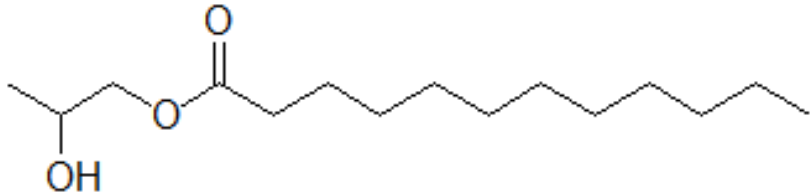


*Cleansing performance improver***UNISAFE™ PGML**

Compliant with JSQI

1 What is UNISAFE™ PGML?

「UNISAFE™ PGML」 is a monoester of Lauric acid and Propylene glycol.

Structure**Concept***Cleansing performance improver***INCI**

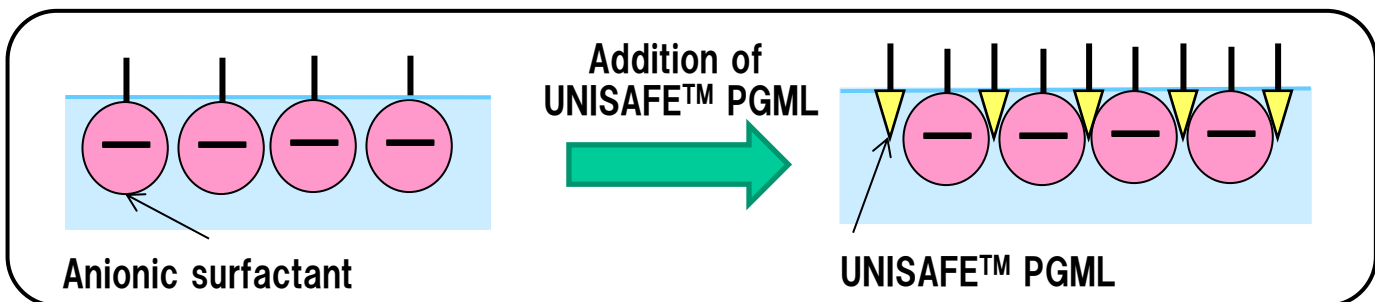
PROPYLENE GLYCOL LAURATE

Chinese INCI

丙二醇月桂酸酯

Appearance

Colorless to pale yellow liquid at 25°C

2 ConceptHigh packing propertythickening
efficacyImprove
detergencyImprove
foam quality

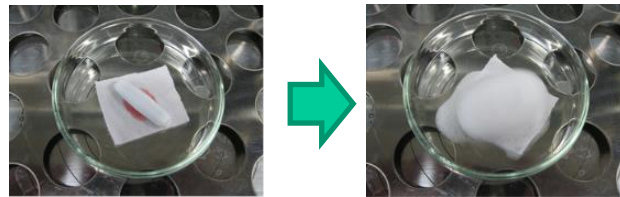
3 Characteristics

- ① High thickening effect
- ② Improve detergency by increasing the packing of surfactants
- ③ Smooth/Sleek texture during rinsing
- ④ Easy to use because of liquid appearance
- ⑤ Compliant with JSQI and available in China

4 Improvement of detergency

<method>

- ① 20 μ L of colored model sebum was attached in 2 \times 2cm of cloth (cotton).
- ② Put a dish containing the cloth on the stirrer. Put a stirrer chip on the cloth.
- ③ Put out a push amount of foam from the pump foamer and rotate for one minute.
- ④ Washed with pooled water for 30 seconds and dried.
- ⑤ Measure red light strength and calculate washing rate by the following equation.

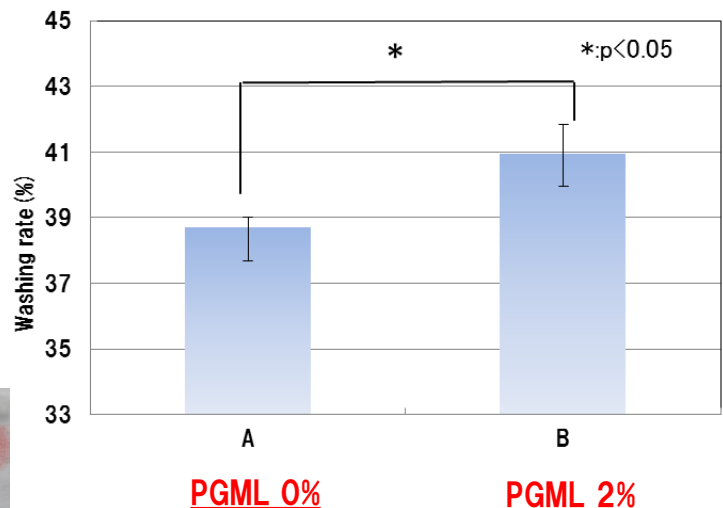
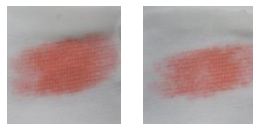


$$\text{Washing rate (\%)} = (1 - a/a_0) \times 100$$

a_0 : Red light strength before washing off
 a : Red light strength after washing off

<Result>

INCI	A	B
SODIUM LAURETH SULFATE	10.5	8.5
PROPYLENE GLYCOL LAURATE	-	2
WATER	91.5	91.5
surface tension (mN/m)	33.2	26.7

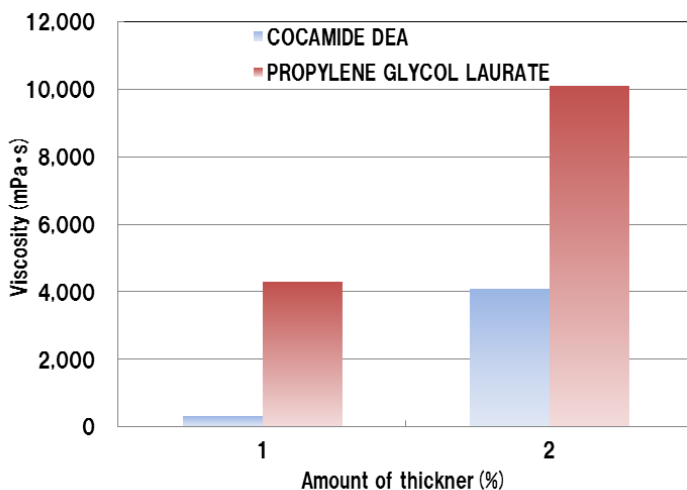


Addition of UNISAFE™ PGML \Rightarrow Improve detergency by reducing surface tension

High thickening effect than Cocamide DEA

<Condition>

SODIUM LAURETH SULFATE ... 7.5wt%
 COCAMIDOPROPYL BETAINE ... 7.5wt%
COCAMIDE DEA or
PROPYLENE GLYCOL LAURATE... 1wt%, 2wt%
 pH: 5.5 (25°C),
 Viscosity: E type Viscometer (mPa·s, 25°C)

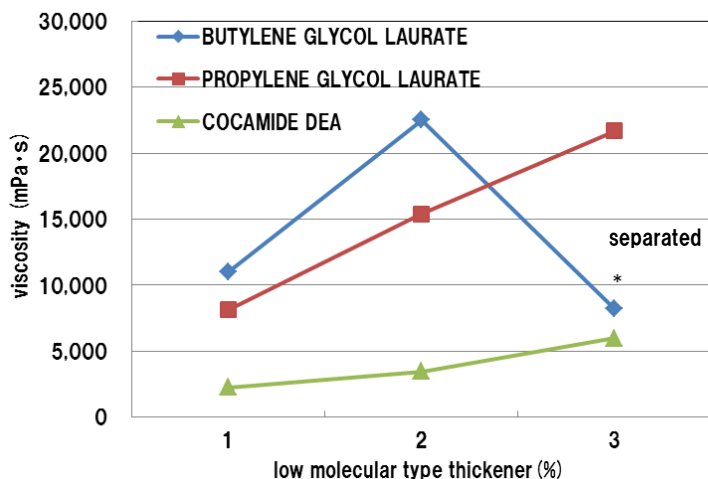


Thickening Amino acid-based surfactant by the combination of Monocarboxylic acid type anion, polyether thickener and this product.

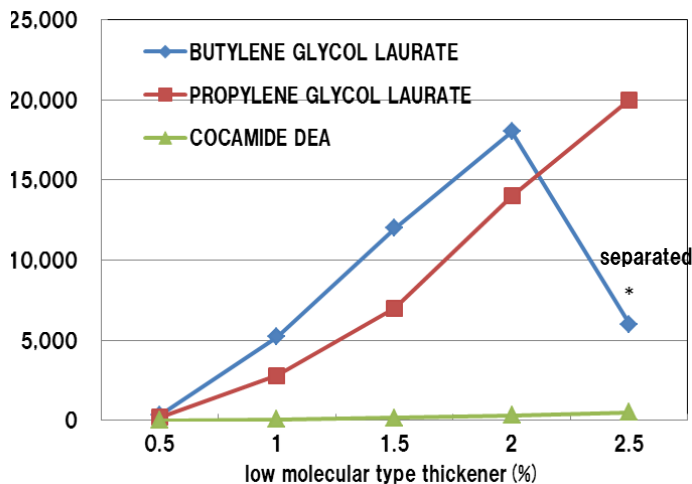
<Condition>

Anionic surfactant : **SODIUM METHYL COCOYL TAURATE (AMT) or TEA-COCOYL GLUTAMATE (AGS)** ... 7.8wt%
 Ampholytic surfactant : COCAMIDOPROPYL BETAINE ... 7.8wt%
 Monocarboxylic acid type anion: SODIUM LAUROY METHYLAMINOPROPIONATE ... 3.9wt%
Low molecular type thickener: COCAMIDE DEA or BUTYLENE GLYCOL LAURATE or PROPYLENE GLYCOL LAURATE ... 1~3wt%
 Polyeter type thickener : PEG-120 METHYL GLUCOSE TRIISOSTEARATE (75%) ... 1.0wt%
 pH: 5.5 @ Citric acid

SODIUM METHYL COCOYL TAURATE



TEA-COCOYL GLUTAMATE



Silicone free Shampoo

NOF Product	INCI	wt%
DIAPON [®] K-SF	SODIUM METHYL COCOYL TAURATE (30%aq.)	20.0
-	SODIUM COCOYL GLUTAMATE (25%aq.)	12.0
NISSAN ANON [®] BDF-R	COCAMIDEPROPYL BETAINE (30%aq.)	12.0
SOFTILT [®] AS-L	SODIUM LAUROY METHYLAMINOPROPIONATE (30%aq.)	18.0
UNISAFE[™] PGML	PROPYLENE GLYCOL LAURATE	2.0
MACBIOBRIDE [®] MG-T	PEG-120 METHYL GLUCOSE TRIISOSTEALATE (75%aq.)	1.0
-	POLYQUATERNIUM-10	0.5
-	Preservatives, pH adjuster	q.s.
-	WATER	balance

pH:5.5 Viscosity:3300 mPa·s (25°C)

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