



Alkyl Glycoside



Introduction to Alkyl Glycoside



F.C.I.

FRAGRANCES AND CHEMICAL INGREDIENTS SRL



Alkyl Glycoside



- **What is Alkyl glycoside?**
- **Characteristics of Alkyl glycoside**
- **Applications in various fields**
 - For Home Care**
 - For Personal Care**



Alkyl Glycoside

What is Alkyl Glycoside?

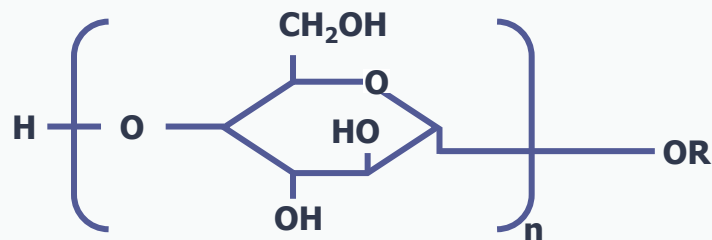


Description

Alkyl Glycoside is a non-ionic surfactant derived from corn and natural oils.

It is compatible with anionic, nonionic and most cationic systems and has characteristics as like both nonionic and anionic surfactants.

It provides excellent detergency, good dispersing and wetting properties.



Applications

For Home Care

Laundry detergents

Liquid dishwashing detergents

I&I cleaners

For Personal Care

Hair shampoo, Hair rinse

Body Cleanser, Facial Cleanser

Perfume solubilizer

Baby products



Alkyl Glycoside



ALKYPOL 100 series

ALKYPOL 200 series

ALKYPOL 300 series

ALKYPOL 400 series



Alkyl Glycoside



Properties

<i>ALKYPOL</i>	Carbon Chain Distribution	Active (%)	pH(10% sol'n)
100	C₀₈ - C₁₀	50 ± 2	11 ~ 12
101		60 ± 2	11 ~ 12
102		70 ± 2	11 ~ 12
103		69 ± 2	11 ~ 12
200	C₁₂ - C₁₄	50 ± 2	11 ~ 12
300	C₀₈ - C₁₄	50 ± 2	11 ~ 12
301		53 ± 2	11 ~ 12
302		53 ± 2	11 ~ 12
303		50 ± 2	11 ~ 12
410N	C₀₄	50 ± 2	5 ~ 8
420N	C₀₆	75 ± 2	7 ~ 9.5
430N	C₀₈	65 ± 2	7 ~ 9.5
435N	C₀₈ (branched)	65 ± 2	7 ~ 9.5
440N	C₁₀	54 Min.	6 ~ 8.5

* Our full-products are introduced in the catalogue and website (<http://chemicals.lgcare.com>)



Alkyl Glycoside Characteristics



Environmental Compatibility

ALKYPOL has superior biodegradability to any other surfactants , and it is also mild and friendly to our skin and Hair.

Fish toxicity (TLm24, Carp)

Sample	mg/ℓ
<i>ALKYPOL</i> 300	210-270
SLES	20-30
LAS	4-8
A/O	100-200
CDE	50-100
AE-7	2-6
NP-6	3-10

Biodegradability

Test Method	Test Results			
	<i>ALKYPOL</i> 200	<i>ALKYPOL</i> 100	LA-7	SLES
Close bottle test (OECD 301D)	81%	82%	74%	57%
ECETOC (Modified)	72%	88%	35%	38%

* ECETOC screening tests were performed for estimating anaerobic biodegradability.

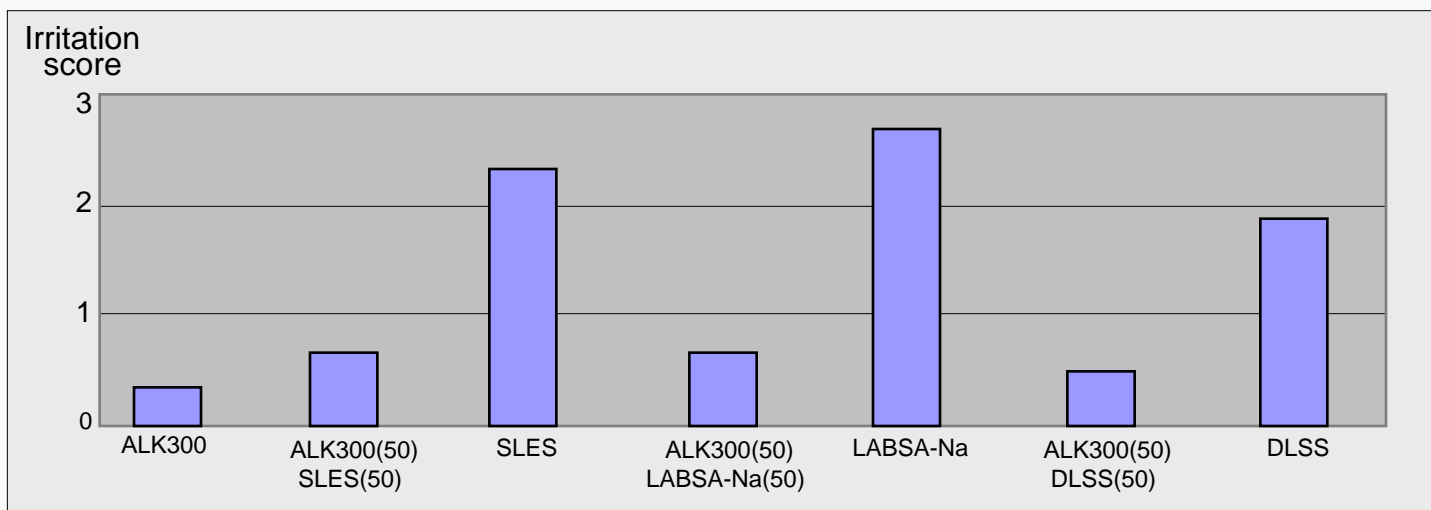


Alkyl Glycoside Characteristics



Mildness to Skin

Skin compatibility of *Alkypol* 300 and binary surfactant combinations.



ALK300: *Alkypol* 300

* Dermal irritation readings for erythema and edema were performed at set times after patches were removed from rabbits. Scores were calculated in accordance with Draize scoring system.

***ALKYPOL* 300 is not only mild on the skin, but can significantly reduce the skin irritation by anionic surfactants.**



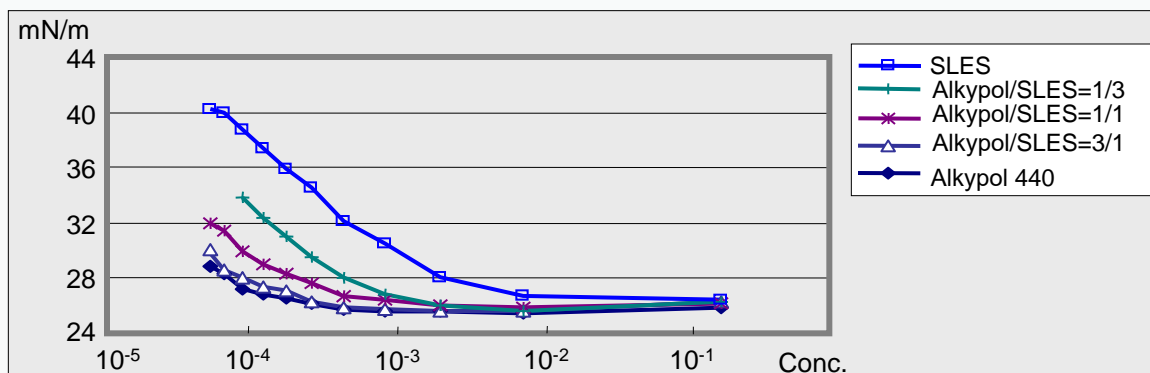
Alkyl Glycoside Characteristics



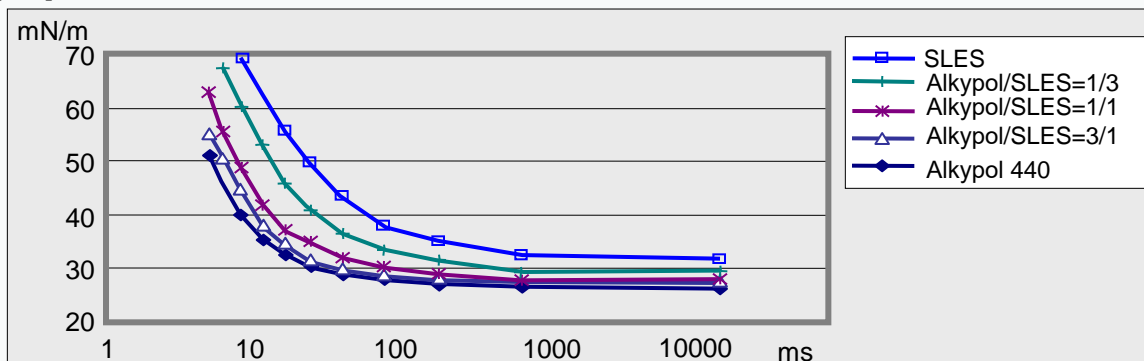
Surface property

Surface tension of solutions in the presence of *Alkypol* 440 and binary surfactant combinations.

1) Static Surface tension



2) Dynamic Surface tension



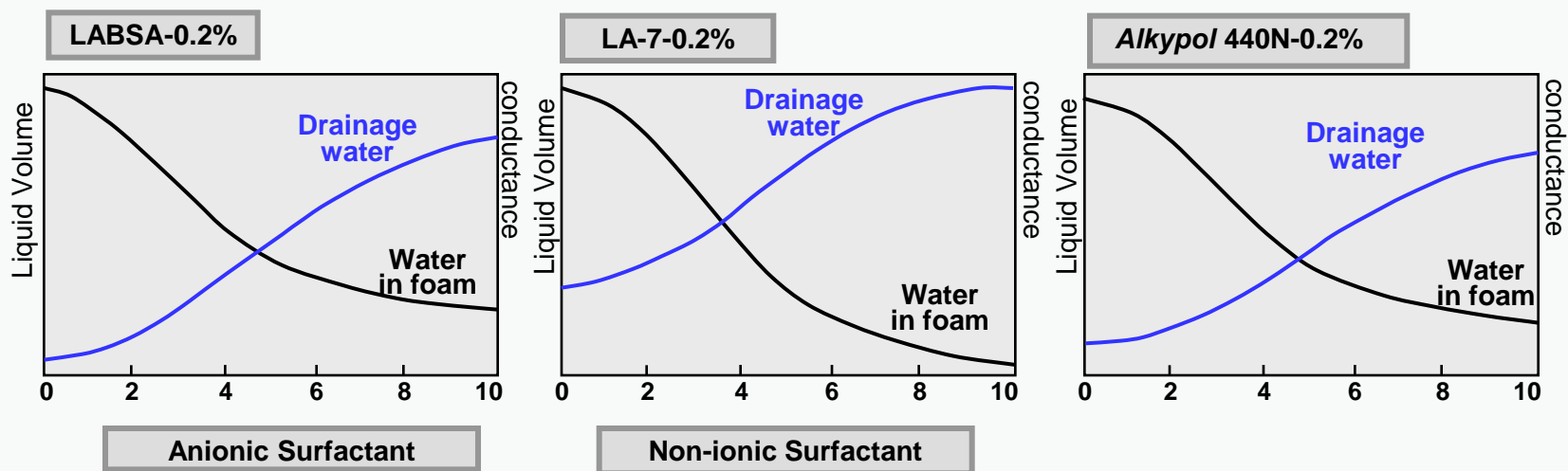


Alkyl Glycoside Characteristics



Foaming property

ALKYPOL 440 has excellent foam volume and stability just like anionic surfactants. Alkyl Glycoside contained more water than other nonionic surfactants in foam layer. Therefore, maintained long-lasting foam property.



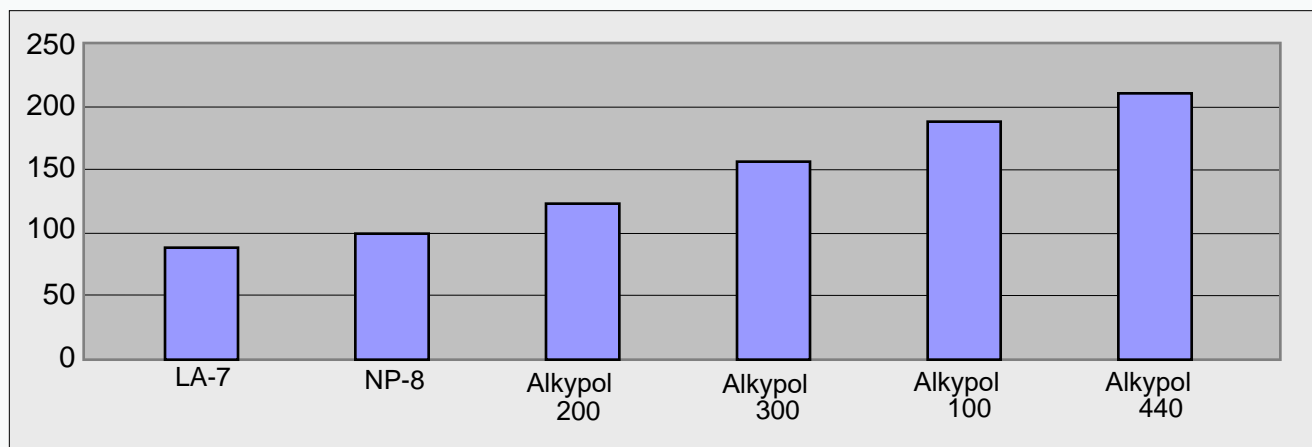


Alkyl Glycoside Characteristics



Foaming property

Alkypol series have various foam volume according to their individual alkyl chain lengths.



Recommend :

- Laundry liquid detergents: **Alkypol 200 series, Alkypol 300 series**
- Dishwashing detergents: **Alkypol 300 series, Alkypol 440**
- Hard surface cleaner: **Alkypol 100 series, Alkypol 300 series**

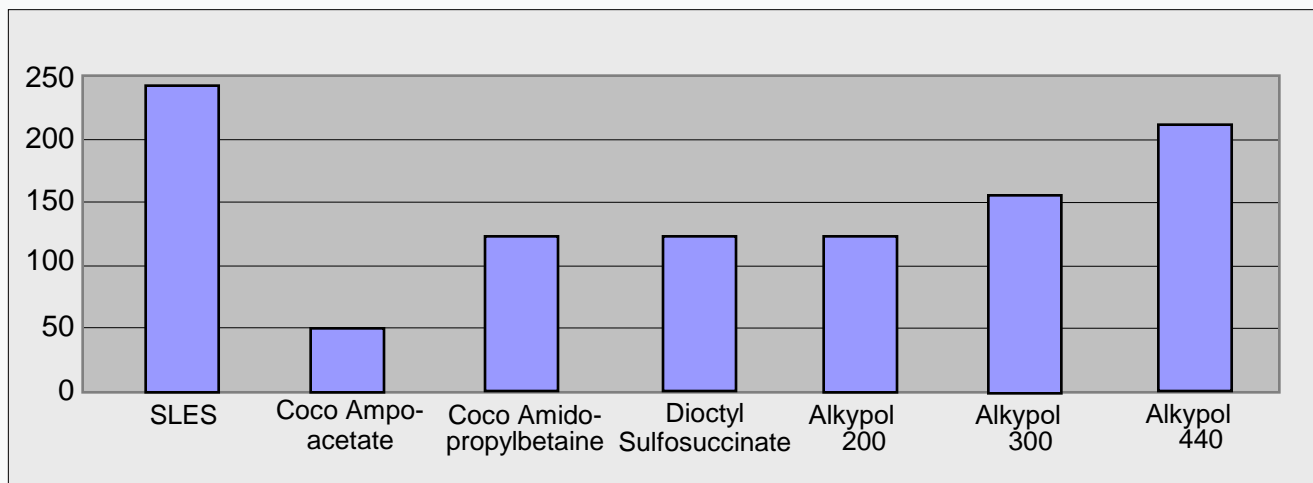


Alkyl Glycoside Characteristics



Foaming property

Alkypol series have various foam volume according to their individual alkyl chain lengths.



Recommend :

- Shampoo: **Alkypol 300 series, Alkypol 200 series, Alkypol 440**
- Body cleanser: **Alkypol 300 series, Alkypol 200 series, Alkypol 440**
- Facial cleanser: **Alkypol 200 series, Alkypol 300 series, Alkypol 440**



Alkyl Glycoside



Applications in various fields

-For Home Care



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Alkyl Glycoside Applications

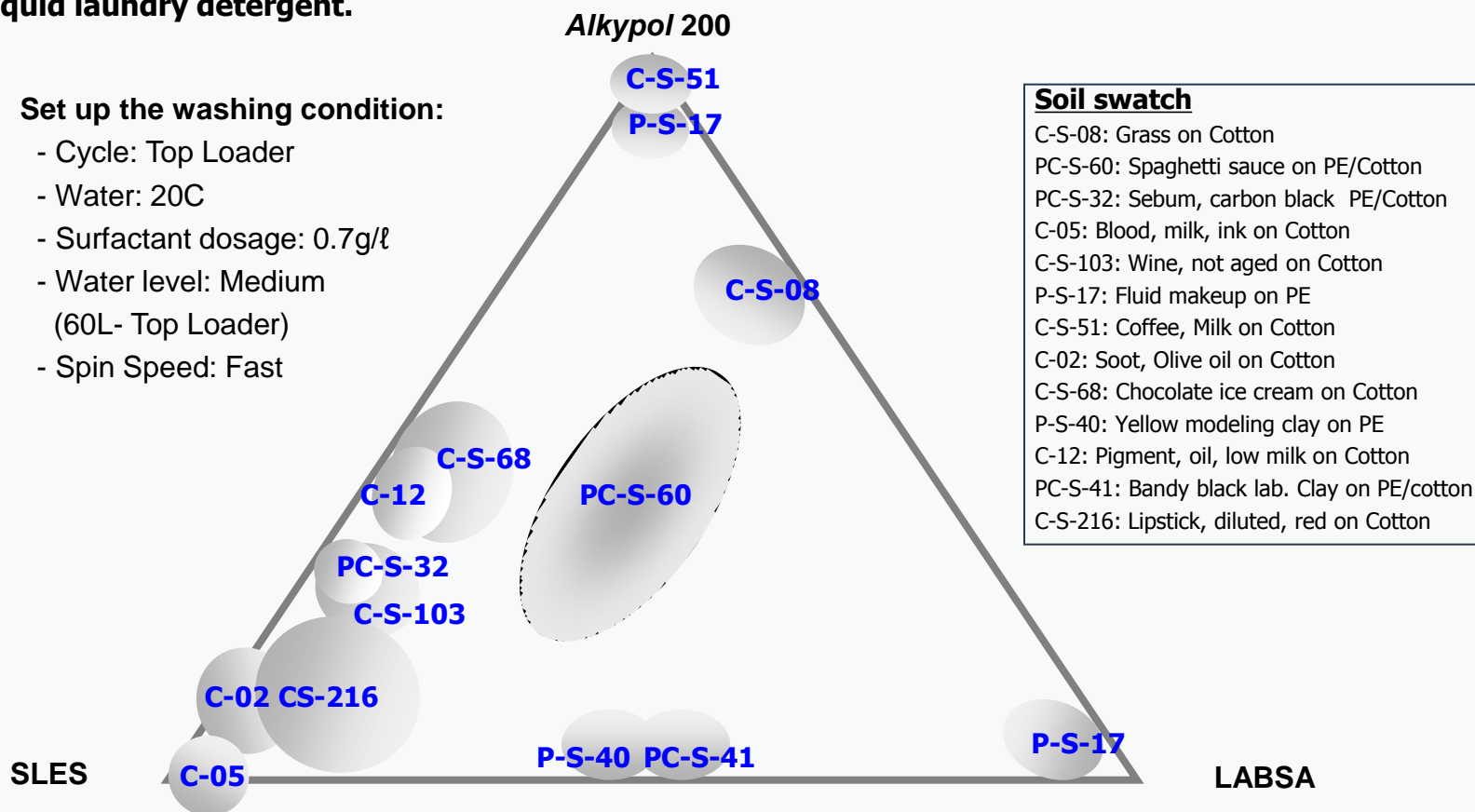


Laundry Detergent

Detergency of *Alkypol*-SLES-LABSA mixture on the ternary phase diagram for Liquid laundry detergent.

Set up the washing condition:

- Cycle: Top Loader
- Water: 20C
- Surfactant dosage: 0.7g/l
- Water level: Medium (60L- Top Loader)
- Spin Speed: Fast



* Each point represents efficient ratio of 3 ingredients recommended for soil removal against each stains.



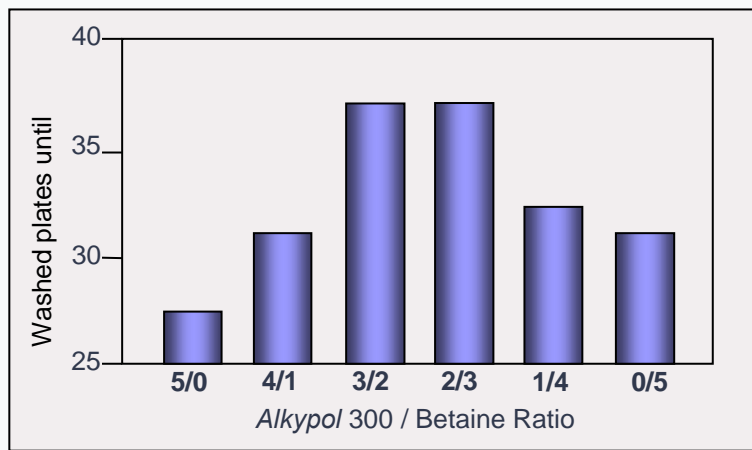
Alkyl Glycoside Applications



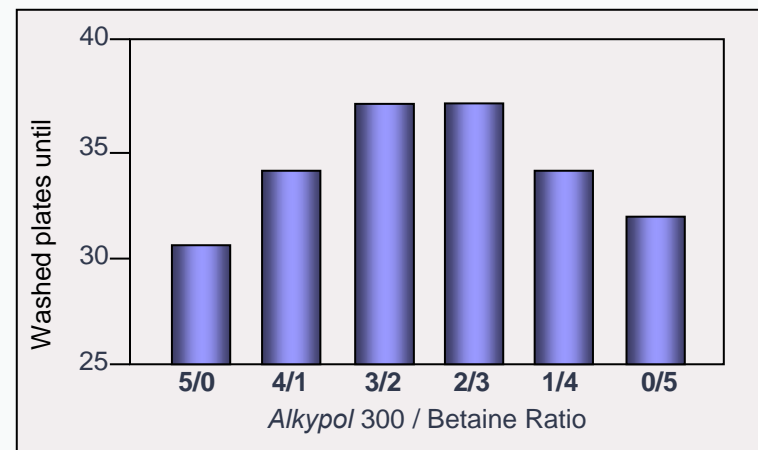
Dishwashing Detergent

**Alkypol 300 shows synergistic dishwashing effect at special combination ratio with CAPB in dishwashing detergent (Plate-test performance for binary and tertiary surfactant system)
- test solution: 15.0% SLES, 5.0% Mixture (Alkypol 300/Betaine)**

On Mixed Soil



On Beef Tallow



* Mixed soil: Mixture of lard oil and soybean oil



Alkyl Glycoside Applications



Cloud point

Alkypol has no cloud point, moreover *Alkypol* 100 shows the hydrotropes behaviors. It gives a help to improve the clouding problems of Alkyl ethoxylates.

Cloud point of solution (1% surfactant solution, hydrotropes 1% added)

	no Hydrotropes	p-TS	<i>Alkypol</i> 410N	<i>Alkypol</i> 100	<i>Alkypol</i> 440N
C6EO2	46	56	55	68	70
C11EO5	27	36	28	59	52
C13EO6	Below Zero	9	9	48	37

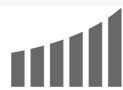


Alkyl Glycoside



Applications in various fields

-For Personal Care



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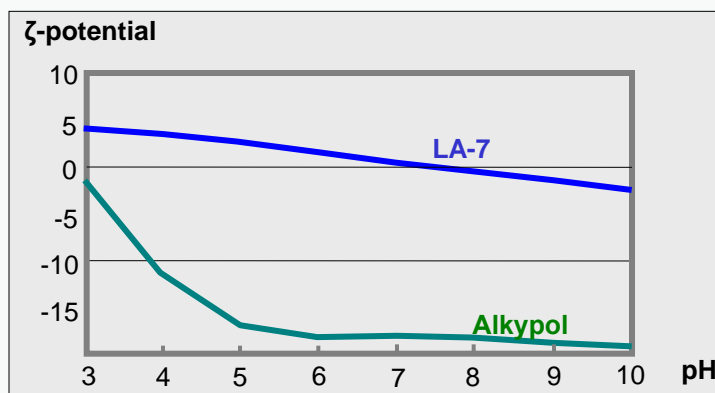


Alkyl Glycoside



Shampoo

The result of measuring zeta-potential, *Alkypol* shows negative charge at wide range pH area.



Mixing *Alkypol* and cationic polymer in formulation shows better feeling than anionic surfactant only formulas. It's because of interaction between *Alkypol* and cationic polymer.

		Sample1	Sample2	Sample3	Sample4
Formulation	SLES (%)	12.0	11.0	10.0	9.0
	Alkypol 200 (%)		1.5	3.0	4.5
	Coco Ampoacetate (%)	2.5	2.0	1.5	1.0
	polyquaternium-10 (%)	0.6	0.6	0.6	0.6
Performance	Dry combing work (%)	-21.6	-24.8	-26.1	-28.8
	Wet combing work (%)	-32.4	-45.6	-48.3	-54.2

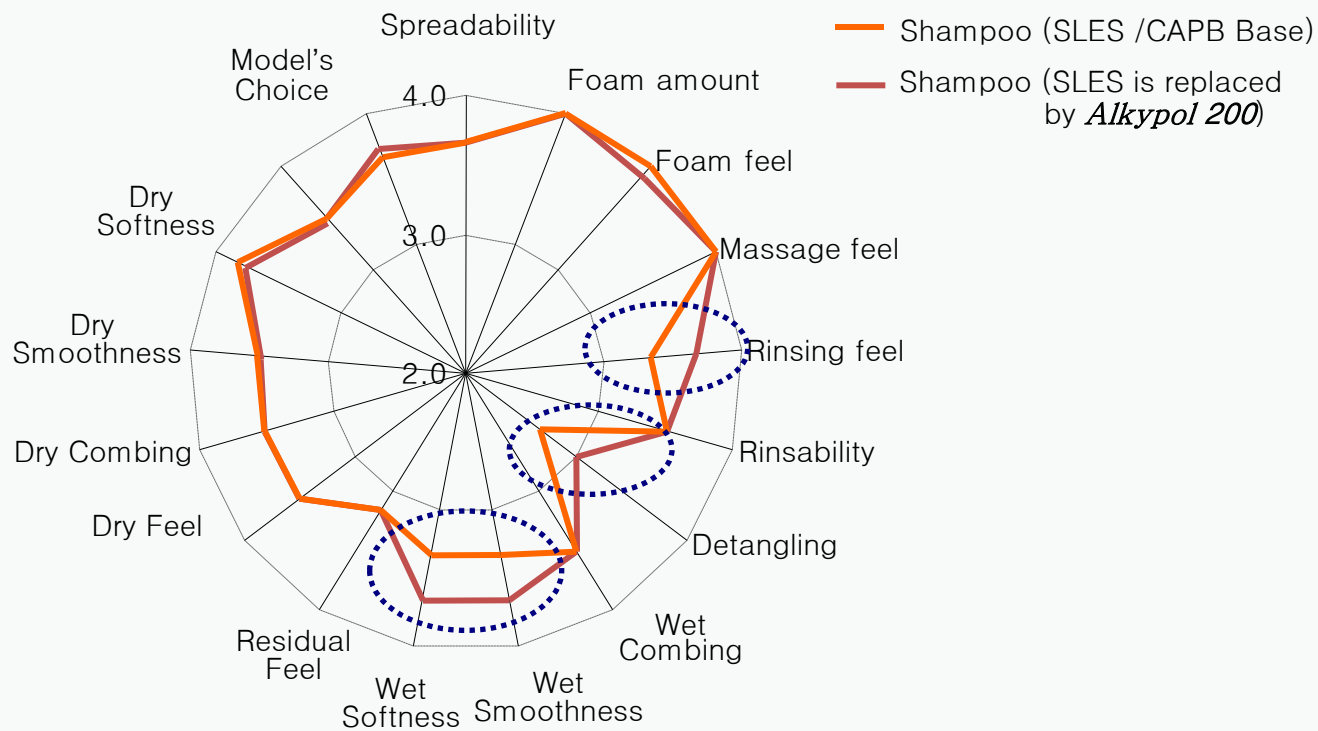


Alkyl Glycoside Applications



Shampoo

Alkypol gives a conditioning effect at rinsing & wet stage in the base of Shampoo formulas. Especially, Rinsing and wet feeling are better than SLES/CAPB combinations.



* Half-head test was performed from the 5 models' hair by the technician. Scale goes from 1 to 5.

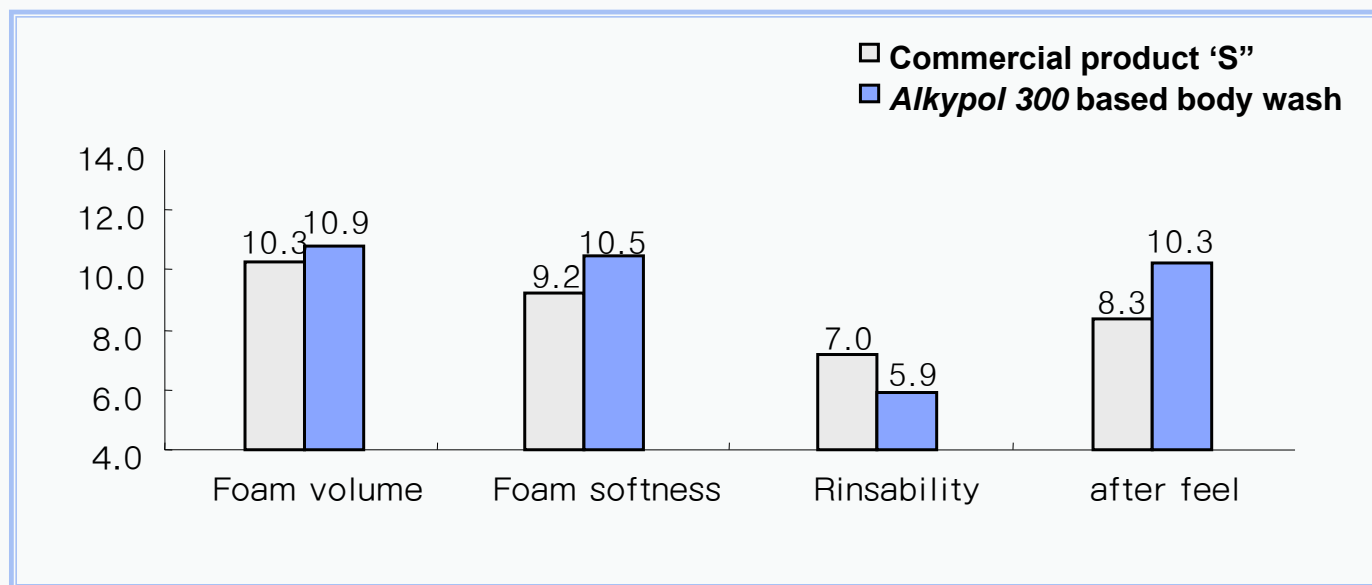


Alkyl Glycoside Applications



Body wash

***Alkypol* gives an excellent smooth feel and soft foam in Body wash**



* Sensory evaluation was performed in accordance with FCI test method. 4 evaluators were asked to mark their preferences on prepared lines (14 cm-long). The lengths from start point to marks were measured and each length was averaged. Scale goes from 0 to 14.



Alkyl Glycoside Applications



Thickening Effect

***Alkypol 200* has excellent thickening effect (similar to Cocamide DEA)**
It is alternative to Cocamide DEA due to carcinogen nitrosamine free.

