

ULTRA- MILD SOLUTIONS

ALTERNATIVES TO SULFATES

KAO'S SURFACTANT TECHNOLOGY APPLIED TO PERSONAL CARE



ALTERNATIVES TO SULFATES

The market demand for alternatives to sulfates is ever-increasing. The reason for this is the negative perception of consumers about the potential risk of using sulfates.

Kao Chemicals Europe offers a list of ingredients that allows for formulation without sulfates, offering improved mildness, good foaming properties and effective thickening.

PRODUCT	INCI	MILDNESS	EXEMPT OF EO	NATURAL CONTENT*	%RCI**	VISCOSITY	FOAM BOOSTER	CARE	HAIR CONDITIONING
ALFANOX® 46	Sodium C ₁₄₋₁₆ Olefin Sulfonate	✓✓	✓	0	0	✓✓	✓✓	✓	✓
AKYPO® FOAM LM 25	Potassium Laureth-4 Carboxylate	✓✓	✓	0.70	70%	✓✓	✓✓✓	✓	✓
AKYPO® RANGE	Ether Carboxylic derivatives	✓✓	✓	-	-	✓	✓	✓	✓
SUCCIDET® S 30 UK	Disodium Laureth Sulfosuccinate	✓	✓	0.57	60%	✓	✓	✓	✓
BETADET® HR	Cocamidopropyl Betaine	✓	✓	0.66	66%	✓	✓✓	✓	✓
BETADET® S-20	Lauryl Hydroxysulfate	✓✓	✓	0.71	71%	✓✓	✓✓✓	✓	✓
BETADET® SHR	Cocamidopropyl Hydroxysulfate	✓✓	✓	0.61	61%	✓✓	✓✓✓	✓	✓
BETADET® THC-2	Disodium Cocamidopropylsulfate	✓	✓	0.62	62%	✓	✓	✓	✓
AMIDET® N	PEG-4 Rapeseedamide	✓	✓	0.79	79%	✓✓	✓	✓	✓
AMIDET® APA-22	Behenamidopropyl Dimethylamine	✓	✓	0.82	82%	✓	✓	✓	✓
EMANONE® EV-E	Glycereth-7 Caprylate/Caprate	✓✓	✓	0	34%	✓	✓	✓	✓
EXCEPT® LM-1C	Lauryl Lactate	✓✓	✓	1	100%	✓✓	✓	✓	✓
LEVENOL® H&B	Glycereth-2 Cococate	✓✓✓	✓	0.76	76%	✓	✓	✓	✓
KA0 SOFCARE® GP-1	PPG-3 Caprylyl Ether	✓✓✓	✓	0	50%	✓	✓	✓	✓
KA0PAN® TM-1S398S	PEG-160 Sorbitan Trisostearate	✓✓✓	✓	0	3%	✓✓✓	✓	✓	✓
OXIDET® L-75C	Cocamidopropylamine Oxide	✓	✓	0.72	72%	✓	✓	✓	✓
DAND® HC-30	Behenamidopropyl Dimethylamine, Di(2-aminoethyl) Hydroxyethyliminium Methosulfate, Cetyl Alcohol, Stearyl Alcohol, Lactic Acid	✓✓✓	✓	0.88	88%	✓✓	✓	✓	✓
QUARTAMIN® A8	Behentrimonium Chloride	✓	✓	0.73	73%	✓	✓	✓	✓
QUARTAMIN® BTC 131	Behenoyl PG-Trimonium Chloride	✓	✓	0.88	68%	✓	✓	✓	✓
DAND® BF-22	Glycol Distearate, Laureth-4, Cocamidopropyl Betaine	✓	✓	0.92	92%	✓	✓	✓	✓

* Natural Origin Index for the active matter based on Renewable Carbon Content (RSC) 16128

** Renewable Carbon Index

✓ recommended

✓✓ highly recommended

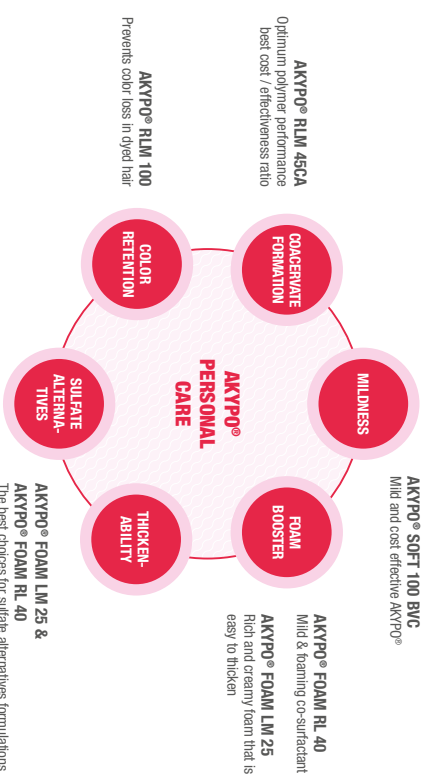
✓✓✓ strongly recommended

MAIN SURFACTANTS

AKYPO® RANGE

Ether Carboxylic derivatives

The AKYPO® products are anionic surfactants. Their gentleness on the skin and eyes, good ecotoxicity properties and excellent compatibility with all kinds of surfactants make them the perfect choice for Personal Care products.



TECHNICAL DATA

RANGE	INCI Name	EO	Alkyl Chain	Appearance (20°C)	Active matter (%)
AKYPO® FOAM LM 25	Potassium Laureth-4 Carboxylate	2.5	C ₁₂ /C ₁₄	Paste	≈ 60
AKYPO® FOAM RL 40	Sodium Laureth-5 Carboxylate	4	C ₁₂	Paste	≈ 60
AKYPO® RLM 45 GA	Laureth-6 Carboxylic Acid	4.5	C ₁₂ /C ₁₄	Liquid	≈ 92
AKYPO® RLM 45 N	Sodium Laureth-6 Carboxylate	4.5	C ₁₂ /C ₁₄	Paste	≈ 82
AKYPO® SOFT 45 HP	Sodium Laureth-6 Carboxylate	4.5	C ₁₂ /C ₁₄	Liquid	≈ 22
AKYPO® RLM 100	Laureth-11 Carboxylic Acid	10	C ₁₂ /C ₁₄	Liquid	≈ 90
AKYPO® SOFT 100 BVC	Sodium Laureth-11 Carboxylate	10	C ₁₂ /C ₁₄	Liquid	≈ 70

The best choices for sulfate alternatives formulations

OTHER ALTERNATIVE ANIONIC SURFACTANTS

ALFANOX® 46

Sodium C₁₄₋₁₆ Olefin Sulfonate

SUCCIDET® S 30 UK

Disodium Laureth Sulfosuccinate

TECHNICAL DATA

Appearance (25°C)	Yellowish transparent liquid
Active matter (%)	36.0 - 39.0

TECHNICAL DATA

Appearance (25°C)	Clear colourless liquid
Active matter (%)	32.5 - 34.5

UNIQUE FOAM TEXTURE

AKYPO® FOAM LM 25

Potassium Laureth-4 Carboxylate

AKYPO® FOAM LM 25 achieves a luxurious foam with a very small bubble size and high foam consistency.

TECHNICAL DATA

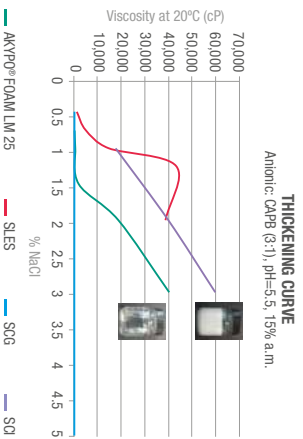
Appearance (20°C)	Clear flowable paste
Active matter (%)	59.0 - 64.0

MAIN FEATURES

- Ultra-mild surfactant
- Soft & creamy foam texture
- Clear formulations
- Easy to thicken

VISCOSITY

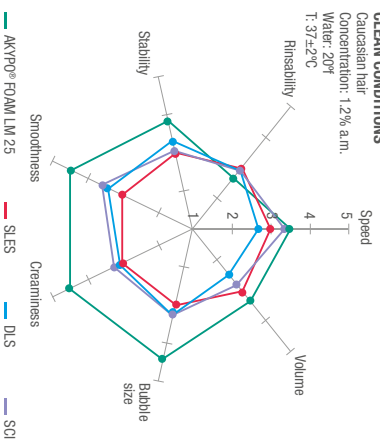
AKYPO® FOAM LM 25 can easily be thickened with salt. Additionally, a clear appearance can be obtained.



FOAM SENSORY TEST

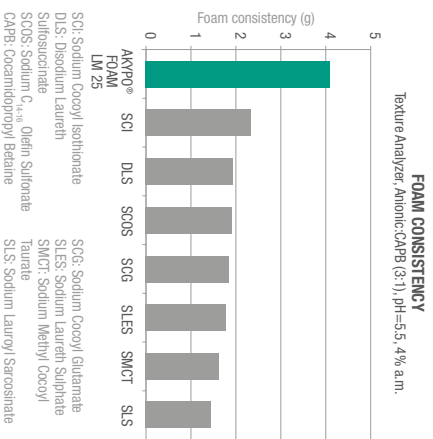
CLEAN CONDITIONS

Caucasian hair
Concentration: 1.2% a.m.
Water: 20°
T: 37±2°C



FOAM CONSISTENCY

AKYPO® FOAM LM 25 provides a significantly higher foam consistency than other anionic surfactants with a special soft and creamy touch.



THICKENERS

KAOPAN® TW-IS399S

PEG-160 Sorbitan Trisostearate

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

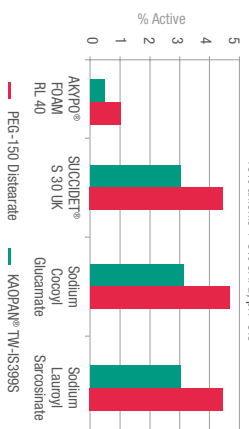
TECHNICAL DATA

Appearance* (20°C)	Yellowish, clear, viscous liquid
Active matter (%)	Approx. 75

*Hardness due to low temperatures can be recovered by heating at 40°C

THICKENING CAPACITY

THICKENER TO ACHIEVE 10,000 cP
10% anionic + 3% CAPB, pH=5.5

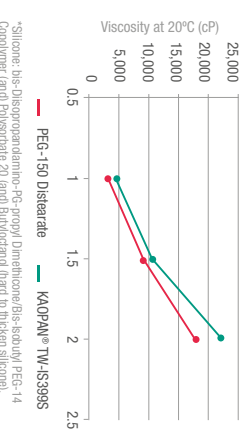


MAIN FEATURES

- Efficient viscosity enhancer
- Excellent for formulations without sulfates
- Cold-processable
- Viscous liquid
- Alternative to PEG-150 Distearate

VISCOSITY IN PRESENCE OF SILICONE

VISCOSITY AT DIFFERENT % OF THICKENER
16.7% AKYPO® FOAM RL 40 + 3% CAPB + 2% Pd-10 + 1.6 Silicomer*, pH=5.5



EXCEPARL® LM-LC

Lauryl Lactate



MAIN FEATURES

- Vegetable origin
- 100% Natural
- Mild
- Colourless & odourless

TECHNICAL DATA

Appearance (25°C)	Transparent liquid
Active matter (%)	Approx. 100

This table shows examples of how to achieve different viscosities.

ANIONIC	BETLAINE	ANIONIC:BETANE a.m. ratio	EXCEPARL® LM-LC	pH	VISCOSITY AT 20°C (cP)
ALFANOX® 46	BETADET® S-20	10:4	1%	5.0	11,500
Sodium Cocoyl Isethionate	BETADET® HR	10:2.5	1.5%+ 1% NaCl	7.0	20,000
Sodium Cocoyl Glutamate	BETADET® HR	2:6-1:5*	1.5%	5.5	9,600
Sodium N-Cocoyl Glycine	BETADET® HR	5:8.3	0.7%	5.0	5,600

* (with Coco-Glucoside)

PEARLING AGENTS

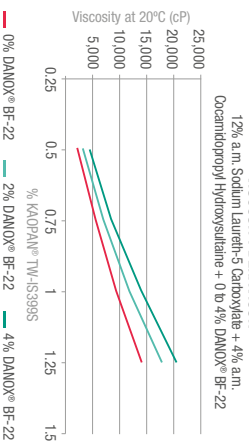
DANOX® BF-22

Glycol Distearate, Laureth-4, Cocamidopropyl Betaine

TECHNICAL DATA

Appearance (25°C)	Clear flowable paste
Dry matter (%)	42.0 - 45.0

VISCOSITY BEHAVIOUR



MAIN FEATURES

- Easy to handle, pump & disperse
- Improves thickening
- Environmentally friendly

TRADE MARK

Wax content (%)	DANOX® BF-22 ≈ 22
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Optimum dose appearance



Dispersion	Easy
Appearance	Brilliant white pearly shine
Pearling-Brilliance	
Opacity	

FORMULATIONS

SHOWER GEL

Ref: C-216

	%
ALFANOX® 46 Sodium C ₁₄₋₁₈ Olefin Sulfonate	27.0
BETADET® S-20 Lauryl Hydroxysulfate	10.5
EXCEPARL® LM-LC Lauryl Lactate	0.95
Additives*	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Clear
Viscosity Brookfield 20°C (cP)	Approx. 8,000
pH (as it is)	Approx. 5.0

INTIMATE HYGIENE

Ref: C-229

	%
BETADET® HR Cocamidopropyl Betaine	18.3
AMIDET® N PEG-4 Rapeseedamide	5.3
AKYPO® SOFT 100 BVC Sodium Laureth-11 Carboxylate	4.3
EXCEPARL® LM-LC Lauryl Lactate	0.6
Chamomile Extract	0.25
Additives*	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Clear
Viscosity Brookfield 20°C (cP)	Approx. 4,000
pH (as it is)	Approx. 5.0

GENTLE FACIAL WASH

Ref: C-303

	%
AKYPO® FOAM LM 25 Potassium Laureth-4 Carboxylate	14.3
BETADET® S-20 Lauryl Hydroxysulfate	21.1
KAOPEARL® TV-IS3995 PEG-160 Sorbitan Trisostearate	0.5
Glycerin	5.0
Glycine Betaine	1.0
Additives*	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Clear viscous liquid
Viscosity Brookfield 20°C (cP)	Approx. 2,200
pH (as it is)	Approx. 5.5

HIGHLY VISCIOUS SHOWER GEL

Ref: C-215

	%
BETADET® HR Cocamidopropyl Betaine	37.1
SUICIDET® S 30 UK Disodium Laureth Sulfosuccinate	19.3
AKYPO® FOAM RL 40 Sodium Laureth-5 Carboxylate	10.0
AMIDET® N PEG-4 Rapeseedamide	4.1
Glycerin	2.4
Opuntia Ficus Indica Flower Extract	1.5
Tocopherol	0.4
D-Panthenol	0.4
Additives*	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Clear colourless
Viscosity Brookfield 20°C (cP)	Approx. 15,000
pH (as it is)	Approx. 5.5

CLEAR MILD SHAMPPOO

Ref: C-293

	%
AKYPO® FOAM RL 40 Sodium Laureth-5 Carboxylate	25.0
BETADET® HR Cocamidopropyl Betaine	14.7
KAOPEARL® TV-IS3995 PEG-160 Sorbitan Trisostearate	2.0
FINDET® ARH/52 PEG-40 Hydrogenated Castor Oil	1.5
KAO SOFCARE® GP-1 PPG-3 Caprylyl Ether	0.6
Polyquaternium-37	5.0
Silicone Quaternium-16	2.4
Additives*	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Yellowish clear viscous liquid
Viscosity Brookfield 20°C (cP)	Approx. 7,000
pH (as it is)	Approx. 5.0

PEARLED ULTRA MILD SHAMPPOO

Ref: C-305

	%
AKYPO® FOAM LM 25 Potassium Laureth-4 Carboxylate	24.4
BETADET® SHR Cocamidopropyl Hydroxysulfate	11.4
KAO SOFCARE® GP-1 PPG-3 Caprylyl Ether	1.5
DANOX® BF-22 Glycol Distearate, Laureth-4, Cocamidopropyl Betaine	3.0
Polyquaternium-7	1.0
PEG-7 Dimethicone	1.0
Polyquaternium-10	0.3
Additives*	q.s.
Deionized Water	Up to 100
Appearance (20°C)	Pearled viscous liquid
Viscosity Brookfield 20°C (cP)	Approx. 10,500
pH (as it is)	Approx. 6.0

* Additives: pH adjustment, preservatives, fragrances, dyes, etc.

KAO CHEMICALS EUROPE

www.kaochemicals-eu.com



Enriching lives,
in harmony with nature.

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OUR CHEMICALS, YOUR BUSINESS

