



POLY SUGA[®]NATE

SULFONATED POLY(ALKYL POLYGLUCOSIDES) LOW IRRITATION SURFACTANTS

benefits

- Poly Suga[®]Nates are “Green” and are derived from renewable resources
- Naturally derived
- 1,4 Dioxane Free
- All Poly Suga[®]Nates are mild to eyes and skin
- High foaming
- Made from renewable resources
- Much milder than traditional sulfates, ether sulfates, sulfonates or AOS
- Biodegradable
- Builds a wet, dense, stable foam
- Stable over a broad pH range
- Poly Suga[®]Nate products do not contain preservatives
- Easy to handle

applications

- Sulfate-Free Shampoos
- Low pH Shampoos
- Bath Gels
- Body Washes
- Foaming Facial Cleansers
- Pet Shampoos
- Make-up Removers
- Baby Products
- Bath Foams
- Non-Irritating Bubble Bath

INCI/CTFA Names: Poly Suga[®]Nate 100P – Sodium Hydroxypropylsulfonate Decylglucoside Crosspolymer

Poly Suga[®]Nate 160P – Sodium Hydroxypropylsulfonate Laurylglucoside Crosspolymer

Patented: Poly Suga[®]Nate is covered under patent #7,507,399

CAS#: 949116-08-9, 949116-14-7

EINECS/REACH: Polymer Exempt



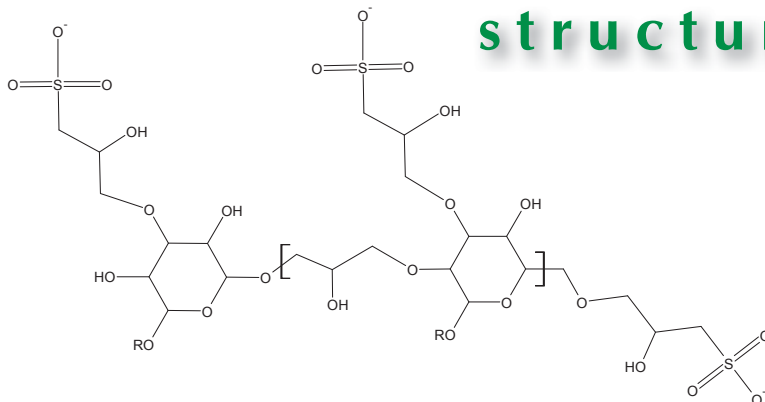
introduction

Colonial Chemical has pioneered the production of a new series of naturally derived polymeric surfactants based on polymers of alkyl polyglucosides. The Colonial Poly Suga[®]Nate Series are sulfonated surfactant polymers based on high molecular weight APG polymers. APG's are sustainable, renewable, and naturally derived from coconut oil and corn syrup.

The Poly Suga[®]Nate products are extremely mild to both eyes and skin when tested and compared against other traditional primary personal-care surfactants such as sodium lauryl sulfate, sodium coco sulfate, sodium lauryl ether sulfate and sodium alpha olefin sulfonate. Please note the Eye Irritation Chart on the next page.

The development of Poly Suga[®]Nate surfactants allows the formulator to have a powerful tool in the formulation of gentle cleansing, low irritation shampoos, baby shampoos, body washes, shower gels, facial cleansers, and other personal care cleansing formulations. The mild cleansing provided by Poly Suga[®]Nate surfactants also entitles a formulator to the benefit of a naturally derived, “green” surfactant system.

structure



toxicological properties

The evaluation of the Poly Suga®Nate Series of products shows these products to be very mild when compared to other traditional primary personal care surfactants. These tests were performed by Consumer Product Testing Co. of Fairfield, NJ.

Eye

The evaluation of the Poly Suga®Nate Series as an eye irritant was performed using the HET-CAM technique. Poly Suga®Nate 100P and Poly Suga®Nate 160P were diluted to 5 % activity for the testing. Poly Suga®Nate 160P is an extremely mild product receiving a score of only 5.5. This product is very suitable for baby and mild cleansing applications. Poly Suga®Nate 100P had a score of 19.0, making it milder than alpha olefin sulfonate. Traditional surfactants used in personal care products like SLES-2, which scores a 25.5, and SLS, which scores a 30.0, are much less attractive.

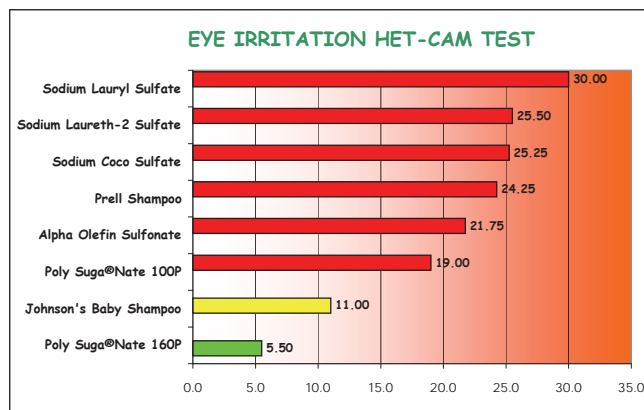
Skin

To evaluate the potential irritation to skin, a 'patch test' study was performed with the Poly Suga®Nate 100P and Poly Suga®Nate 160P diluted to 1.0 % activity. Under the conditions of this test, Colonial Poly Suga®Nate 100P and Colonial Poly Suga®Nate 160P did not indicate a potential for dermal irritation.

We conclude all Poly Suga®Nate products are mild to eye and skin at moderate use levels as tested.

typical properties

Poly Suga®Nate	100P	160P
Activity	40.5	39.4
pH (10% aqueous)	7.00	7.01
Color, Gardner (ASTM D-1544-98)	< 1	< 1
Ross-Miles Foam Height (1% active), mm		
Immediate	165	150
1 minute	155	125
5 minutes	150	125
Draves Wetting (1% active), seconds		
	5.0	7.3
Solubility (10% active)		
50% NaOH	Clear	Clear
25% NaOH	Clear	Clear
25% H ₂ SO ₄	Clear	Clear



formulations

moisturizing shampoo

featuring Poly Suga® products

No.	COMPOUND	Wt. %
1	Water	30.00
2	Poly Suga®Nate 160P	15.00
3	Poly Suga®Nate 100P	10.00
4	Poly Suga®Betaine L	12.00
6	Poly Suga®Mate L	15.00
7	Sodium Methyl cocoyl taurate	12.00
8	Poly Suga®Quat S-1210P	3.00
9	Cola®Moist 300P	3.00
TOTAL		100.00

Viscosity 2700 cps
pH (10% aqueous) 6.0

PROCEDURE:

Mix ingredients 1 through 6 in the order listed with sufficient mixing until clear. Heat the mixture to about 50°C while adding Taurate. Once the mixture is clear, cool to room temperature and add ingredients 8 and 9. Adjust pH with 50% citric acid, add fragrance and preservative as desired.



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