Science: Multifunctional Applications of glycolipid based biosurfactants in Personal care, Home care, and Color Cosmetics

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SLNOVA

What is SLNOVA?

- Glycolipid based biosurfactant Produced by non-pathogenic yeasts via a fermentation process using a non-edible oil.
- Eco-friendly and milder alternative to synthetic surfactants

Relevance Today

- Clean beauty & sulfate-free trend
- Palm Free
- 100% biodegradable
- Low foam high cleansing
- Minimalist approach
- Carbon footprint reduction
- Suitable for Personal & Home Care
- Multifunctional performance

Key Functional Properties

Interfacial Tension

Significant reduction in interfacial tension at lower concentration compared to Sulfate and Sulfate Free surfactants.

At equivalent active concentration, SLNOVA demonstrates the **lowest interfacial tension**, delivering $4 - 7.5 \times$ superior interfacial efficiency compared to conventional surfactant systems.

Emulsification Stability

Very good emulsification properties and able to **stabilize micro/nano emulsions**

Patch Test

SLNOVA at lower conc. were tested dermatologically as per standard by the Dermatologist and found to be **non-irritant** with 24-hour Primary Irritation Patch Test.

Cleansing efficacy

Under identical testing conditions SLNOVA showed **ultra-high cleansing efficacy** compared to Sulfated and Sulfate free surfactant.

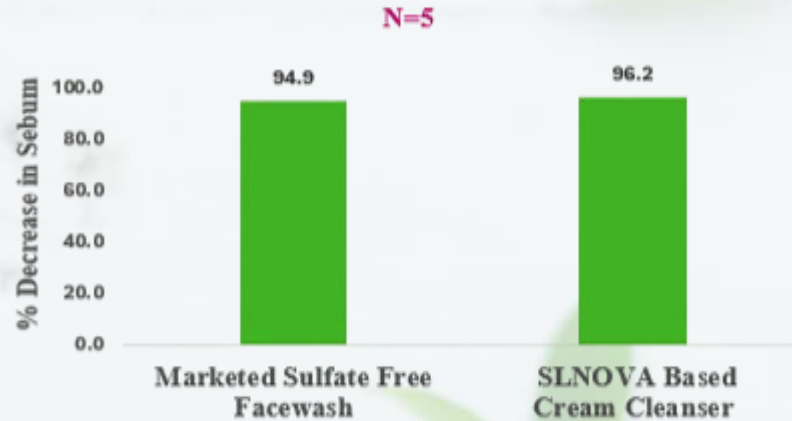
Skin Hydration

Maintains natural hydration barrier as compared to other conventional surfactants.

SLNOVA shows 70 – 74% lower moisture reduction compared to sulfate and sulfate free surfactants. Thus, providing improved hydration retention and reduced skin barrier disruption.

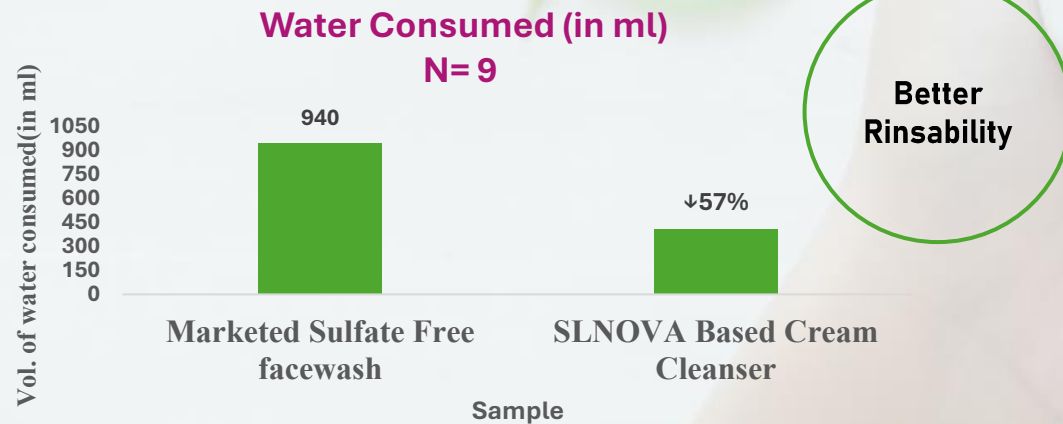
Personal Care: Facewash

Cleansing efficacy



Cream cleanser with SLNOVA provides comparable cleansing.

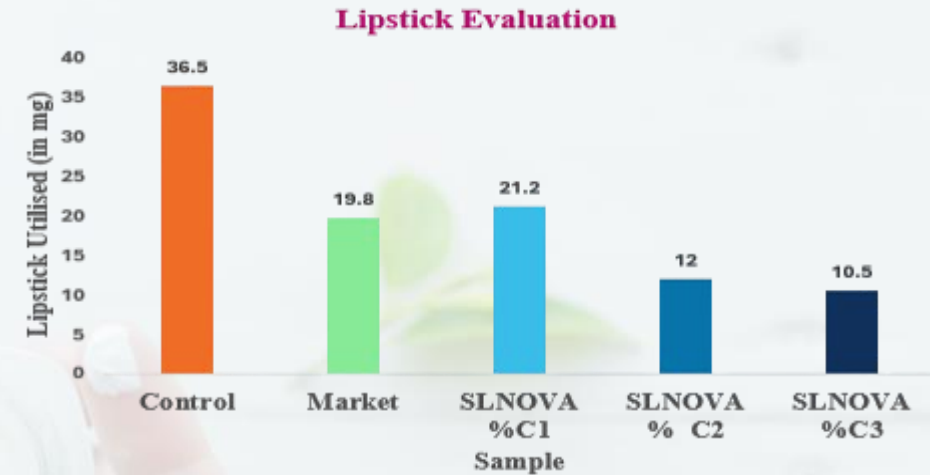
Rinsability



Significant reduction in water consumption during rinsing.

Color Cosmetics: Lipstick

Easier application and better pay off



SLNOVA containing lipstick gives better spreadability; lesser quantity of lipstick is needed (~46.9% reduction in utilization) to cover the marked area as compared to standard marketed sample.

Conclusion:

SLNOVA shows strong potential as a multifunctional ingredient supporting need for mild, high performance cleansing systems, and formulation efficiency.

SLNOVA Based Anti-acne active

Features:

- Naturally derived & Readily biodegradable
- Cold processable & Transparent
- No Suspending agent required in formulation
- Working pH range 4.5 -6
- Non-irritant – protects the skin
- Reduces sebum production very effectively

Time Kill Test:

Prototype formulated with SLNOVA based anti-acne active

Evaluated at 50% in-use dilution

Achieved >99.9996 % reduction at 30 and 60 seconds against C.acnes.

Delivered benchmark level performance

Product Name	Dilution	Time interval	Log Reduction	% Reduction
Marketed Facewash	50%	30 sec, 60 sec	Log reduction- >5.37	>99.9996
Facewash with SLNOVA anti acne active	50%	30sec, 60 sec	Log reduction- >5.35	>99.9996%

Patent Pending

SLNOVA Based Anti-dandruff active

Features:

- Naturally derived & Readily Biodegradable
- Cold processable
- Transparent anti-dandruff shampoo and hair tonic possible
- Substantive –Highly effective at Natural scalp pH
- Non-Irritant

Time Kill Test:

Prototype formulated with SLNOVA based anti-dandruff active.

Achieved 99.74% reduction at 60 seconds against M. Furfur. Delivered benchmark level performance.

Clinical Evaluation



Granted Patent US11771634B2

Summary

From Skin pH to Alkaline systems – Performance without compromise

SLNOVA delivers cleansing efficiency, Non-irritant, delivers targeted antimicrobial efficacy against acne and dandruff causing microorganisms. Suited for skin-compatible personal care systems. Acts as a multifunctional biobased alternative for next generation formulations.

We sincerely thank ISCC for providing the platform to present our innovation and share our scientific advancements.