

# KAOPAN® TW-IS 399S

**STRONG THICKENER  
COLD-PROCESSABLE  
EFFECTIVE FOR SULFATE-FREE FORMULATIONS**

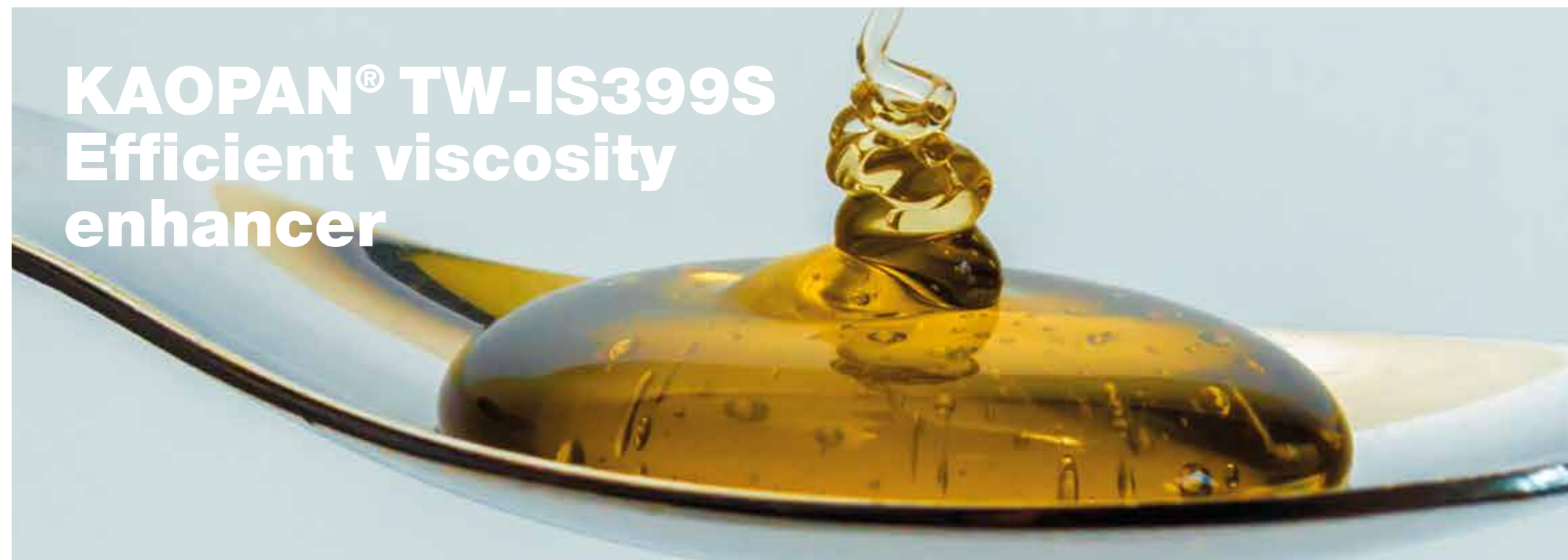
**EFFICIENT VISCOSITY ENHANCER  
FOR VERY MILD CLEANSING SYSTEMS**

THE TECHNOLOGY OF KAO'S SURFACTANTS APPLIED TO PERSONAL CARE



# KAOPAN® TW-IS399S

## Efficient viscosity enhancer



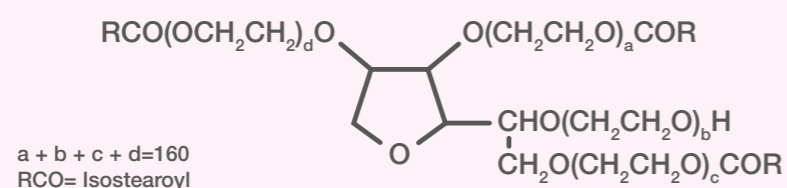
**KAOPAN® TW-IS399S is a hydrophilic thickener, especially designed for very mild cleansing systems that may lead to viscosity problems.**

KAOPAN® TW-IS399S is the triester of isostearic acid and a polyethylene glycol ether of sorbitol with an average of 160 moles of ethylene oxide, supplied in liquid form at a concentration of 75%.

### MAIN FEATURES

- Viscous liquid
- Highly concentrated
- Efficient viscosity enhancer
- Excellent for sulfate-free formulae
- Cold-processable
- Preservative free
- No impact on foaming
- No influence of pH on formula viscosity

**KAOPAN®  
TW-IS399S**  
PEG-160  
Sorbitan  
Triisostearate



### TECHNICAL DATA

Appearance* (20°C)	Yellowish, clear viscous liquid
Odour	Characteristic
Viscosity (20°C)	20.000 cP approx.
Active matter	75% approx.
pH (as it is)	5.0 - 8.0

\* Haziness due to low temperatures can be recovered by heating at 40°C.

### STORAGE & HANDLING

If stored for a long period of time, it is advisable to homogenize the product before use, especially if it has been subjected to low temperatures. Small changes in the appearance can be easily recovered by applying moderate agitation at 40°C. A general recommendation is to use the full container every time.

The shelf life of KAOPAN® TW-IS399S can be considered to be 2 years under proper storage conditions.

### PROCESSABILITY & FORMULATION TIPS

· KAOPAN® TW-IS399S is added as the final component of the formula, in order to obtain the desired viscosity.

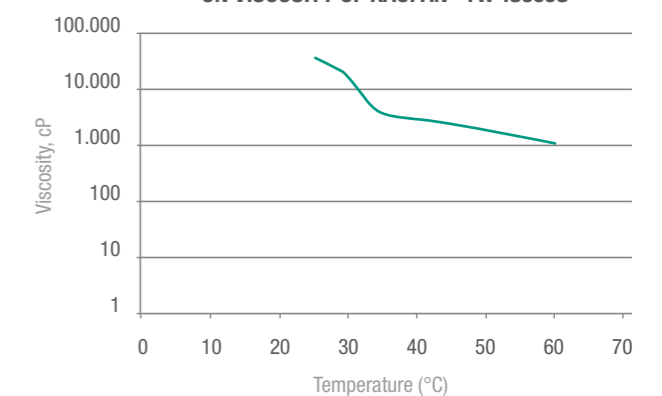
· The recommended dosage can range from 0.5% to 3% depending on the application and composition.

· It is not recommended to dilute the product before addition, but rather to add it in the formulation as it is.

· KAOPAN® TW-IS399S is suitable for cold processing. However, the incorporation time can be shortened by heating it at 40°C.

· pH must be between 4.0 and 9.0 before adding KAOPAN® TW-IS399S and kept within that range.

**EFFECT OF TEMPERATURE ON VISCOSITY OF KAOPAN® TW-IS399S**



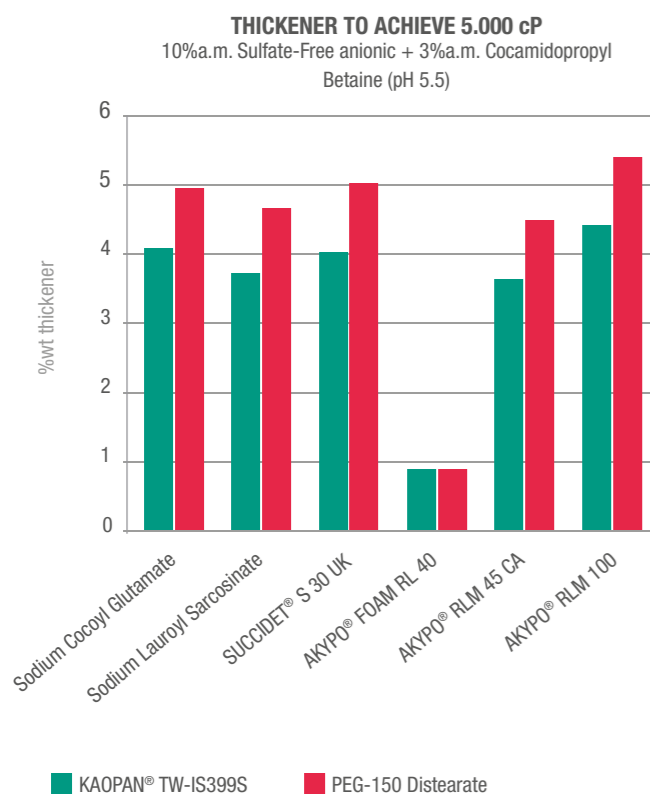
# THICKENABILITY

## Sulfate-Free Systems

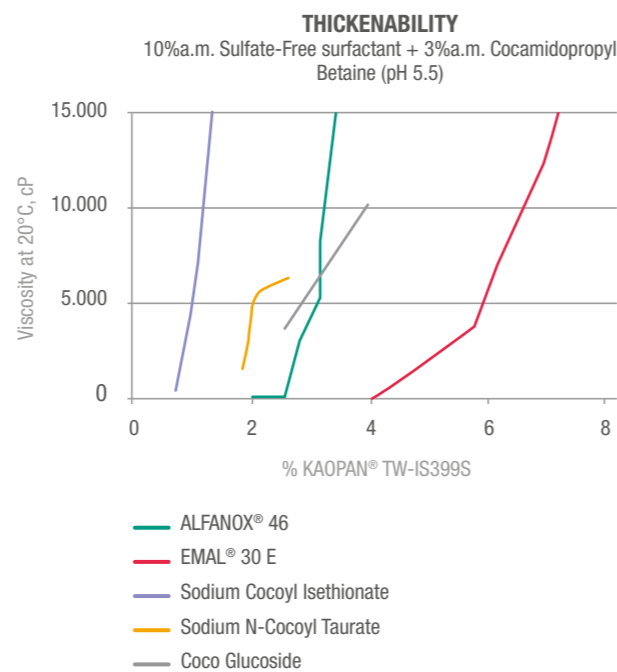
### SULFATE-FREE

Mild surfactants and new additives to improve the performance and features of personal care cleansing systems are growing trends in the Personal Care market. In the case of these newly developed formulations, the traditional solutions (NaCl, etc.) do not work properly and a specific thickener is needed in order to achieve the desired viscosity results.

KAOPAN® TW-IS399S is a highly effective thickener for sulfate-free formulations, providing higher viscosity than other widely used thickeners (such as PEG-150 Distearate) even at lower dosages.



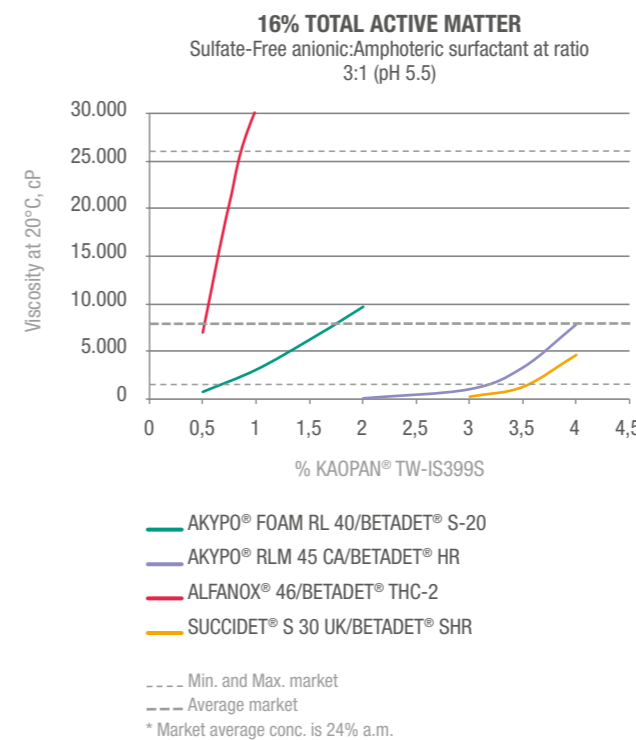
A wide range of sulfate-free anionic surfactants can be thickened with KAOPAN® TW-IS399S. A different amount of thickener will be needed depending on the desired viscosity and the anionic surfactant used:



KAOPAN® TW-IS399S also works in conventional systems based on Lauryl Ether Sulfate (SLES) and Cocamidopropyl Betaine, being compatible with the addition of NaCl.

### OTHER MILD COMPOSITIONS

Diverse mild compositions can be formulated by combining different anionic surfactants and betaines, and working with different active matters. KAOPAN® TW-IS399S enables the desired viscosity to be achieved in all these cases. As an example, herewith different combinations with a total active matter of 16% and 24% are shown. Other combinations and concentrations are also possible.



LEGEND: AKYPO® FOAM RL 40: Sodium Laureth-5 Carboxylate. AKYPO® RLM 45 CA: Laureth-6 Carboxylic Acid. AKYPO® RLM 100: Laureth-11 Carboxylic Acid. SUCCIDET® S 30 UK: Disodium Laureth Sulfosuccinate. ALFANOX® 46: Sodium C14-16 Olefin Sulfonate. BETADET® S-20: Lauryl Hydroxysultaine. BETADET® SHR: Cocamidopropyl Hydroxysultaine. BETADET® HR: Cocamidopropyl Betaine. BETADET® THC-2: Disodium Cocoamphodiacetate. EMAL® 30E: Sodium Lauryl Sulfate

Ref. C-288

**HIGH FOAMING SULFATE-FREE SHAMPOO**

	%
AKYPO® FOAM RL 40 Sodium Laureth-5 Carboxylate	25.0
BETADET® HR Cocamidopropyl Betaine	14.7
KAOPAN® TW-IS399S PEG-160 Sorbitan Trisostearate	2.0
KAO SOFCARE® GP-1 PPG-3 Caprylyl Ether	0.6
Polyquaternium-37	5.0
Silicone Quaternium-16	2.4
Additives*	q.s.
pH adjuster	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Yellowish clear viscous liquid
pH	5.0 - 5.5
Viscosity at 20°C (cP)	7,000 approx.

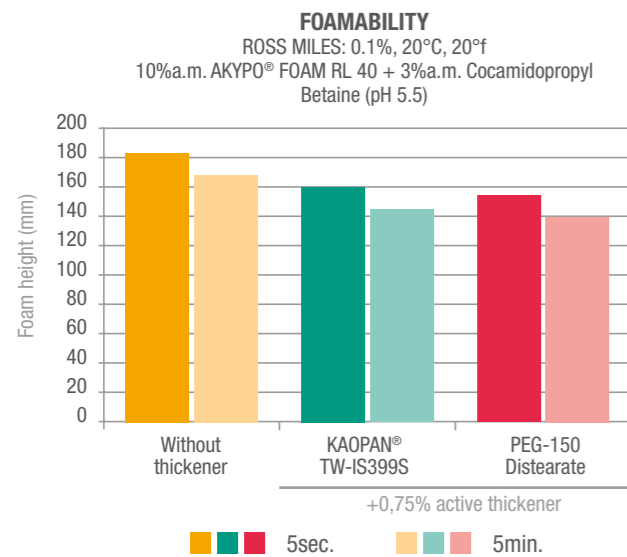
\* Additives: perfume, dyes, preservatives, etc.



# PROPERTIES

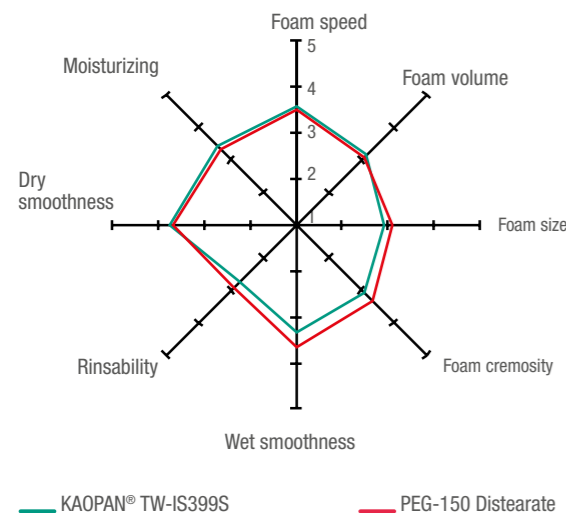
## FOAMABILITY

KAOPAN® TW-IS399S allows the viscosity of your mild formulations to be increased without significantly losing the foam properties.



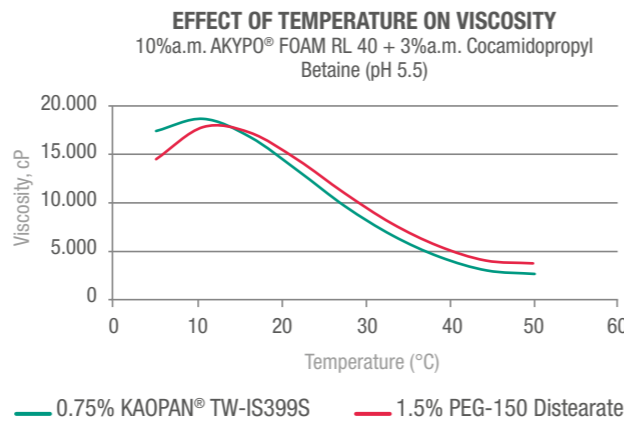
Additionally, no significant differences were observed in a sensorial test.

**SENSORIAL TEST ON HANDS**  
10%a.m. AKYPO® FOAM RL 40 + 3%a.m. Cocamidopropyl Betaine + 0.75%a.m. thickener (pH 5.5)



## EFFECT OF TEMPERATURE

In a final formulation, KAOPAN® TW-IS399S shows a steady decrease in viscosity with temperature, as is the case with most hydrophilic thickeners, which are temperature dependent.



Ref. C-294

FOAMING SULFATE-FREE BODY WASH	%
SUCCIDET® S-30 UK Disodium Laureth Sulfosuccinate	17.6
BETADET® SHR Cocamidopropyl Hydroxysultaine	6.8
KAOPAN® TW-IS399S PEG-160 Sorbitan Trisostearate	4.0
AMIDET® N PEG-4 Rapeseedamide	1.0
LEVENOL® H&B Glycereth-2 Cocoate	0.5
Sodium Cocoyl Glutamate	25.6
Additives*	q.s.
pH adjuster	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Yellowish clear viscous liquid
pH	5.0 - 5.5
Viscosity at 20°C (cP)	8,000 approx.

\*Additives: perfume, dyes, preservatives, etc.

# THICKENABILITY Challenging systems

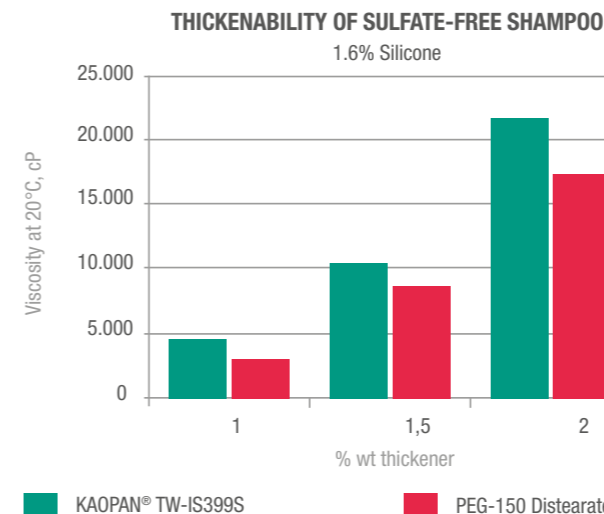
## SYSTEMS CONTAINING SILICONES

KAOPAN® TW-IS399S also works very well in systems containing difficult-to-thicken silicones:

Ref. C-298

SULFATE-FREE SHAMPOO	%
AKYPO® FOAM RL 40 Sodium Laureth-5 Carboxylate	16.7
BETADET® HR Cocamidopropyl Betaine	10.0
Silicone*	1.6
Polyquaternium-10	0.2
Preservative	q.s.
Thickener	x
Deionized Water	Up to 100

\*INCI: Bis-Diisopropanolamino-PG-propyl Dimethicone/Bis-Isobutyl PEG-14 Copolymer (and) Polysorbate 20 (and) Butyloctanol (difficult-to-thicken silicone)

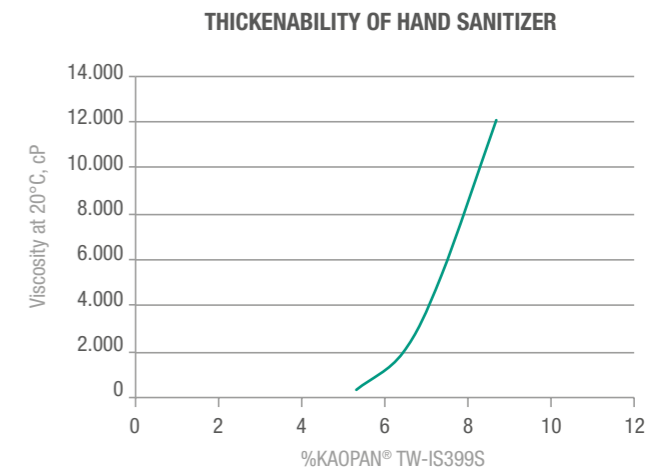


## LOW ACTIVE SYSTEMS

KAOPAN® TW-IS399S can increase the viscosity even in systems containing a low total active content, such as this Anionic-Free Hand Sanitizer with 2.3% a.m. (non-ionic + cationic surfactants).

Ref. C-299

HAND SANITIZER	%
OXIDET® L-75C Cocamidopropylamine Oxide	3.0
LEVENOL® H&B Glycereth-2 Cocoate	1.0
TETRANYL® U Undecylenamidopropyltrimonium Methosulfate	0.6
TETRANYL® BC-50 Benzalkonium Chloride	0.2
Thickener	x
Water	Up to 100



# KAO CHEMICALS EUROPE

[www.kaochemicals-eu.com](http://www.kaochemicals-eu.com)



Enriching lives,  
in harmony with nature.

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