

# Surfactants for Personal Care products





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PERSONAL CARE MARKET

Anionic Surfactants

Currently, Personal Care market offers a wide range of products due to the requirements which are rapidly changing. The usage of Personal Hygiene Products is strictly connected to the consumer lifestyle. The growing number of new type of formulations requires a new range of ingredients ensuring satisfying effect in the formulation and safety to the customer.

PCC Group products dedicated to Personal Care market have been created, and this range is still being developed. A tremendous emphasis is put on the implementation of new raw materials dedicated to Personal Care in order to provide the possibility of preparing tailor made formulations suitable to clients’ needs.

Anionic Surfactants

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Alkyl Sulfates															
ROSULfan L*	Sodium Lauryl Sulfate	•		•	•	•	•	•		•		•	•	•	•
ROSULfan L/PH*	Sodium Lauryl Sulfate	•		•	•	•	•	•		•		•	•	•	•
ROSULfan A*	Ammonium Lauryl Sulfate	•	•	•	•		•	•	•	•		•	•	•	•
ROSULfan A70*	Ammonium Lauryl Sulfate	•	•	•	•		•	•	•	•		•	•	•	•
ROSULfan M*	MEA Lauryl Sulfate	•	•	•	•		•	•	•	•		•	•	•	•
ROSULfan T*	TEA Lauryl Sulfate	•	•	•	•		•	•	•	•		•	•	•	•

\* Product available in RSPO Mass Balance Model

Anionic Surfactants

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Alkyl Ether Sulfates															
SULFOROKAnol L170/1*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol L270/1*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol L270/1A*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol L370/1*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol L225/1*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol L227/1*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol L327/1*	Sodium Laureth Sulfate	•	•	•	•	•	•	•	•	•		•	•	•	•
SULFOROKAnol A325/1*	Ammonium Laureth Sulfate	•	•	•			•	•	•			•	•		•
SULFOROKAnol L390/1M*	MIPA Laureth Sulfate (and) Propylene Glycol	•	•	•			•	•	•			•	•		•
EXOsoft MG*	Magnesium Laureth Sulfate	•	•	•			•	•	•			•	•		•
EXOsoft ZN*	Zinc Coceth Sulfate	•	•	•			•	•	•			•	•		•
Aminoacid – Based Surfactants															
ROKAtend GL	Sodium Lauroyl Glycinate	•	•				•	•	•			•			
ROKAtend LS*	Sodium Lauroyl Sarcosinate	•	•				•	•	•			•			
Sulfosuccinates															
EXOsoft L3/40*	Disodium Laureth Sulfosuccinate	•	•	•			•	•	•			•	•	•	•
Soaps															
EXOsoft PC35*	Potassium Cocoate	•	•	•			•	•	•			•	•		•

\* Product available in RSPO Mass Balance Model

Nonionic Surfactants

Natural Alcohol Ethoxylates and/or Propoxylates

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Decyl Alcohol Ethoxylates															
ROKAnol D3W*	Deceth-3				•										
Lauryl Alcohol Ethoxylates															
ROKAnol LK1*	Laureth-1	•	•		•		•	•	•						
ROKAnol LK2*	Laureth-2	•	•	•	•		•	•	•			•	•	•	•
ROKAnol LK2A*	Laureth-2	•	•	•	•		•	•	•			•	•	•	•
ROKAnol L2*	Laureth-2	•	•	•	•		•	•	•			•	•	•	•
ROKAnol LK3*	Laureth-3	•			•	•	•	•				•	•	•	
ROKAnol L3A*	Laureth-3	•			•	•	•	•				•	•	•	
ROKAnol L4*	Laureth-4	•	•	•	•	•	•	•	•	•		•	•	•	•
ROKAnol L5A*	Laureth-5	•	•												
ROKAnol L7*	Laureth-7	•		•		•	•	•		•		•	•	•	•
ROKAnol L7A*	Laureth-7	•		•		•	•	•		•		•	•	•	•
ROKAnol L7W*	Laureth-7	•		•		•	•	•		•		•	•	•	•
ROKAnol L10*	Laureth-10	•		•			•	•				•	•	•	
ROKAnol L10A*	Laureth-10	•		•			•	•				•	•	•	
ROKAnol L10/80*	Laureth-10	•		•			•	•				•	•	•	
ROKAnol L22*	Laureth-23	•		•	•	•	•	•				•	•	•	•

\* Product available in RSPO Mass Balance Model

Natural Alcohol Ethoxylates and/or Propoxylates

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Cetearyl Alcohol Ethoxylates															
ROKAnol T6*	Ceteareth-6					•					•	•	•	•	•
ROKAnol T10*	Ceteareth-10					•			•		•	•	•	•	
ROKAnol T12*	Ceteareth-12					•			•	•	•	•	•	•	
ROKAnol T20*	Ceteareth-20	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ROKAnol T20 flakes*	Ceteareth-20	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ROKAnol T25*	Ceteareth-25	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ROKAnol T25 flakes*	Ceteareth-25	•	•	•	•	•	•	•	•	•	•	•	•	•	•
* Product available in RSPO Mass Balance Model															
Oleyl Alcohol Ethoxylates															
ROKAnol O3*	Oleth-3	•		•	•	•				•					
ROKAnol O5*	Oleth-5			•	•	•									
ROKAnol O10*	Oleth-10	•		•	•	•				•	•		•		
ROKAnol O20*	Oleth-20	•		•	•	•				•		•	•	•	•
* Product available in RSPO Mass Balance Model															
Ethoxylated Lanolin															
ROKAnol LN75/50	PEG-75 Lanolin	•		•		•	•	•	•	•		•	•	•	
ROKAnol LN75K	PEG-75 Lanolin	•		•		•	•	•	•	•		•	•	•	
Stearyl Alcohol Propoxylates															
ROKAnol SP15L*	PPG-15 Stearyl Ether	•		•		•	•	•		•		•	•		•

\* Product available in RSPO Mass Balance Model

Synthetic Alcohol Ethoxylates and EO/PO Block Copolymers

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Isotridecyl Alcohol Ethoxylates															
ROKAnol IT3	Trideceth-3	•					•	•							
ROKAnol IT5	Trideceth-5	•		•		•									
ROKAnol IT6	Trideceth-6	•		•	•	•				•	•	•	•		
ROKAnol IT7	Trideceth-7	•		•		•									
ROKAnol IT7W	Trideceth-7	•		•		•									
ROKAnol IT8	Trideceth-8			•		•									
ROKAnol IT8W	Trideceth-8			•		•									
ROKAnol IT9	Trideceth-9	•		•		•		•					•		•
ROKAnol IT9W	Trideceth-9	•		•		•		•					•		•
ROKAnol IT10	Trideceth-10	•		•		•				•			•		
ROKAnol IT10W	Trideceth-10	•		•		•				•			•		
ROKAnol IT12	Trideceth-12	•		•	•	•		•					•	•	•
ROKAnol IT12W	Trideceth-12	•		•	•	•		•					•	•	•
Guerbet Alcohol Alkoxylates															
ROKAnol GA7	PEG-7 Propylheptyl Ether	•		•		•				•		•	•	•	
ROKAnol GA7W	PEG-7 Propylheptyl Ether	•		•		•				•		•	•	•	
ROKAnol GA7LAW	PEG-7/PPG-2 Propylheptyl Ether	•		•		•				•		•	•	•	
EO/PO Block Copolymers															
EXOmer L64	Poloxamer 184	•		•	•		•	•				•	•		•

Natural fatty acids/oil derivatives

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Ethoxylated Fatty Acids/Oils															
ROKAcet KO300G*	PEG-7 Glyceryl Cocoate	•	•	•	•	•	•	•	•	•		•	•	•	•
ROKAcet HR40	PEG-40 Hydrogenated Castor Oil	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ROKAcet HR40W	PEG-40 Hydrogenated Castor Oil	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ROKAcet HR60	PEG-60 Hydrogenated Castor Oil	•	•	•	•	•	•	•	•	•	•	•	•	•	•
* Product available in RSPO Mass Balance Model															
Sorbitan Esters/Sorbitan Esters Ethoxylated															
ROKwin 20	Sorbitan monolaurate	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ROKwinol 20	Polysorbate 20	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Alkanolamides/ Alkanolamides Ethoxylated															
ROKAmid KAD*	Cocamide DEA	•		•	•	•	•	•					•	•	
ROKAmid MRZ4	PEG-4 Rapeseedamide	•		•		•	•	•				•	•		•

\* Product available in RSPO Mass Balance Model

Polyethylene Glycols [PEG's] - polymers of ethylene oxide

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
POLIKol 200	PEG-4	•		•		•				•		•	•	•	•
POLIKol 300	PEG-6	•				•				•		•	•		•
POLIKol 400	PEG-8	•		•		•		•		•	•	•	•	•	•
POLIKol 600	PEG-12	•		•		•						•	•		•
POLIKol 800	PEG-18	•						•							
POLIKol 1500	PEG-32					•				•		•	•	•	
POLIKol 2000	PEG-45			•		•		•				•			
POLIKol 2000 flakes	PEG-45			•		•		•				•			
POLIKol 3000	PEG-60					•		•		•		•		•	
POLIKol 3000 flakes	PEG-60					•		•		•		•		•	
POLIKol 4500	PEG-100									•		•	•	•	
POLIKol 4500 flakes	PEG-100									•		•	•	•	
POLIKol 6000	PEG-150					•				•		•	•	•	
POLIKol 6000 flakes	PEG-150					•				•		•	•	•	



Amphoteric Surfactants

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
Betaines															
ROKAmina K30*	Cocamidopropyl Betaine	•	•		•	•	•	•	•			•	•		•
ROKAmina K30K*	Cocamidopropyl Betaine	•	•		•	•	•	•	•			•	•		•
ROKAmina K40*	Cocamidopropyl Betaine	•			•	•	•	•				•	•		•
ROKAmina K40HC*	Cocamidopropyl Betaine	•	•		•	•	•	•	•			•	•		•
ROKAmina K30B*	Coco Betaine	•	•		•	•	•	•	•			•	•		•
ROKAmina L30B*	Lauryl Betaine	•	•		•	•	•	•	•			•	•		•

\* Product available in RSPO Mass Balance Model

Surfactant Blends

PRODUCT NAME	INCI NAME	HAIR					BODY					FACE			
		SHAMPOO	BABY SHAMPOO	CONDITIONER	HAIR COLORING AND BLEACHING	HAIR STYLING	LIQUID SOAP	BODY WASH	BABY WASH	CREAM / LOTION	BABY CREAM / LOTION	FACE CLEANSING	FACE TREATMENT	COLOR COSMETIC	SHAVING CREAM / FOAM
ExoAlc 1618 flakes	Cetearyl alcohol	•	•	•	•	•	•	•	•	•	•	•	•	•	•
EXOcare TE20 flakes	Cetearyl alcohol Ceteareth-20			•						•	•		•		
EXOcare PC60	Sodium Laureth Sulfate, Cocamidopropyl Betaine, Coco-Glucoside	•	•				•	•	•			•			•
EXOpearl N	Sodium Laureth Sulfate, Cocamide DEA, Glycol Distearate	•		•			•	•				•			
EXOcare ML70	Sodium Laureth Sulfate, Cocamide MEA	•	•	•			•	•				•			





PRODUCT GROUPS CLASSIFICATION IN TERMS OF THEIR FUNCTION IN FORMULATION

The ratio of hydrophilic and lipophilic part of surfactant in its structure enables an appropriate classification into different function. The table presented below divides the main surfactants classes from PCC Group portfolio in terms of their function in formulation.

PRODUCT GROUP	PRIMARY SURFACTANT	CO-SURFACTANT	EMULSIFIER	EMOLLIENT	HUMECTANT	PEARLIZING AGENT	SOLUBILIZER	FOAMING AGENT	FOAM BOOSTER	VISCOSITY MODIFIER
Sulfated Fatty Alcohols	•							•	•	•
Sulfated Ethoxylated Fatty Alcohols	•							•	•	•
Sulfosuccinates	•	•						•	•	
Soaps	•	•						•	•	•
Aminoacid based surfactants	•	•						•	•	•
Alkanolamides / Ethoxylated Alkanolamides		•							•	•
Alkoxylated Fatty Alcohols		•	•	•				•		•
EO/PO Block Copolymers							•			
Ethoxylated Fatty Acids / Ethoxylated Oils		•		•			•			
Sorbitan Esters / Ethoxylated Sorbitan Esters		•	•				•			
Betaines		•						•	•	•
Polyoxyethylene Glycols (PEGs)					•					
Blends	•	•				•		•	•	•





03 / MAIN FUNCTIONS  
OF SURFACTANTS IN COSMETIC  
FORMULATIONS

MAIN FUNCTIONS OF SURFACTANTS  
IN COSMETIC FORMULATIONS

Surfactants play various roles in cosmetic formulations. They are more than just cleaners and are used for their numerous properties.

Primary Surfactants & Foaming Agents

Reach and long lasting foam is perceived as a sign of cleansing action of the product. Good foaming properties are usually identified with the high quality of the end product. Foamability and foam stability are related to surfactant structure being the domain of base surfactants. Products which belong to this class are basic ingredients of all wash-off formulations.

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
Alkyl Sulfates							
ROSULfan L	85586-07-8	A	clear liquid	–	Sodium Lauryl Sulfate	27.5 - 30.0	–
ROSULfan L/PH	85586-07-8	A	liquid	–	Sodium Lauryl Sulfate	29.0 - 31.0	–
ROSULfan A	90583-11-2	A	clear viscous liquid	–	Ammonium Lauryl Sulfate	26.0 - 28.0	–
ROSULfan A70	90583-11-2	A	soft paste	–	Ammonium Lauryl Sulfate	65.0 - 70.0	–
ROSULfan M	90583-16-7	A	clear liquid	–	MEA Lauryl Sulfate	26.5 - 27.5	–
ROSULfan T	90583-18-9	A	clear liquid	–	TEA Lauryl Sulfate	38.0 - 42.0	–

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
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Alkyl Ether Sulfates

SULFOROKAnol L170/1	68891-38-3	A	liquid paste	–	Sodium Laureth Sulfate + 1 EO	68.0 - 72.0	–
SULFOROKAnol L270/1	68891-38-3	A	liquid paste	–	Sodium Laureth Sulfate + 2 EO	68.0 - 72.0	–
SULFOROKAnol L270/1A	68891-38-3	A	liquid paste	–	Sodium Laureth Sulfate + 2 EO	68.0 - 72.0	–
SULFOROKAnol L370/1	13150-00-0	A	liquid paste	–	Sodium Laureth Sulfate + 3 EO	68.0 - 72.0	–
SULFOROKAnol L225/1	68891-38-3	A	viscous liquid	–	Sodium Laureth Sulfate + 2 EO	25.0 - 27.0	–
SULFOROKAnol L227/1	68891-38-3	A	viscous liquid	–	Sodium Laureth Sulfate + 2 EO	25.0 - 27.0	–
SULFOROKAnol L327/1	13150-00-0	A	liquid	–	Sodium Laureth Sulfate + 3 EO	27.0 - 29.0	–
SULFOROKAnol A325/1	2235-54-3	A	liquid	–	Ammonium Laureth Sulfate + 3 EO	24.0 – 26.0	–
SULFOROKAnol L390/1M	83016-76-6	A	clear, viscous liquid	–	MIPA Laureth Sulfate (and) Propylene Glycol + 3 EO	82.0 - 88.0	–
EXOsoft MG	67762-21-4	A	liquid	–	Magnesium Laureth Sulfate + 3 EO	25.0 - 27.0	–
EXOsoft ZN	224175-26-2	A	liquid	–	Zinc Coceth Sulfate + 3 EO	23.5 - 25.5	–

Aminoacid – Based Surfactants

ROKAtend GL	–	A	liquid	–	Sodium Lauroyl Glycinate	19.0 - 21.0	–
ROKAtend LS	137-16-6	A	liquid	–	Sodium Lauroyl Sarcosinate	29.0 - 31.0	–

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
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Sulfosuccinates

EXOsoft L3/40	68815-56-5	A	liquid	–	Disodium Laureth Sulfosuccinate + 3 EO	approx. 30	–
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Soaps

EXOsoft PC35	61789-30-8	A	liquid	–	Potassium Cocoate	34 – 36	–
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Secondary surfactants - emulsifiers

The usage of co-surfactants (secondary surfactants) allows to obtain specific properties of formulations. Application of a secondary surfactant provides a synergistic effect on the foam stability and height, rheological properties building properties and it increases the formulation mildness.

Emulsifiers arrange themselves at the water-oil interfaces, making it possible for them to be blended into stable emulsions. Such

compounds also reduce stickiness, control crystallization and prevent separation. An emulsifier should not add any odors or properties into the cosmetics that would affect the skin or hair. Emulsifying agent should not react with other ingredients and ensure long stability of the emulsion.

In terms of emulsion type (oil in water or water in oil) an appropriate emulsifying agent should be selected.

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
Decyl Alcohol Ethoxylates							
ROKAnol D3W	68002-97-1	N	liquid	8.6	Alcohol C10, + 3 EO	min. 90.0	190-205 <sup>3)</sup>
Lauryl Alcohol Ethoxylates							
ROKAnol LK1	68439-50-9	N	liquid	3.6	Alcohols, C12-14, + 1 EO	min. 99.9	231-241 <sup>3)</sup>
ROKAnol LK2	68439-50-9	N	liquid	6.2	Alcohols, C12-14, + 2 EO	min. 99.9	192-204 <sup>3)</sup>
ROKAnol LK2A	68439-50-9	N	liquid	6.2	Alcohols, C12-16, + 2 EO	min. 99.8	196-204 <sup>3)</sup>
ROKAnol L2	68439-50-9	N	liquid	6.2	Alcohols, C12-14, + 2 EO	min. 99.9	194-202 <sup>3)</sup>
ROKAnol LK3	68439-50-9	N	liquid/paste	7.8	Alcohols, C12-14, + 3 EO	min. 99.7	165-173 <sup>3)</sup>
ROKAnol L3A	68439-50-9	N	liquid	7.8	Alcohols, C12-16, + 3 EO	min. 99.7	53-55 E <sup>1)</sup>

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
ROKAnol L4	103819-01-8	N	liquid	10.0	Alcohols, C12-14, + 4 EO	min. 99.5	59-63 E <sup>1)</sup>
ROKAnol L5A	68439-50-9	N	liquid	10.5	Alcohols, C12-16, + 5 EO	min. 99.5	66-75 D <sup>1)</sup>
ROKAnol L7	68439-50-9	N	liquid	12.9	Alcohols, C12-14 + 7 EO	min. 99.5	30-40 C <sup>1)</sup>
ROKAnol L7A	68439-50-9	N	liquid	12.9	Alcohols, C12-16, + 7 EO	min. 99.5	56-62 A <sup>1)</sup>
ROKAnol L7W	68439-50-9	N	liquid	12.9	Alcohols, C12-14, + 7 EO	89.0-92.0	30-40 C <sup>1)</sup>
ROKAnol L10	68439-50-9	N	paste	14.1	Alcohols, C12-14, + 10 EO	min. 99.5	59-63 C <sup>1)</sup>
ROKAnol L10A	68439-50-9	N	paste	14.1	Alcohols, C12-16, + 10 EO	min. 99.5	59-63 C <sup>1)</sup>
ROKAnol L10/80	68439-50-9	N	liquid	14.1	Alcohols, C12-14, + 10 EO	min. 77.0	59-63 C <sup>1)</sup>
ROKAnol L22	68439-50-9	N	liquid	16.6	Alcohols, C12-14 + 22 EO	min. 99.7	46-52 <sup>3)</sup>
Cetearyl Alcohol Ethoxylates							
ROKAnol T6	68439-49-6	N	wax	10	Alcohols, C16-18, + 6 EO	min. 99	105-116 <sup>3)</sup>
ROKAnol T10	68439-49-6	N	wax	13	Alcohols, C16-18, + 10 EO	min. 99.5	85-95 <sup>3)</sup>
ROKAnol T12	68439-49-6	N	wax	13.5	Alcohols, C16-18, + 12 EO	min. 99.5	80-85 A <sup>1)</sup>
ROKAnol T20	68439-49-6	N	wax	15.3	Alcohols, C16-18, + 20 EO	min. 99	88-94 B <sup>1)</sup>
ROKAnol T20 flakes	68439-49-6	N	wax	15.3	Alcohols, C16-18, + 20 EO	min. 99	88-94 B <sup>1)</sup>
ROKAnol T25	68439-49-6	N	wax	16	Alcohols, C16-18, + 25 EO	min. 99	36-45 <sup>3)</sup>
ROKAnol T25 flakes	68439-49-6	N	wax	16	Alcohols, C16-18, + 25 EO	min. 99	36-45 <sup>3)</sup>



PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
Oleyl Alcohol Ethoxylates							
ROKAnol O3	9004-98-2	N	liquid	7.1	Alcohols, C16-18 unsaturated + 3 EO	min. 99	37-41 E <sup>1)</sup>
ROKAnol O5	9004-98-2	N	liquid	9.1	Alcohols, C16-18 unsaturated + 5 EO	min. 99	110-120 <sup>3)</sup>
ROKAnol O10	9004-98-2	N	paste	12.2	Alcohols, C16-18 unsaturated + 10 EO	min. 99	80-85 <sup>3)</sup>
ROKAnol O20	9004-98-2	N	paste	15.3	Alcohols, C16-18 unsaturated + 20 EO	min. 99	71-76 C <sup>1)</sup>
Ethoxylated Lanolin							
ROKAnol LN75/50	68439-49-6	N	viscous liquid	16	Lanolin + 75 EO	48 - 52	–
ROKAnol LN75K	68439-49-6	N	wax	16	Lanolin + 75 EO	min. 99	–
Isotridecyl Alcohol Ethoxylates							
ROKAnol IT3	69011-36-5	N	liquid	8	Alcohol C13, ethoxylated, +3 EO	min. 99	48-51 D <sup>1)</sup>
ROKAnol IT5	69011-36-5	N	liquid	10.5	Alcohol C13, ethoxylated, +5 EO	min. 99.5	60-62 D <sup>1)</sup>
ROKAnol IT6	69011-36-5	N	liquid	11.4	Alcohol C13, ethoxylated, +6 EO	min. 99.5	67-72 D <sup>1)</sup>
ROKAnol IT7	69011-36-5	N	liquid	12.1	Alcohol C13, ethoxylated, +7 EO	min. 99	65-70 E <sup>1)</sup>
ROKAnol IT7W	69011-36-5	N	liquid	12.1	Alcohol C13, ethoxylated, +7 EO	89-91	65-70 E <sup>1)</sup>
ROKAnol IT8	69011-36-5	N	liquid/paste	12.8	Alcohol C13, ethoxylated, +8 EO	min. 99.5	76-78 D <sup>1)</sup>

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
ROKAnol IT8W	69011-36-5	N	liquid	12.8	Alcohol C13, ethoxylated, +8 EO	89-91	75-79 D <sup>1)</sup>
ROKAnol IT9	69011-36-5	N	liquid	13.3	Alcohol C13, ethoxylated, +9 EO	min. 99	56-60 A <sup>1)</sup>
ROKAnol IT10	69011-36-5	N	liquid/paste	13.8	Alcohol C13, ethoxylated, +10 EO	min. 99.5	74-77 A <sup>1)</sup>
ROKAnol IT10W	69011-36-5	N	liquid	13.8	Alcohol C13, ethoxylated, +10 EO	84 - 86	73-78 A <sup>1)</sup>
ROKAnol IT12	69011-36-5	N	liquid/paste	14.5	Alcohol C13, ethoxylated, +12 EO	min. 99.5	79-85 A <sup>1)</sup>
ROKAnol IT12W	69011-36-5	N	liquid	14.5	Alcohol C13, ethoxylated, +12 EO	89 - 91	78-86 B <sup>1)</sup>
Guerbet Alcohol Alcoxylates							
ROKAnol GA7	160875-66-1	N	liquid	12	PEG-7 Propylheptyl Ether	min. 99	67 - 70 E <sup>1)</sup>
ROKAnol GA7W	160875-66-1	N	liquid	12	PEG-7 Propylheptyl Ether	84 - 86	67 - 70 E <sup>1)</sup>
ROKAnol GA7LAW	166736-08-9	N	liquid	–	PEG-7/PPG-2 Propylheptyl ether	84 - 86	66 - 71 E <sup>1)</sup>
Ethoxylated Fatty Acids/Oils							
ROKAcet KO300G	68201-46-7	N	liquid	–	Glycerides, coco mono- and di-, ethoxylated	min. 99	90 - 100 <sup>2)</sup>
Sorbitan Esters/Sorbitan Esters Ethoxylated							
ROKwin 20	1338-39-2	N	liquid	8.6	Sorbitan Laurate	100	330 – 360 <sup>3)</sup>
ROKwinol 20	9005-64-5	N	liquid	16.7	Polysorbate 20	min. 97	40-50 <sup>2)</sup>

# Rheology modifiers

Rheology modifying products are used whenever high viscosity of the formulation is required in order to achieve a desirable effect. The most common rheology modifier is Sodium Chloride, however it is not always a desired component of cosmetic formulations.

Furthermore, the usage of NaCl in some formulations makes it impossible to achieve the right viscosity range. In such cases the usage of special thickeners is required. These are for example alkanoloamide type of surfactants or lower ethoxylates of lauryl alcohol.

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
Lauryl Alcohol Ethoxylates							
ROKAnol LK1	68439-50-9	N	liquid	3.6	Alcohols, C12-14, + 1 EO	min. 99.9	231-241 <sup>3)</sup>
ROKAnol LK2	68439-50-9	N	liquid	6.2	Alcohols, C12-14, + 2 EO	min. 99.9	192-204 <sup>3)</sup>
ROKAnol LK2A	68439-50-9	N	liquid	6.2	Alcohols, C12-16, + 2 EO	min. 99.8	196-204 <sup>3)</sup>
ROKAnol L2	68439-50-9	N	liquid	6.2	Alcohols, C12-14, + 2 EO	min. 99.9	194-202 <sup>3)</sup>
ROKAnol LK3	68439-50-9	N	liquid/paste	7.8	Alcohols, C12-14, + 3 EO	min. 99.7	165-173 <sup>3)</sup>
ROKAnol L3A	68439-50-9	N	liquid	7.8	Alcohols, C12-16, + 3 EO	min. 99.7	53-55 E <sup>1)</sup>
Alkanolamides/Alkanolamides Ethoxylated							
ROKAmid KAD	–	N	liquid	–	Cocamide DEA	min. 80	–
ROKAmid MRZ4	85536-23-8	N	liquid	–	PEG-4 Rapeseed-amide	min. 90	–



# Emollients and re-oiling agents

Emollients and re-oiling agents are added to a cosmetic formulation to provide a soft, smooth and non-greasy feeling to the skin. Emollients increase the moisture content of the skin by reducing evaporation. Those substances are used for protecting, moisturizing, and lubricating the skin.

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
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## Ethoxylated Lanolin

ROKAnol LN75/50	61790-81-6	N	viscous liquid	16	Lanolin, + 75 EO	48-52	–
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ROKAnol LN75K	61790-81-6	N	wax	16	Lanolin, + 75 EO	min. 99	–
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## Ethoxylated Fatty Acids/Oils

ROKAcet KO300G	68201-46-7	N	Liquid	–	Glycerides, coco mono- and di-, ethoxylated	min. 99	90-100 <sup>2)</sup>
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## Stearyl Alcohol Propoxylates

ROKAnol SP15L	25231-21-4	N	clear oily liquid	–	PPG 15 Stearyl Ether	min. 99	62 -77 <sup>3)</sup>
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# Solubilizers

Solubilizers’ main function is to help insoluble liquids dissolve in water. These compounds are similar to emulsifiers in terms of their molecular structure (both have hydrophilic and lipophilic parts). Solubilizers tend to be completely water soluble and only a little oil soluble. In practice this means they can suspend smaller amounts of oils. They solubilize only small amounts of oil, thanks to which the entire solution can still appear clear or just a little bit hazy.

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
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## EO/PO Block Copolymers

EXOmer L64	9003-11-6	N	liquid	–	Ethylene oxide and propylene oxide block copolymer	min. 99.0	35 – 43 <sup>3)</sup>
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## Ethoxylated Fatty Acids/Oils

ROKAcet HR40	61788-85-0	N	paste	–	Hydrogenated Castor Oil + 40 EO	min. 99.0	60-67 <sup>2)</sup>
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ROKAcet HR40W	61788-85-0	N	liquid	–	Hydrogenated Castor Oil + 40 EO	min. 99.0	60-67 <sup>2)</sup>
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ROKAcet HR60	61788-85-0	N	paste	–	Hydrogenated Castor Oil + 60 EO	min. 99.0	40-51 <sup>2)</sup>
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## Sorbitan Esters/Sorbitan Esters Ethoxylated

ROKwinol 20	9005-64-5	N	liquid	16.7	Polysorbate 20	min. 97.0	96 – 108 <sup>3)</sup>
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# Humectants

These ingredients in cosmetics are mainly responsible for proper skin hydration. Humectants introduced to the skin are able to bind water and as a result hinder its evaporation. Their function is also to prevent the preparations from drying. In this case, on the surface of the cosmetic, humectants produce a film in which water is bound. This

makes it difficult for water to evaporate. As a result, the products retain their consistency for much longer. Sometimes humectants are also used as anti-crystallization substances, and as a result they reduce the freezing point of preparations or improve the clarity of washing cosmetics.

PRODUCT NAME	CAS NUMBER	IONIC CHARACTER	PHYSICAL FORM	HLB	DESCRIPTION	ACTIVE CONTENT [%]	CLOUD POINT [°C] <sup>1)</sup> SAPONIFICATION VALUE <sup>2)</sup> [mg KOH/g] HYDROXYL VALUE <sup>3)</sup> [mg KOH/g]
Polyethylene Glycols [PEG's] – polymers of ethylene oxide							
POLIKOL 200	25322-68-3	–	liquid	–	Polyoxyethylene glycol (4 EO)	min. 99.5	530-590 <sup>3)</sup>
POLIKOL 300	25322-68-3	–	liquid	–	Polyoxyethylene glycol (6 EO)	min. 99.5	360-390 <sup>3)</sup>
POLIKOL 400	25322-68-3	–	liquid	–	Polyoxyethylene glycol (8 EO)	min. 99.5	270-300 <sup>3)</sup>
POLIKOL 600	25322-68-3	–	liquid/paste	–	Polyoxyethylene glycol (12 EO)	min. 99.5	170-200 <sup>3)</sup>
POLIKOL 800	25322-68-3	–	paste/solid	–	Polyoxyethylene glycol (16 EO)	min. 99.5	132-148 <sup>3)</sup>
POLIKOL 1500	25322-68-3	–	wax	–	Polyoxyethylene glycol (32 EO)	min. 99.5	70 – 80 <sup>3)</sup>
POLIKOL 1500 flakes	25322-68-3	–	flakes	–	Polyoxyethylene glycol (32 EO)	min. 99.5	70 – 80 <sup>3)</sup>
POLIKOL 2000	25322-68-3	–	wax	–	Polyoxyethylene glycol (40 EO)	min. 99.5	51 – 63 <sup>3)</sup>
POLIKOL 2000 flakes	25322-68-3	–	flakes	–	Polyoxyethylene glycol (40 EO)	min. 99.5	51 – 63 <sup>3)</sup>
POLIKOL 3000	25322-68-3	–	wax	–	Polyoxyethylene glycol (60 EO)	min. 99.5	34 – 42 <sup>3)</sup>
POLIKOL 3000 flakes	25322-68-3	–	flakes	–	Polyoxyethylene glycol (60 EO)	min. 99.5	34 – 42 <sup>3)</sup>
POLIKOL 4500	25322-68-3	–	wax	–	Polyoxyethylene glycol (100 EO)	min. 99.5	23 – 28 <sup>3)</sup>
POLIKOL 4500 flakes	25322-68-3	–	flakes	–	Polyoxyethylene glycol (100 EO)	min. 99.5	23 – 28 <sup>3)</sup>
POLIKOL 6000	25322-68-3	–	solid	–	Polyoxyethylene glycol (150 EO)	min. 99.5	16 – 23 <sup>3)</sup>
POLIKOL 6000 flakes	25322-68-3	–	flakes	–	Polyoxyethylene glycol (150 EO)	min. 99.5	16 – 23 <sup>3)</sup>





## 04 / BETAINES

### BETAINES

Betaines belong to a class of amphoteric surface active agents. Those surfactants display excellent skin mildness profile when combined with anionic surfactants, very good foam characteristics and viscosity building properties. A combination of favorable

formulation parameters like abundant foam formation, compatibility with a wide range of surfactant systems and an increased safety made betaines one of the most widely used surfactants in all wash-off formulations.



#### Functions in formulations

- Co-surfactant
- Foam booster
- Viscosity modifier



#### Added value in formulating

- Reduces irritancy of surfactants
- Good skin compatibility in combination with anionic surfactants
- Soft and smooth feeling of the skin
- Richer and more luxurious foam
- High performance viscosity builder in ether sulfate based formulations



#### Applications

- Shampoo
- Baby Shampoo
- Liquid Soap
- Bubble Bath
- Mild Shower Gel
- Baby Bath Wash
- Face Cleanser
- Shaving Cream/Foam



#### Benefits

- Mild surfactant (cleansing effect)
- Foam boosting
- Hair and skin conditioning effects
- Exceptionally effective viscosity increasing agent (highly responsive to salt)
- Readily biodegradable
- Compatible with anionic cationic amphoteric and nonionic surfactants



Different types of betaines in PCC Group portfolio

PRODUCT NAME	INCI	ACTIVE SUBSTANCE [%]	PHYSICAL STATE	ECOCERT COSMOS
ROKAmina K30	Cocamidopropyl Betaine	29 – 32	liquid	•
ROKAmina K30K	Cocamidopropyl Betaine	29 – 32	liquid	
ROKAmina K40	Cocamidopropyl Betaine	37.0 – 42.0	liquid	•
ROKAmina K40HC	Cocamidopropyl Betaine	37.0 – 42.0	liquid	•
ROKAmina K30B	Coco Betaine	29.0 – 33.0	liquid	•
ROKAmina L30B	Lauryl Betaine	29.0 – 31.0	liquid	

Betaines exhibit interesting properties and can be described as:

- foam stabilizers and enhancers
- viscosity modifiers in the presence of anionic surfactants and electrolytes
- cleansing agents for skin and hair
- conditioning agents for skin and hair

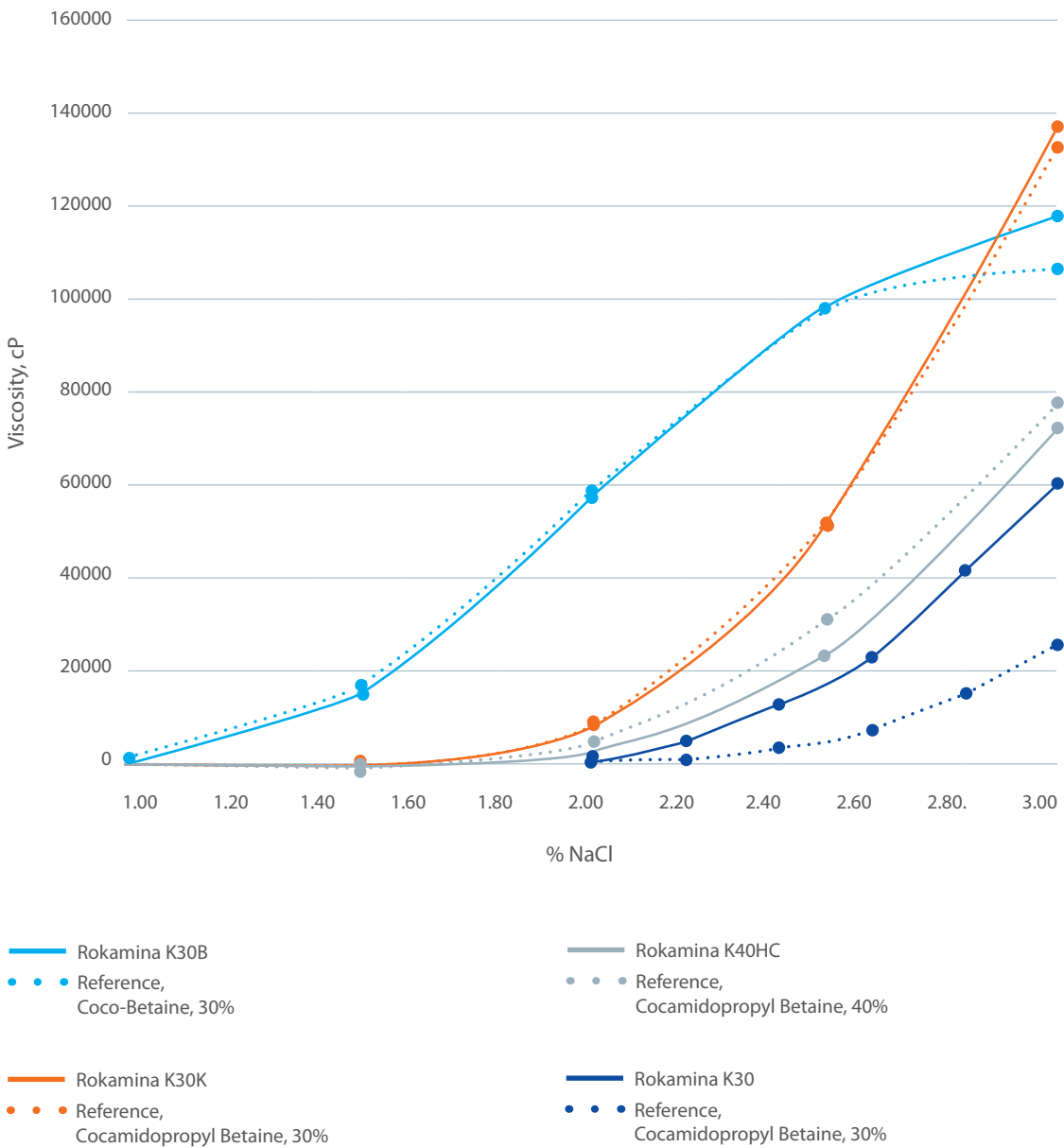
Futhermore, betaines have antistatic properties and they are capable of reducing irritating effect of anionic surfactants on the skin. What is more, betaines can act as hydrotropes (ability to improve formulation clarity).

Thickening properties

Addition of betaines to a standard anionic surfactant system not only optimizes the viscosity profile and a response to salt but also improves cleansing power and mildness of the final formulation. A synergistic effect of an anionic surfactant-betaines system gives the formulator a powerful tool in creating added value formulations.

Viscosity building properties of a surfactant system comprising of Sodium Laureth Sulfate and different Betaines types was shown on the graph below as a function of salt concentration.

SULFOROKAnol L270/1 (Sodium Laureth Sulfate, 70%)	13%
ROKAmina K30B, K40HC, K30, K30K (Coco-Betaine, Cocamidopropyl Betaine)	8%
NaCl	1-3%
Water	up to 100%



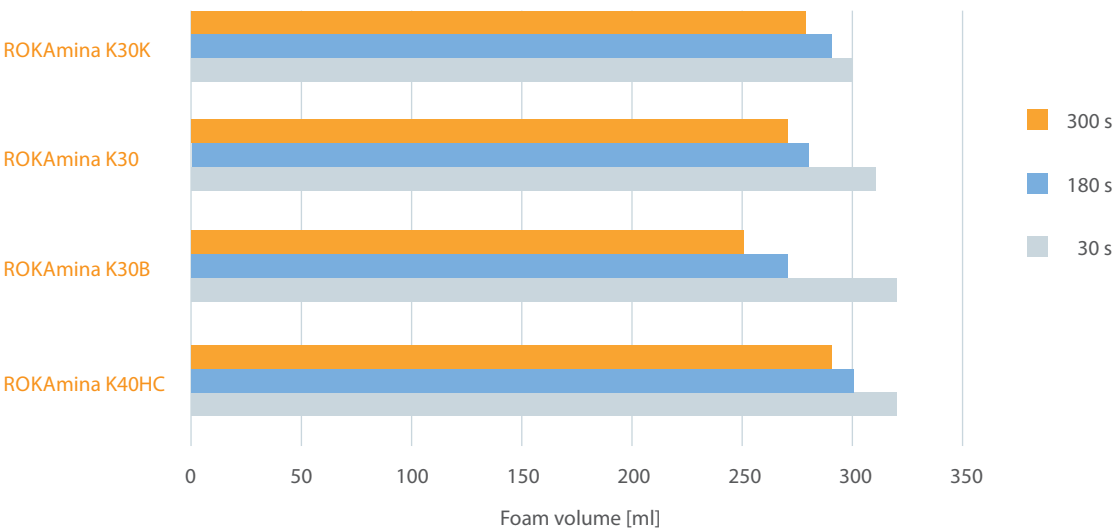
Foaming properties

It is possible to formulate products that are characterized by outstanding foam using blends of anionic and amphoteric surfactants. It also implies that the surfactant system has different foam properties than the anionic one alone. This explains why betaines are so commonly used in personal care formulations. They

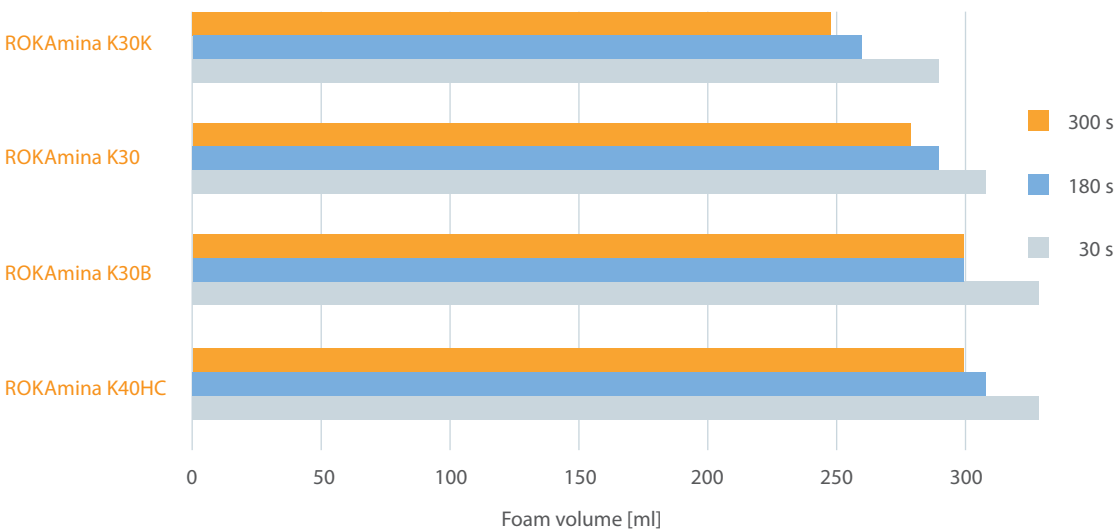
improve foam - an attribute that is very important for consumers. Determination of the foaming capability was preformed according to PN-ISO 696:1994 (the modified Ross-Miles method) for the betaines solutions with a concentration of 1.0 g/l in distilled water at a temperature of 25°C.



Foaming properties in hard water



Foaming properties in demineralized water

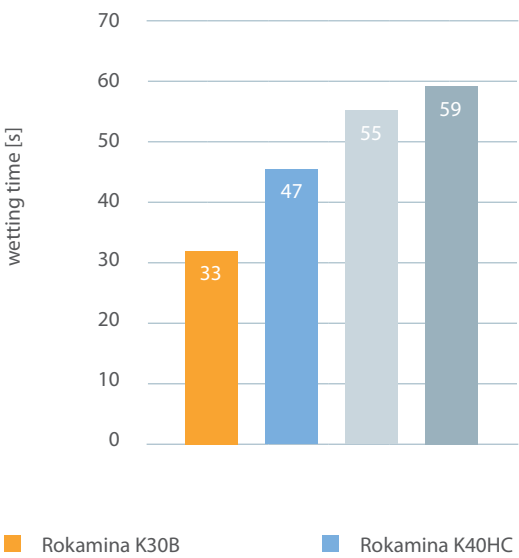


Wetting ability

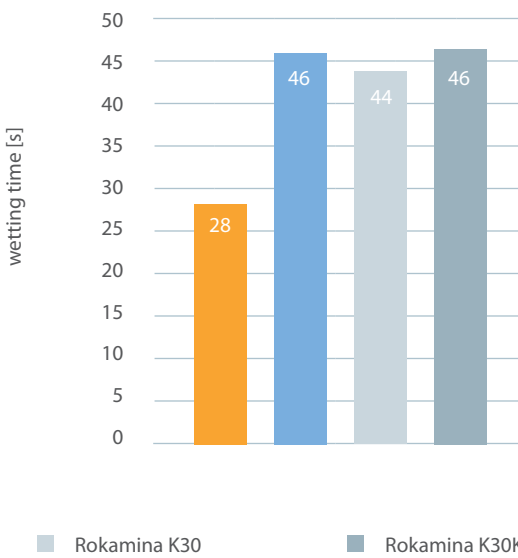
In a large number of formulations such as shampoos or hair coloring and bleaching preparations the capability of effective wetting is a desirable property of surfactants. Better spreading of the dyeing product on hair ensures good pigment distribution and better final effects. On the other side, good hair wetting efficiency translates into satisfying washing if used in hair care products.

The capability of wetting a cotton fabric was determined according to EN 1772:2001. The shorter the time of wetting the better the wetting and cleaning agent. The wetting time (time in seconds necessary for wetting the textile material) was measured for a betaine solution with concentration of 5.0 g/l of brand product and, 2.0 g/l of active substance in deionized water at a temperature of 20°C.

Wetting ability,  
5 g/l of product



Wetting ability,  
5 g/l of active substance



Surface tension

Surface tension has been determined according to PN-EN 14370:2004, with the use of the Wilhelmy plate method, at the temperature of 25°C, at the concentration of 0.1%. Pure water has a relatively high surface tension at a room temperature (~72.4 mN/m) and therefore it has poor cleansing properties. In the cleaning process, the surface tension must be reduced

so water can spread and wet other surfaces. An addition of a surfactant decreases the surface tension and consequently increases solubilization. Surfactants are said to make water “wetter”. The lower the surface tension the better the wettability, hence the ability to dissolve and remove dirt residues.

PRODUCT NAME	INCI	SURFACE TENSION (mN/m) IN DEMINERALIZED WATER
ROKAmina K30	Cocamidopropyl Betaine	30
ROKAmina K30K	Cocamidopropyl Betaine	30
ROKAmina K40	Cocamidopropyl Betaine	29
ROKAmina K40HC	Cocamidopropyl Betaine	29
ROKAmina K30B	Coco Betaine	29
ROKAmina L30B	Lauryl Betaine	29

Example formulations

Feminine hygiene liquid (PHI-01)

PHASE	INCI NAME	BRAND NAME	CONCENTRATION [%]	FUNCTION
A	Aqua		31.50	solvent
	Magnesium Laureth Sulfate	EXOsoft MGB	50.00	primary surfactant
	PEG-7 Glyceryl Cocoate	ROKAcet KO300G	1.00	re-oiling agent
	Decyl Glucoside		5.00	secondary surfactant
	Citric acid		0.20	pH modifier
	Parfum		0.50	frangrance composition
	Benzyl Alcohol, Benzoic Acid, Dehydroacetic Acid, Tocopherol		1.00	preservative
B	Cocamidopropyl Betaine	ROKAmina K30	8.50	secondary surfactant
C	Sodium chloride		2.30	viscosity modifier



- Combine ingredients from phase A. Add ingredients from phase A to warm water (40-45°C). Mix until homogenous solution is obtained.
- Cool the batch down to at least 35°C
- Add perfume, preservative and cocamidopropylbetaine during mixing. Mix until homogenous solution is obtained.
- If necessary, add sodium chloride to adjust the viscosity.
- If necessary, adjust pH with Citric acid to 4.0-4.5.

APPEARANCE	visual method	clear, viscosus gel
pH		4.0-4.5
VISCOSITY [cP]	Brookfield LV, spindle 34, speed 2.5 RPM, T: 25°C	2000-5000
STABILITY	1 month in 5°C, 20°C, 40°C,	confirmed

Cleansing face foam (ST-04)

PHASE	INCI NAME	BRAND NAME	CONCENTRATION [%]	FUNCTION
A	Aqua		48.20	solvent
	PEG-7 Glyceryl Cocoate	ROKAcet KO300G	1.50	re-oiling agent
	Glycerin		1.00	moisturising agent
	Sodium Lauroyl Sarcosinate	ROKAtend LS	34.70	surfactant
	Cocamidopropyl Betaine	ROKAmina K30K	9.70	surfactant
	Parfum		0.50	fragrance
	Ehylhexyl glycerine, Phenoxyethanol		1.00	preservative
	Propylene Glycol		2.50	solvent
	Cocamide DEA	ROKAmid KAD	0.50	surfactant
	Citric acid		0.40	pH modifier



- Add ingredients from phase A to warm water (40-5°C). Mix until uniform.
- Then, cool the mixture down to room temperature before adding a preservative and add the rest of ingredients.
- Control the pH range – if necessary, add Citric acid. Mix well.

APPEARANCE	visual method	clear, colorless liquid
pH		6.0 - 7.5
STABILITY	1 month st 5°C, RT, 40°C	confirmed

More Personal Care formulations are available in Personal Care Formulation Guide.





## MULTIFUNCTIONAL BLENDS FOR COSMETIC FORMULATIONS

PRODUCT	COMPONENTS	MAIN FUNCTION	ACTIVE SUBSTANCE/DRY MATTER [%]
EXOcare PC60	Sodium Laureth Sulfate Cocamidopropyl Betaine Coco Glucoside	Universal and cost effective blend which can be treated as a base for Personal Care formulations.	60 ÷ 63
EXOcare ML70	Sodium Laureth Sulfate Cocamide MEA	Concentrated mixture of basic surfactants, especially recommended for use in cold-processed cosmetic formulations. Easy-to-process blend provides excellent cleaning, thickening, foaming and foam stabilizing properties.	48 ÷ 52
EXOpearl N	Sodium Laureth Sulfate Cocamide DEA Glycol Distearate	Pearlizing agent and foam stabilizer. Used as a component of shampoos, bubble baths and other liquid cosmetic preparations with pearl gloss.	38 ÷ 43
EXOalc 1618 flakes	Cetearyl Alcohol	Conditioner and emollient. Reduces the drying effect of anionic surfactants. Rheology modifier.	min. 99
EXOcare TE20 flakes	Cetearyl Alcohol Ceteareth-20	Emulsifying base in O/W preparations. Product can also be applied as a thickening and stabilizing agent. Safe, does not cause allergic reactions.	min. 99



### 05 / MULTIFUNCTIONAL BLENDS FOR COSMETIC FORMULATIONS





CHLOR-ALKALI BUSINESS

PCC Group is a producer and supplier of basic chemical raw materials which find an application in many branches of industry. Mainly those are caustic soda in both liquid and solid form and hydrochloric acid. The caustic soda is produced at the membrane electrolysis installation which belongs to the youngest and the most modern one in Europe.

Hydrochloric acid is produced in one of the most unique installation where exceptional purity is easily reachable. High quality and chemical purity of PCC Group products guarantee the stability and repeatability of the production processes.

PRODUCT NAME	CAUSTIC SODA	CAUSTIC SODA	PURE HYDROCHLORIC ACID	FOOD GRADE HYDROCHLORIC ACID	SYNTHETIC HYDROCHLORIC ACID
Chemical formula	NaOH	NaOH	HCl	HCl	HCl
Other comercial names	Sodium hydroxide, soda	Sodium hydroxide, soda, sodium alkali, lye	Hydrogen chloride water solution	Hydrogen chloride water solution	Hydrogen chloride water solution
Form	solid, flakes	liquid	liquid	liquid	liquid
Concentration	98%	~50% water solution	>=37% water solution	>=33% water solution	>=33% water solution
Quality	High	High	Supreme, lab. quality	Very high	High
Charakteristic	Product of membrane electrolysis	Product of membrane electrolysis	Product of inorganic synthesis	Product of inorganic synthesis, approved to use in food industry installation and production processes	Product of inorganic synthesis
Packing	Plastic bags 25 kg	IBC 1000L or road/rail tank cars	IBC 1000L	IBC 1000L or road/rail tank cars	IBC 1000L or road/rail tank cars
Main applications	Soap production. Used to manufacture other cosmetic materials, eg. sodium salt.		Used in trace amounts to adjust the pH of cosmetics. Used to manufacture other cosmetic raw materials.		





## 07 / GOOD MANUFACTURING PRACTICE

### GOOD MANUFACTURING PRACTICE

#### Why do we use Good Manufacturing Practice at our company?

One of the key priorities of PCC Group is focusing on the customers' needs. Meeting their needs in the area of product variety, quality and safety is a major determinant of the use of Best Practice in the production of surfactants supplied to our customers in the cosmetics industry.

The most important reason why we have implemented Good Manufacturing Practices (GMPs) in our company is to ensure the safety of clients using cosmetics containing surfactants manufactured at our production plants. The use of GMP standards gives consumers greater peace of mind and assurance as to the quality and safety of the final product.

#### Good Manufacturing Practice at our plants are used to:

- ensure repeatability and homogeneity of subsequent product batches
- eliminate any situations that could potentially contaminate the product with foreign physical and chemical substances and bodies, and harmful microflora
- prevent any accidental actions in the production processes and ensure that these processes are carried out in accordance with strict requirements in the form of instructions and procedures

GMP EFfCI Certificate Number:  
PL17/0626

GMP EFfCI Certificate Number:  
PL17/0627



08 / ADDITIONAL INFORMATIONS

Zein Value

General information

The irritating potential has been determined for prototype cosmetic formulations by Zein Test. The Zein Test provides a rapid and convenient screen for irritation potential, especially for compositions which contain surface active agents.

Methodology

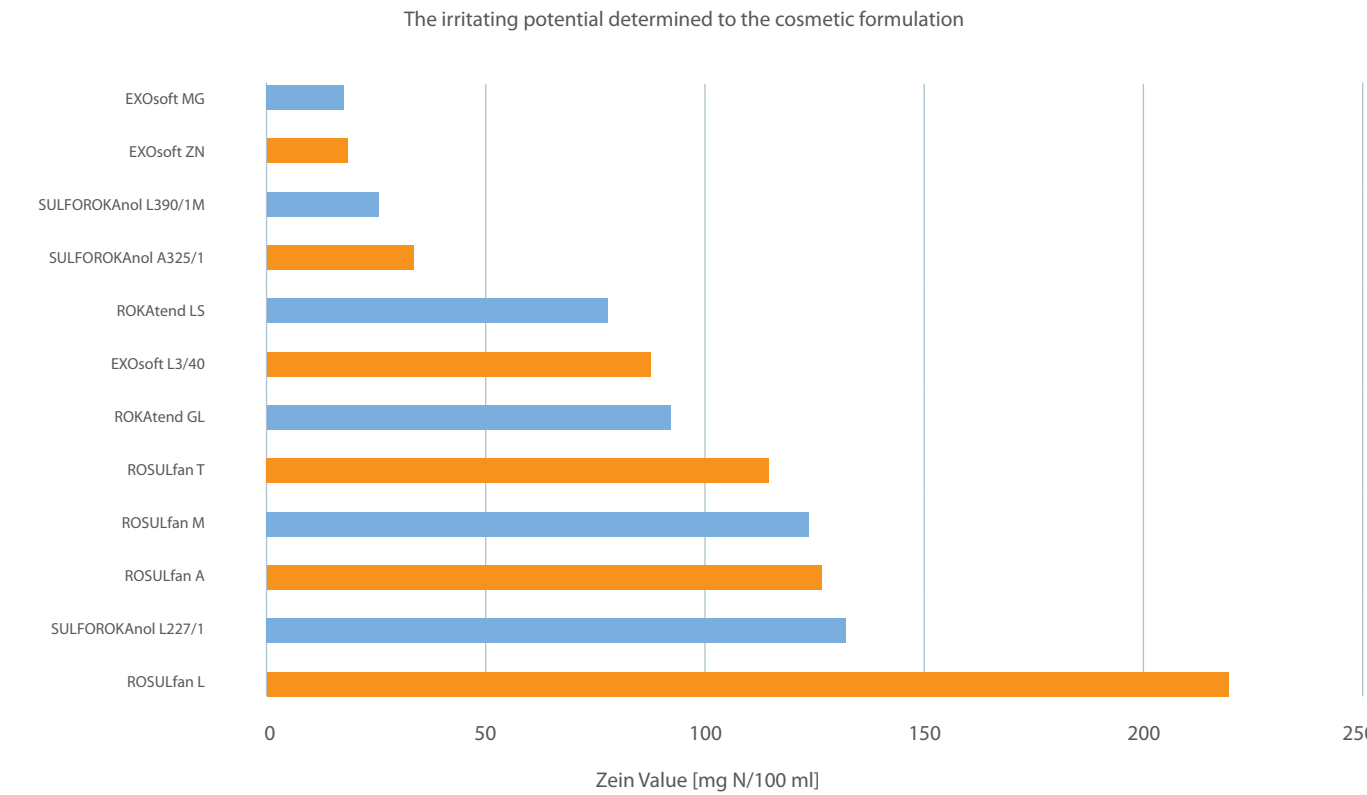
The protein (zein) which is unsoluable in water was immersed in the cosmetic formulation solution and afterwards the solution was separated from the protein. Subsequently the Kiejdahl method was used to determine the nitrogen content. Based on the outcomes the irritation potential was estimated. The more protein solubilized by the formulation solution, the higher the irritation potential.

The prototype of a cosmetic formulation:

INGREDIENT	CONCENTRATION [%]
ANIONIC SURFACTANT	6.00
COCAMIDOPROPYL BETAINE	1.00
POLYQUATWRNIUM-7	0.02
PEG-7 GLYCERYL COCOATE	1.00
PERFUME	0.30
XANTHAN GUM	0.90
GLYCERIN	2.70
CITRIC ACID	q.s
PRESERVATIVE	q.s
WATER	up to 100

The anionic surfactants were chosen from the table below:

BRAND NAME	INCI NAME
EXOsoft MG	Magnesium Laureth Sulfate
EXOsoft ZN	Zinc Coceth Sulfate
SULFOROKAnol L390/1M	MIPA Laureth Sulfate (and) Propylene Glycol
SULFOROKAnol A325/1	Ammonium Laureth Sulfate
ROKAtend LS	Sodium Lauroyl Sarcosinate
EXOsoft L3/40	Disodium Laureth Sulfosuccinate
ROKAtend GL	Sodium Lauroyl Glycinate
ROSULfan T	TEA Lauryl Sulfate
ROSULfan M	MEA Lauryl Sulfate
ROSULfan A	Ammonium Lauryl Sulfate
SULFOROKAnol L227/1	Sodium Laureth Sulfate
ROSULfan L	Sodium Lauryl Sulfate





# Notes for guidance concerning the functional parameters and notation used in the catalogue

## HLB (Hydrophilic-Lipophilic Balance)

The hydrophilic-hydrophobic balance is a parameter that determines the ratio of the content of the hydrophilic group and that of the hydrophobic group in a particle. The validity scope of the HLB number for non-ionic surface-active compounds is included within the range of 0 to 20 and is the measure of the share of the hydrophilic group in the particle

$$HLB=20 \cdot \frac{\text{molecular mass of hydrophilic part}}{\text{molecular mass of compound}}$$

On the other hand, for aqueous solution of ionic surface active agents, they acquire additional transformations increasing their degree of hydrophilicity, the value of the HLB number goes up to 40.

HLB for ester type compounds (ethoxylated fatty acids):

$$HLB=20 \cdot (1 - \frac{LZ}{LK})$$

where:

**LZ** saponification number of **ethoxylated** product, mgKOH/g

**LK** acid number of acids subjected to **ethoxylated** product, mgKOH/g

On the basis of the HLB scale, the range of the utility fitness of surface-active agents can be determined.

HLB NUMBER	EO CONTENT IN PRODUCT %	PRODUCT APPLICATION
1-3	5-15	Anti-foaming agent
4-6	20-30	W/O emulsifier
7-11	35-55	Wetting agent
8-18	40-90	W/O emulsifier
10-15	50-75	Detergent
10-18	50-90	Solubilizer

## Cloud point

Cloud point is an indicator determining the behavior of water or other organic solutions of non-ionic surfactants. Solutions of surfactants become cloudy during heating and revert to a clear solution at a certain temperature when cooled - this temperature is defined as 'cloud point'.

Depending on the temperature range at which the solution becomes cloudy, five determination methods are distinguished:

**Method A** – aqueous solution (10 - 90°C)

**Method B** – solution of NaCl 50g/l (>90°C)

**Method C** – solution of NaCl 100g/l (>90°C)

**Method D** – solution 45g of butyl diglycol/water (<10°C)

**Method E** – solution 25 g of butyl diglycol/water (<10°C)





# PCC Group

## We build value through sustainable innovation



Operating in 17 countries,  
in 39 different locations,  
PCC SE currently employs  
over 3 300 people.

Each project or venture with a long-term success story shares one common thing – it's based on in-depth market research and knowledge acquired through years of experience. It is knowledge and experience that enable us to constantly aim higher and deliver greater value through dynamic and sustainable world-wide development of the PCC Group. The companies operating as a part of the PCC Group act with responsibility and care. We only

embark on new business challenges when we are certain that we have the skills and knowledge to achieve success. We operate in three major markets: chemicals, energy and logistics. Several dozen business units managed by PCC SE work in synergy to generate the greatest possible competitive advantage in both local and international markets. Each day nearly three thousand professionals contribute their energy and effort to secure the

sustainable development of the PCC Group. The key element of our strategy is to ensure the development of each individual business unit by taking advantage of innovative technologies and new market applications. We achieve our goals in a sustainable and responsible way – we care about the environment and the society within which we operate. We're always striving to reach our strategic goals. Efficient and dynamic management helps our employees to fully develop their potential and, therefore, enhances the overall value of the PCC Group. Joint enterprises and individual initiatives of our companies

are the results of the entrepreneurship culture promoted within the PCC Group. Our philosophy is built on simple values - integrity, trust and reliability. We believe that following those principles is the only way to build a long-term competitive advantage.

The PCC Group currently employs over 3300 people. We operate in 17 countries, in 39 different locations around the world. Sales of the PCC Group are generated in three areas: Chemicals, Logistics, and Holding & Projects. Our portfolio includes five segments: Polyols & Derivatives, Surfactants & Derivatives, Chlorine & Derivatives, Silicon & Derivatives, and Trade & Service.

### Segments of the PCC Group

#### Chemicals 83%



##### Polyols & Derivatives

- Polyether polyols
- Polyester polyols
- Polyurethane systems
- Prepolymers
- Acryl phenols



##### Surfactants & Derivatives

- Anionic surfactants
- Non-ionic surfactants
- Amphoteric surfactants (betaines)
- Household and industrial cleaners, detergents, personal care products



##### Chlorine & Derivatives

- Chlorine
- Chlorine derivatives
- MCAA
- Phosphorus and naphthalene derivatives



##### Silicon & Derivatives

- Quartzite
- Metallic silicon

#### Logistics 12%



##### Logistics

- Intermodal transport
- Road transport
- Rail transport
- Container terminal in Kutno

#### Holding & projects 5%



##### Holding & Projects

- Investment management
- Projects
- Renewable energy
- Conventional energy



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Brand	Cocoon Silk
Grammage	250
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February 2023

Please visit our capital group business platform:  
**[www.products.pcc.eu](http://www.products.pcc.eu)**



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Chemistry*