



Personal Care

Sincerely Yours



EcoSense™ Surfactants

*A new family of naturally sourced,
biodegradable surfactants*

Overview Literature





Overview

EcoSense™ Surfactants are a new family of naturally sourced, readily biodegradable surfactants from Dow Personal Care. They have been specially developed to help create end-use formulations that offer optimum performance with excellent sensory appeal. Belonging to the family of Alkyl Polyglucosides, EcoSense products can be used as both primary and co-surfactants in a variety of cleansing applications, such as shampoos, body washes, facial cleansers, liquid hand soaps and baby wipes.

EcoSense Surfactants provide a new solution to help meet consumers' growing demands for personal care products that are milder to the skin and hair, have an improved environmental profile, and are naturally derived. EcoSense products have ECOCERT certification, and are an ideal choice for formulators looking to develop products with "natural" label claims without any compromise on product performance.

EcoSense Surfactants offer several benefits to hair and skin cleansing formulations:

- Excellent flash foam
- Improved rinsability
- Allows formulators to develop mild cleansing formulations

EcoSense Surfactants at a Glance

(These are typical properties, not to be construed as sales specifications.)

| | EcoSense 1200 | EcoSense 919 |
|-------------------------------------|----------------------------------|-----------------------------|
| INCI name | Lauryl Glucoside (proposed) | Coco-Glucoside (proposed) |
| Description | Alkyl Polyglucoside, C12-14 | Alkyl Polyglucoside, C8-C16 |
| % Solids | ~50% | ~50% |
| Recommended Use Level | 1 – 15% | 1 – 15% |
| Appearance | Hazy, pale yellow viscous liquid | Hazy, pale yellow liquid |
| Viscosity¹ (mPas) | 16,000 – 18,000 | 800 – 2,000 |
| CMC² | 74.3 | 67.2 |
| pH (1% aqueous) | 10.9 | 10.7 |
| Surface tension³ | 29 | 29 |

¹Brookfield Viscometer, RV7 @ 30 rpm @ 20°C; ²Critical Micelle Concentration: ppm @ 25°C;

³Surface Tension: dynes/cm at 1% actives, 25°C



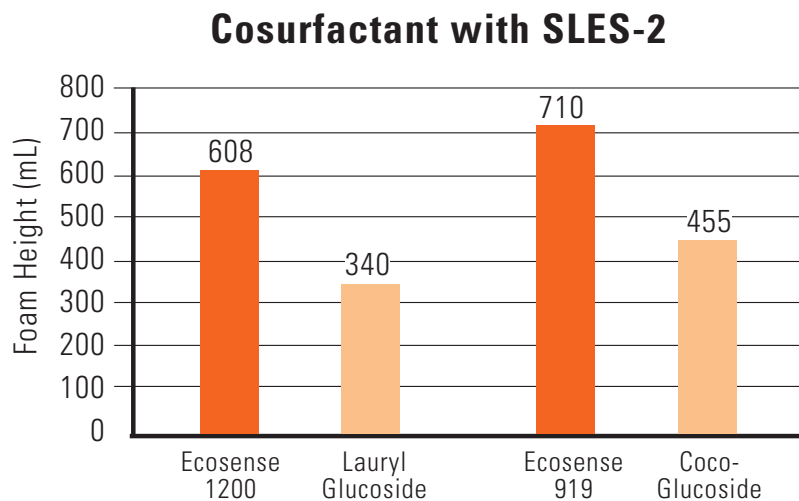


Performance as a Co-Surfactant

EcoSense Surfactants have been shown to demonstrate excellent performance as a co-surfactant in multiple shampoo formulations. In these types of formulations, they have been shown to provide equal or improved flash foam and rinsability with a comparable or lower potential for skin irritation as compared to conventional Alkyl Polyglucoside.

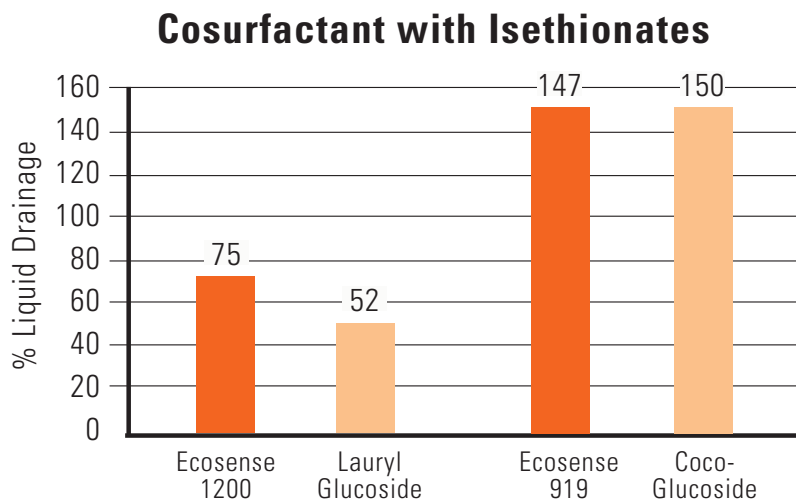
Improved Flash Foam

A blender foam test was conducted to evaluate the flash foam performance of EcoSense Surfactants in shampoo formulations as a co-surfactant with Sodium Laureth Sulfate (SLES). Initial foam heights were recorded at time 0 as an indication of flash foam performance. As shown in the following chart, the flash foam generated with the shampoo formulations based on EcoSense Surfactants was significantly higher than that of shampoo formulations based on conventional Alkyl Polyglucoside technologies.



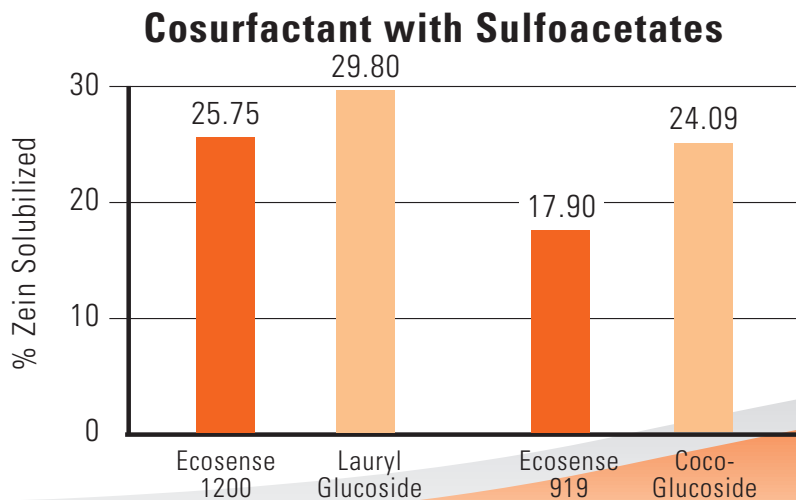
Improved Rinsability

The blender foam test conducted for flash foam evaluation was also used to evaluate foam stability. The initial liquid volume and volume were recorded after five minutes. The percent change of liquid drainage level works as an indication of foam stability and easy of rinsability. This test was conducted to evaluate the rinsability performance of EcoSense Surfactants in a sulfate-free shampoo formulation as a co-surfactant with Isethionates. As shown in the following chart, the percentage of liquid drainage was equal to or slightly improved in the shampoo formulations based on EcoSense Surfactants, as compared to shampoo formulations based on conventional Alkyl Polyglucoside technologies.



Reduced Skin Irritation Potential

A modified Zein test was conducted to evaluate the skin irritation potential of EcoSense Surfactants in a sulfate-free shampoo formulation as a co-surfactant with Sulfoacetates. As shown in the following chart, a lower percentage of Zein was solubilized in the shampoo formulations based on EcoSense Surfactants as compared to shampoo formulations based on conventional Alkyl Polyglucoside technologies, demonstrating the reduced potential for irritation to the skin.



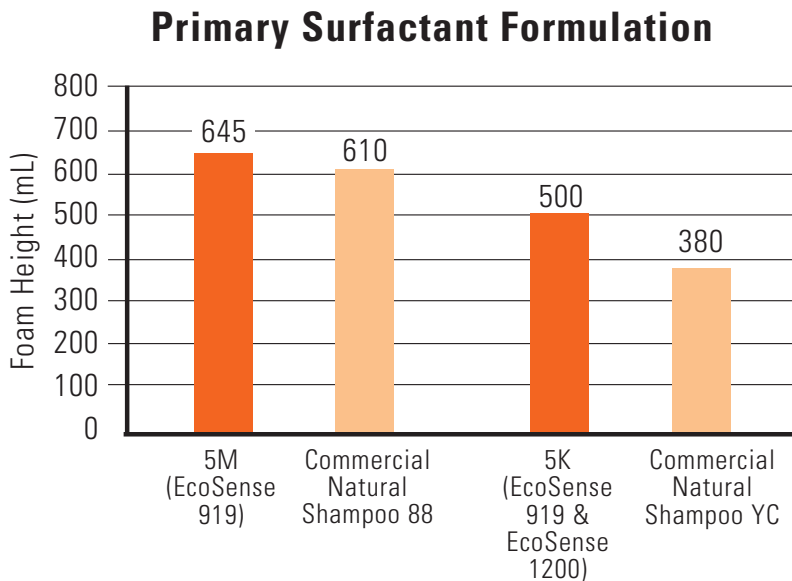


Performance as the Primary Surfactant

EcoSense Surfactants are an ideal choice as the primary surfactant in formulations promoting “all-natural” claims. In these types of formulations, they have been shown to provide improved flash foam and rinsability with a lower potential for skin irritation as compared to conventional Alkyl Polyglucoside technologies.

Improved Flash Foam

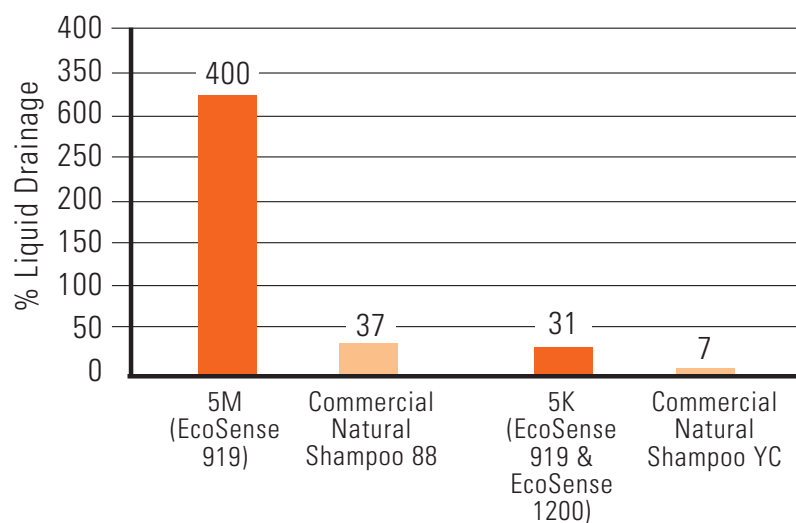
The blender foam test described earlier was also conducted to evaluate the flash foam performance of EcoSense Surfactants in shampoo formulations, with foam heights recorded over a period of 30 minutes. As shown in the following chart, the flash foam generated with the shampoo formulations based on EcoSense Surfactants was higher than that of commercial shampoo formulations.



Improved Rinsability

A blender foam test was conducted to evaluate the rinsability performance of EcoSense Surfactants in shampoo formulations. As shown in the following chart, the percentage of liquid drainage was significantly higher in the shampoo formulations based on EcoSense Surfactants, as compared to commercial shampoo formulations.

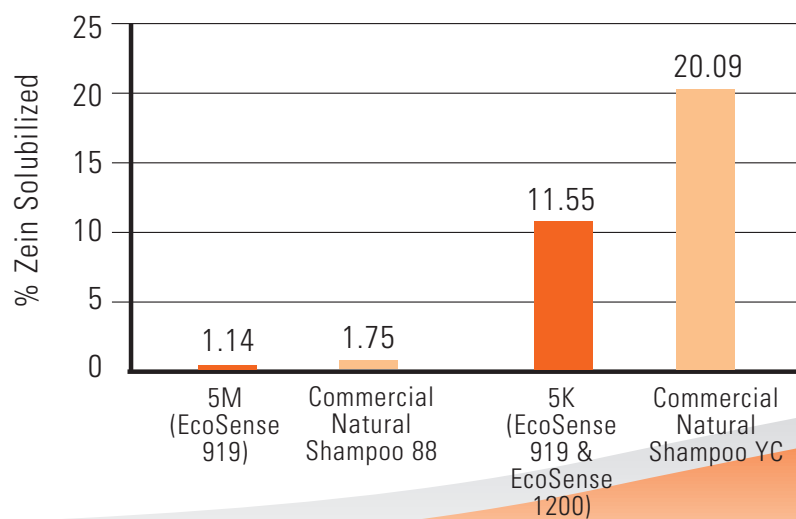
Primary Surfactant Formulation



Reduced Irritation Potential

A modified Zein test was conducted to evaluate the irritation potential of EcoSense Surfactants in shampoo formulations. As shown in the following chart, a lower percentage of Zein was solubilized in the shampoo formulations based on EcoSense Surfactants as compared to commercial shampoo formulations, demonstrating the reduced potential for irritation to the skin.

Primary Surfactant Formulation



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