



# POLY SUGA<sup>®</sup>SIL

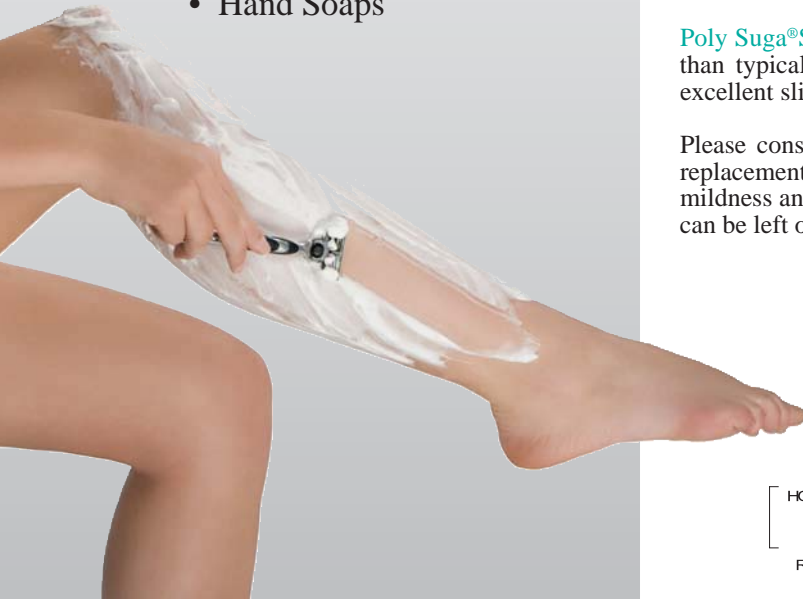
NATURALLY DERIVED DIMETHICONE-APG SURFACTANTS  
ZERO EYE IRRITATION

## benefits

- No Eye or Skin Irritation
- Foaming Silicone
- Wet Comb Improvement on Hair
- Excellent Silicone Slip on Skin and Hair
- Water-Soluble Silicone
- Mitigates Irritation in Harsh Anionic Formulations

## applications

- Hair Conditioner
- Conditioning Shampoos
- Antiperspirants
- Depilatories
- Shave Lubricants
- Styling Gel
- Hand Soaps



Patented – Poly Suga<sup>®</sup>Sil is covered under patent #6,762,289  
INCI Name – PEG-8 PG-Coco-Glucoside Dimethicone – Poly Suga<sup>®</sup>Sil C-35P and C-800P  
CAS #: 957774-85-5  
EINECS/REACH: Polymer Exempt



## introduction

If you are looking for the slip and feel of silicone in a foaming, cleansing or conditioning product, Colonial's Poly Suga<sup>®</sup>Sil surfactants are right for your formulation. Colonial Chemical has pioneered the development of naturally derived surfactants for the personal care industry. Our unique Poly Suga<sup>®</sup>Sil surfactants start from a naturally derive building block, alkyl polyglucoside, and are derivatized with dimethicone to make a product that has excellent feel and conditioning.

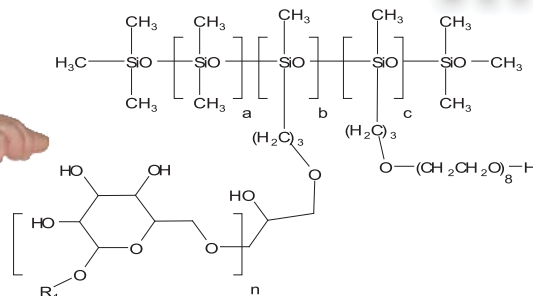
The Poly Suga<sup>®</sup>Sil products when used in shampoos, body washes and other personal care formulations actually contribute to the foam of the formulation. The excellent toxicological properties Poly Suga<sup>®</sup>Sil surfactants enable them to be used in baby products, facial cleansers, shaving products and hand soaps. With the mildness displayed from Poly Suga<sup>®</sup>Sil surfactants, these products have an ability to mitigate irritation in harsh formulations.

Colonial Chemical has developed two products with widely different molecular weights allowing in the formulator to select a product or blend the two products to meet individual formulation needs.

Poly Suga<sup>®</sup>Sil products are lighter than silicone and are much more water-soluble than typical dimethicone. They do not build up on hair and skin yet provide excellent slip and lubricity.

Please consider Poly Suga<sup>®</sup>Sil as a dimethicone copolyol replacement, silicone replacement or any time the properties of silicone are desired yet water solubility, mildness and foam are also required. Poly Suga<sup>®</sup>Sil surfactants are safe, mild and can be left on hair and skin.

## structure



# toxicological properties

Evaluation of the Poly Suga®Sil products shows these products to be very mild when compared to other personal care surfactants.

These tests were performed by Consumer Product Testing Co. of Fairfield, NJ.

## Eye

The evaluation of Poly Suga®Sil C-35P as an eye irritant was performed using the chorioallantoic membrane technique, with Poly Suga®Sil C-35P diluted to 2 % activity. This test utilizes the inner membrane of a hen's egg to gauge the irritation potential of a compound by visual observation of injurious changes in the membrane. Poly Suga®Sil C-35P was given a score of 0.0 in this test. For comparison, the leading brand of baby shampoo was rated at 11.0 and a top selling adult shampoo was rated at 24.25. Poly Suga®Sil C-35P was rated as having no ocular irritation potential.

## Skin

A study was performed adhering to ICH Guideline E6 and 21 CFR parts 50 and 56. The "patch test" was performed with the Poly Suga®Sil C-35P cut to 0.4 % activity. A 1" X 1" absorbent pad was moistened with 0.2 ml of liquid and applied to the backs of the subjects between the scapulae. The patch sites were inspected at 48 hours for gross changes. It was observed that there was a complete absence of skin change. The test sites were evaluated again at 72 hours. Once again the observation was negative skin changes. Under the condition of this test, the test materials, Poly Suga®Sil C-35P did not indicate a potential for dermal irritation.

# typical properties

Poly Suga®Sil	C-35P	C-800P
Activity, %	35	35
pH (10% aq)	6 - 8	6 - 8
Color, Gardner	< 3	< 3
Viscosity at 25°C	28	72
Odor	mild, fatty	mild, fatty
Appearance, 10% aq.	Clear	Clear
Ross-Miles Foam Height (1% active), mm		
Immed.	150	120
1 minute	140	110
5 minutes	135	95
Draves Wetting (1% active), seconds	6.0	> 200

## hand soap

COMPOUND	Wt. %	
Water	26.60	
Poly Suga®Nate 160P	23.80	
Poly Suga®Betaine L	30.50	Appearance: Clear viscous liquid
Poly Suga®Sil C-800P	2.50	10% pH: 6.8
Sodium Cocyl Taurate	11.90	Viscosity: 1850 CPS
Cola®Lipid M	4.70	(without dye or fragrance)
<b>TOTAL</b>	<b>100.00</b>	Activity: 29.6%

### PROCEDURE:

Blend ingredients together in the order given with sufficient agitation until uniform. Slight heating (e.g. 40 C) will speed up the dissolution. Adjust pH to 6.5 with 50% citric acid and add fragrance, dye and preservative as needed.

## sulfate-free conditioning shampoo

COMPOUND	Wt. %
Water	40.00
Suga®Nate 160	20.00
Sodium methyl cocoyl taurate	12.00
Cola®Teric LMB	12.00
Cola®Mate OPA-30	8.00
Cola®Moist 300P	2.00
Poly Suga®Sil C-35	3.00
Cola®Lipid SAFL	3.00
<b>TOTAL</b>	<b>100.00</b>

Appearance: Clear viscous liquid  
 10% pH: 5.8  
 Viscosity: 5000 CPS  
 Activity: 21.4%

### PROCEDURE:

Blend ingredients in order given with mild heat and agitation. Continue blending until clear and uniform, adjust pH to 5.5 - 6.5 with 50% citric acid. Add fragrance, dye, and preservative as needed.



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Natural Surfactants



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