Suga®Fax

Green Gemini Surfactants

Naturally Derived

Patented - #6,627,612 – CAS Numbers are listed in bulletin.
All Suga®Fax products are TSCA listed.

benefits

- Naturally derived and non-petroleum based
- EO/PO Free
- Biodegradable
- Low eye and skin irritation
- Hydrotroping properties – better than SXS
- "Eco Friendly"
- Rapid wetting
- Useful over a broad pH range
- Very safe for use in consumer products

applications

- Wetting agents
- Caustic gels
- Emulsifiers
- Hydrotropes
- Acid foamer
- Soft tank cleaner
- Bottle washing
- Detergents
- Oven and grill cleaners

introduction

Colonial Chemical has pioneered a new series of "Green Gemini Surfactants" products based upon derivatized alkyl polyglucosides. The Colonial Suga®Fax Series of surfactants represent the first new technology in the manufacture of safe, naturally derived green surfactants that are not petroleum based and come from renewable resources.

Traditional NPE and alcohol ethoxylates have been the work horse products in consumer and industrial formulations for many years. Those products provide detergency, wetting and limited hydrotroping properties to formulators. The new Suga®Fax "Gemini Surfactants" offer formulating advantages over traditional surfactant choices, such as increased hydrotroping properties, superior detergency and wetting. And unlike traditional surfactants, Suga®Fax products are soluble and stable under low and high pH conditions, as well as being safe for the environment.

The Suga®Fax materials are derived from alkyl polyglucosides, a renewable resource made from coconut oil and corn syrup. These starting materials provide biodegradable, mild surfactants that can function in extreme conditions for a variety of consumer and industrial applications. Because of their safety, Suga®Fax products are excellent in consumer and industrial products, dramatically lowering the risk to human exposure.

Suga®Fax surfactants are recommended wherever wetting, hydrotroping, and detergency are needed in a consumer or industrial product.

toxicological properties

Eye

The evaluation of Suga®Fax D-12 as an eye irritant was performed using the chorioallantoic membrane technique. The test was performed with Suga®Fax D-12 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. Suga®Fax D-12 was rated to be more mild than a leading brand of baby shampoo. The product was rated as having practically no potential for ocular irritation.

Skin

To evaluate the potential irritation to skin, a study was performed adhering to ICH Guideline E6 and 21 CFR parts 50 and 56. Fifty-Seven (57) volunteers, males and females, ranging in age from 16 to 76 were subjected to a "patch test". The "patch test" was performed with the Suga®Fax D-12 diluted 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 conditions of this test, Colonial Suga®Fax D-12 did not indicate a potential for dermal irritation.

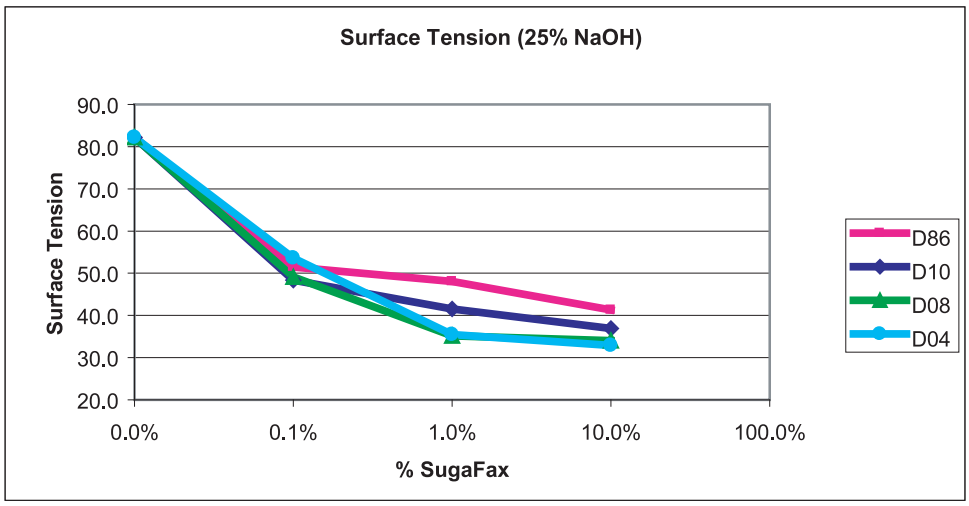
typical properties

Suga®Fax	D04	D08	D10	D12	D86
CAS#	740817-93-0	1417861- 94-9	740817-98-5	740817-99-6	740818-00-2
Color, Gardner	8	7	< 1	< 1	1
Activity, %	40	40	40	40	40
Viscosity (as is) 25°C	11	13	20	900	20
Odor	mild, sweet	sweet	mild, fatty alcohol	mild, fatty alcohol	mild, fatty alcohol
pH (10% aqueous)	7.0	7.5	7.5	7.5	7.0
Appearance, 10% aqueous	Clear	Clear	Clear	Cloudy	Clear
Ross Miles Foam (1%, 25C, tap water),mm					
Immed.	10	20	155	140	145
1 minute	0	0	145	130	135
5 minute	0	0	140	125	130
Draves Wetting (1% active), sec	> 200	> 200	Immed.	13.9	2.6
Solubility (10% active)					
50% NaOH	Soluble	Soluble	Soluble	Soluble (gel)	Soluble
25% NaOH				Soluble (gel)	
25% H_2SO_4	Soluble	Soluble	Soluble	Cloudy	Soluble

surface tension reduction

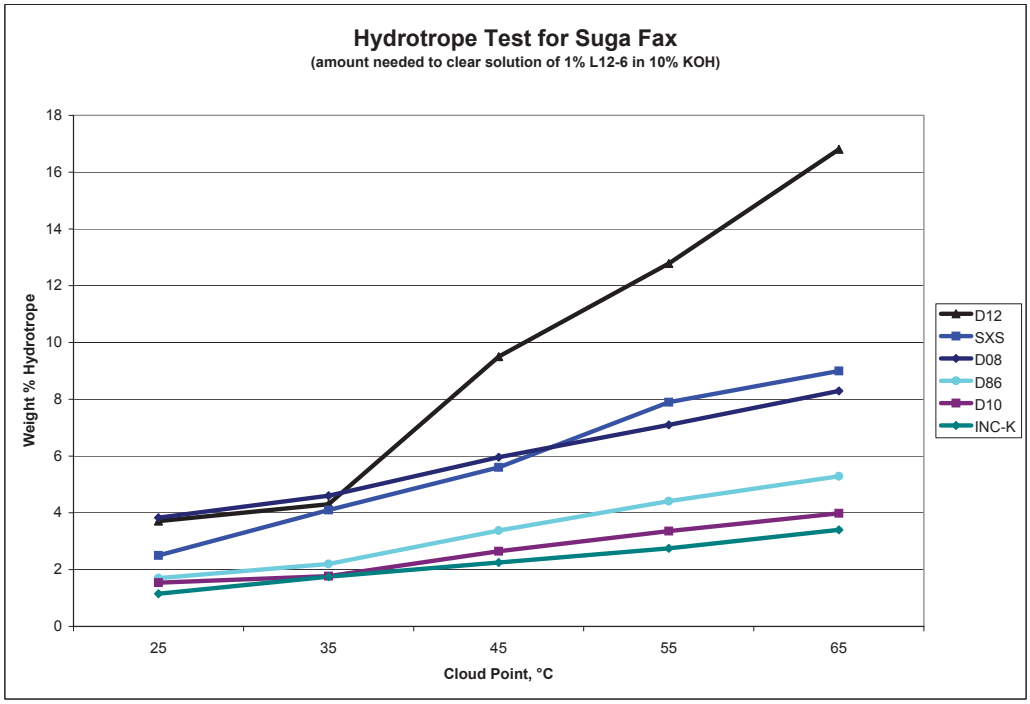
50% caustic has a surface tension of 126 dyne/cm; with the addition of 10% Suga®Fax D-10, surface tension of the mixture was reduced to 45 dyne/cm.

The graph below shows the surface tension of various Suga®Fax products in 25% caustic.



hydrotrope testing

The Suga®Fax products show good hydrotroping capabilities in 10% KOH solution. The graph below gives an indication of the relative ability of these products to hydrotrope a nonionic material, compared to two standard hydrotrope products, Colonial INC-K and sodium xylene sulfonate (SXS).



formulations

Acid Cleaners

acid thickener

COMPOUND	Wt.%
Water	67.00
HCI-37%	25.00
Cola®Teric AV	6.00
Suga®Fax D10	2.00
TOTAL	**100.00**

aluminum brightener

COMPOUND	Wt.%
Water	28.00
HCI-37%	30.00
H_3PO_4-85%	30.00
Suga®Fax D86	12.00
TOTAL	**100.00**

Alkaline Cleaners

low foam cleaner

COMPOUND	Wt.%
Water	45.00
KOH-45%	20.00
TKPP	25.00
Suga®Fax D04	10.00
TOTAL	**100.00**

pot & pan extreme clean-up

COMPOUND	Wt.%
Water	77.30
Carbopol 674	0.70
Sodium Hydroxide (50%)	14.00
Sodium Metasilicate (50%)	3.00
SDowanol PM	3.00
Suga®Fax D10	2.00
TOTAL	**100.00**

Neutral Cleaners

light duty car wash

COMPOUND	Wt.%
Suga®Fax D10	80.00
Cola®Mid C	20.00
TOTAL	**100.00**

pump spray cleaner

COMPOUND	Wt.%
Water	92.00
Suga®Fax D04	5.00
Butyl Carbitol	3.00
TOTAL	**100.00**

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