

Agrochemicals

Additives and raw materials







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PCC GROUP PORTFOLIO FOR AGROCHEMICAL APPLICATIONS

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The high quality
and chemical purity
of PCC Group products
guarantees stability
and repeatability
of production processes
for our customers.

Chlorobenzen and Hydrochloric acid

Monochlorobenzene, ortodichlorobenzene and hydrochloric acids are the main products used in agrochemical production. PCC Rokita SA is one of two manufacturers of chlorobenzenes in Europe. The products from our installations are

of the highest global quality and meet requirements of all possible applications. Our synthesis plant produces hydrochloric acid with unique concentrations and exceptional purity.

COMMERCIAL NAME	CHEMICAL FORMULA	OTHER COMMERCIAL NAMES	FORM	CONCENTRATION	QUALITY	CHARACTERISTIC	PACKING	MAIN APPLICATIONS
Monochlorobenzene	C_6H_5Cl	Chlorobenzene, MCB, phenyl chloride	Liquid	99.9%	Very High	Product of chlorobenzene plant	Steel drums 220 kg, road tank cars, isotanks, rail tank cars	Component for the production of fungicides, herbicides and other plant protection products
Ortodichlorobenzene	$C_6H_4Cl_2$	1.2 dichlorobenzene, ODCB	Liquid	99.8%	High	Product of chlorobenzene plant	Steel drums 220 kg, road tank cars, isotanks	Component for the production of fungicides, herbicides and other plant protection products
Hydrochloric acid technical grade	HCl	Hydrogen chloride water solution	Liquid	$\geq 31\%$ water solution	Standard	Product of chlorobenzene plant	IBC 1000L, steel drums 220 kg, road / rail tank cars	Component for the production of fungicides, herbicides and other plant protection products
Hydrochloric acid food grade	HCl	Hydrogen chloride water solution	Liquid	$\geq 33\%$ water solution	Very High	Product of inorganic synthesis, approved for use in food industry installation and production processes	IBC 1000L, steel drums 220 kg, road / rail tank cars	Component for the production of plant protection products
Synthetic hydrochloric acid	HCl	Hydrogen chloride water solution	Liquid	$\geq 33\%$ water solution	High	Product of inorganic Synthesis	IBC 1000L, steel drums 220 kg, road / rail tank cars	Component to the production of plant protection products



Raw materials and intermediates

Phosphorus Chemistry Business Unit has high pure intermediates and raw materials to offer agrochemicals suppliers, polymer additives manufacturers as well as to the pharmaceutical industry.

PRODUCT NAME	CAS NO	PARAMETERS	APPLICATION	FEATURE
Phosphorus trichloride	7719-12-2	Appearance at 25°C: Density at 20°C: Phosphorus trichloride, % (w/w):	colourless, clear liquid 1.570-1.580 g/ml typical: min. 99.5 HQ grade: min. 99.7	
Phosphorus oxychloride	10025-87-3	Appearance at 25°C: Density at 20°C: Phosphorus oxychloride, % (w/w):	colourless or straw liquid with acceptable opalescence without sediment 1.672-1.678 g/ml typical: min. 99.5 HQ grade: min. 99.7	Products are used as raw materials/ intermediates in preparation of crop protection chemicals e.g. in herbicides and insecticides. • Raw materials / intermediates



Dispersing Agents

Phosphorus Chemistry Business Unit has dispersing agents under the brand name Rodys to offer a wide range of applications, including crop protection chemicals.

PRODUCT NAME	CHEMICAL NAME	CAS NO	PARAMETERS	APPLICATION	FEATURE
Rodys CP	Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	9084-06-4	Appearance: powder pH 5% solution: 7.5-10.5 Sulphates(VI) as SO ₄ ²⁻ , % (w/w): 12 max Water Content, % (w/w): 10 max	Rodys AGR is a highly efficient dispersing agent based on naphthalene derivatives. Thanks to its proven capability to disperse ingredients it can improve the activity of pesticides. Rodys AGR plays an important role in dry and liquid sprayable formulations. The best effects are presented in wettable powders (WP), water dispersible granules (WG) and suspension concentrates (SC).	• Dispersing Agent



EXOLagroline

EXOLagroline is our offering of products for applications in crop protection. PCC Exol SA has a wide portfolio of additives for various ag-

rochemical formulations. The following table shows the different product groups and their main applications by formulation type.

PRODUCT GROUP	EC	SC	SE	EW	ME	OD	SL	WG	WP	RTU	GB	FS	EO
Alkyl Sulfates		•	•			•		•	•	•	•		
Alkylbenzene Sulfonates	•	•	•	•	•	•		•	•	•	•		
Alkyl Ether Sulfates		•	•	•	•		•	•	•	•	•	•	
Sulfosuccinates		•	•	•	•		•	•	•	•	•		
Fatty Amine Ethoxylates	•	•	•	•	•	•	•	•	•	•	•		
Nonylphenol Ethoxylates	•	•	•	•	•	•	•	•	•	•	•		
Fatty Alcohol Ethoxylates	•	•	•	•	•	•	•	•	•	•	•		
Sorbitan Esters	•												•
Sorbitan Esters Ethoxylates	•	•	•	•	•	•	•	•	•	•	•		
EO/PO Alcohol Alkoxylates	•	•						•					
Castor Oil Ethoxylates	•		•	•	•	•							
EO/PO Block Copolymers	•	•	•	•									

Formulation codes:

- EC** - Emulsifiable Concentrate
- SC** - Suspension Concentrate
- SE** - Suspo-Emulsion
- EW** - Emulsion (Oil-in-Water)
- ME** - Microemulsion
- OD** - Oil Dispersion
- SL** - Soluble Concentrate
- WG** - Water Soluble Granules
- WP** - Water Soluble Powders
- RTU** - Ready to Use
- GB** - Granular Baits
- FS** - Flowable Suspension
- EO** - Emulsion Water in Oil



PCC Group creates high
quality, environmentally
friendly products.



Adjuvants

The aforementioned enhanced biological performance of pesticide products are becoming more and more crucial in Crop Protection in order to optimize the amount of pesticide applied, improve handling and safety by applicators and consumers. Adjuvants are used to aid or modify the action of an agrochemical or

its physical characteristics. In pesticides, they are often used for wetting, spreading, deposit building, emulsifying, deflocculating or water modifying. Adjuvants must be matched with the pesticides, the crop species, the weed species and the prevailing environment for maximum effectiveness.



Side view of leaf
- without adjuvants



Side view of leaf
- with adjuvants

Surfactants are adjuvants that reduce surface tension within the external surface layers of water. Surfactants work by improving contact between spray droplets and plant surfaces, and enhance absorption by:

- making the spray solution spread more uniformly on the plant
- increasing retention ('sticking') of spray droplets on the plant
- increasing the penetration through hairs, scales, or other leaf surface structures
- preventing the crystallization of spray deposits
- slowing down the drying and increasing water retention in the spray droplets

Benefits

- improves the biological performance of pesticides
- enhances the penetration into a leaf or soil
- improves the rain-fastness, spreader and sticker
- reduces drift

Adjuvants are already included in the formulations of some herbicides available for sale or they may be purchased separately and added into a tank mix prior to use. In this way, adding an appropriate adjuvant can decrease the amount of herbicide applied and lower the total costs of weed control.

Adjuvants - product list

PRODUCT CHARACTERISTIC														PRODUCTS GROUP		
PRODUCT	Compatible with Glyphosate	Spray retention aid	Adjuvant - spreading aid	Oil adjuvant emulsifier	Adjuvant - rainfastness aid	Adjuvant - leaf penetration aid	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Saponification value ¹⁾ [mgKOH/g] Amine value ²⁾ [mgKOH/g] Hydroxyl value ³⁾ [mgKOH/g]	Nonylphenol ethoxylates	Fatty amine ethoxylates	Fatty alcohol ethoxylates
ROKAFENOL N8	●						127087-87-0	N	Oily liquid	12.5	Nonylphenol + 9 EO	min. 99.0	48-56 A	●		
ROKAMIN K15	●						61791-14-8	N	Liquid	15.5	Cocamine + 15 EO	min. 97.0	63-73 ²⁾		●	
ROKAMIN SR5	●						61791-26-2	N	Liquid/Semi-liquid paste	9.8	Tallow Amine + 5.8 EO	min. 99.0	105-110 ²⁾		●	
ROKAMIN SR8 concentrate	●						61791-26-2	N	Viscous liquid	12.4	Tallow Amine + 8 EO	min. 99.0	75-80 ²⁾		●	
ROKAMIN SR11	●						61791-26-2	N	Liquid/Semi-liquid Paste	12.5	Tallow Amine + 11 EO	min. 99.0	70-75 ²⁾		●	
ROKAMIN SR15	●						61791-26-2	N	Liquid/Paste	14.5	Tallow Amine + 15 EO	min. 99.0	62 ²⁾		●	
ROKAMIN SR22	●						61791-26-2	N	Paste	16.1	Tallow Amine + 22 EO	min. 99.0	37-45 ²⁾		●	
ROKANOL DB3			●	●			68131-39-5	N	Liquid/Paste	7.8	Alcohols, C12-15 + 3 EO	min. 99.7	164-172 ³⁾			●
ROKANOL DB5			●	●			68131-39-5	N	Liquid	10.2	Alcohols, C12-15 + 5 EO	min. 99.5	65-72 D			●
ROKANOL DB7			●	●			68131-39-5	N	Liquid/Paste	12.0	Alcohols, C12-15 + 7 EO	min. 99.5	100-114 ³⁾			●
ROKANOL IT3				●			69011-36-5	N	Liquid	8.0	Alcohols, C13, -ISO + 3 EO	min. 99.0	48-51 D			●
ROKANOL IT5		●					69011-36-5	N	Liquid	10.5	Alcohols, C13, -ISO + 5 EO	min. 99.5	60-62 E			●
ROKANOL IT6		●	●				69011-36-5	N	Liquid	11.4	Alcohols, C13, -ISO + 6 EO	min. 99.5	69-72 D			●
ROKANOL IT7		●	●				69011-36-5	N	Liquid	12.1	Alcohols, C13, -ISO + 7 EO	min. 99.0	65-70 E			●
ROKANOL IT8		●					69011-36-5	N	Liquid/Paste	12.8	Alcohols, C13, -ISO + 8 EO	min. 99.5	76-78 D			●
ROKANOL IT9		●					69011-36-5	N	Oily liquid/Paste	13.2	Alcohols, C13, -ISO + 9 EO	min. 99.0	56-60 A			●
ROKANOL IT12	●						69011-36-5	N	Liquid/Paste	14.5	Alcohols, C13, -ISO + 12 EO	min. 99.0	79-85 A			●
ROKANOL K18	●						9005-04-3	N	Paste/Wax	16.3	Alcohols, C16-18 unsaturated + 18 EO	min. 99.0	74-79 C			●
ROKANOL K21	●						9005-04-3	N	Paste/Wax	16.5	Alcohols, C16-18 unsaturated + 21 EO	min. 99.5	74-79 C			●
ROKANOL L4				●			68002-97-1	N	Liquid	10.0	Alcohols, C12-14 + 4 EO	min. 99.5	59-63 E			●
ROKANOL NL5		●	●				160901-09-7	N	Liquid	11.6	Alcohols, C9-11 + 5 EO	min. 99.5	33-39 A			●
ROKANOL NL6		●	●				160901-09-7	N	Liquid	12.5	Alcohols, C9-11 + 6 EO	min. 99.5	50-57 A			●
ROKANOL O3					●		9004-98-2	N	Liquid	6.6	Alcohols, C16-18 unsaturated + 3 EO	min. 99.0	37-41 E			●
ROKANOL O18					●		9004-98-2	N	Paste	16.3	Alcohols, C16-18 unsaturated + 18 EO	min. 99.0	70-74 C			●

A 1 g in 100 g deionized water

B 1 g in 100 g NaCl (50 g/l)

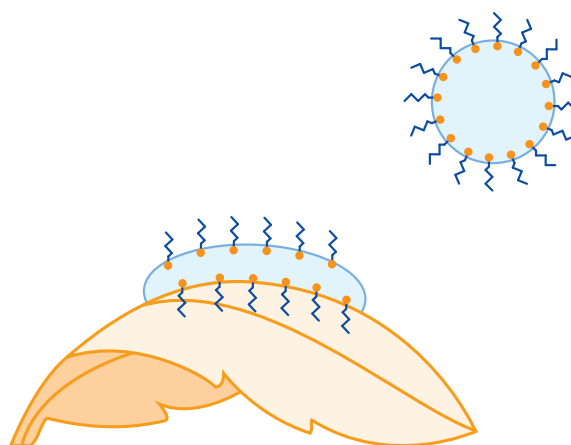
C 1 g in 100 g NaCl (100 g/l)

D 5 g in 45 g butyldiglycol 25%

E 5 g in 25 g butyldiglycol 25%

Wetting agents

Wetting agents are substances that decrease the surface tension of water permitting it to spread drops onto a surface increasing the spreading abilities of a liquid. Reducing the surface tension lowers the energy required to spread drops onto a film, thus weakening the cohesive properties of the liquid and strengthening its adhesive properties.



Benefits

- enables the wetting of dusty or hard to wet plants
- decreases the surface tension of water, allowing for spread and penetration
- allows for the reduction of spray volumes
- creates greater or equal up-take of pesticide over a shorter time, thus enhancing rain-fastness



Wetting agents - product list

PRODUCT CHARACTERISTIC								PRODUCTS GROUP									
PRODUCT	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Cloud point [°C] Tanaka ¹⁾ Saponification value ²⁾ [mgKOH/g] Amine value ³⁾ [mgKOH/g] Hydroxyl value ⁴⁾ [mgKOH/g]	Alkylbenzene sulfonates	EO/PO block copolymers	Castor oil ethoxylates	Nonylphenol ethoxylates	Fatty amine ethoxylates	Fatty alcohol ethoxylates	EO/PO alcohol alkoxylates	Sorbitan esters ethoxylates	Sulfosuccinates	Alkyl ether sulfates
ABSNa 50	68411-30-3	A	Paste	—	Sodium Dodecylbenzenesulfonate	48-52	—	●									
ROKAMER 2000	9003-11-6	N	Liquid	2.4	PEG/PPG - Copolymer	min. 99.0	23-27 A		●								
ROKAMER 2600	9003-11-6	N	Liquid	5.6	PEG/PPG - Copolymer	min. 99.0	33-37 E		●								
ROKAMER 2950	9003-11-6	N	Viscous liquid/semi liquid paste	8.1	PEG/PPG - Copolymer	min. 99.0	54-60 A		●								
ROKAMER 1010	9003-11-6	N	Wax	16.6	PEG/PPG - Copolymer	min. 99.0	—		●								
ROKACET R11	61791-12-6	N	Liquid	6.9	Castor oil + 11 EO	min. 99.0	45-50 A			●							
ROKAFENOL N3	127087-87-0	N	Oily liquid	7.6	Nonylphenol + 3 EO	min. 99.0	25-30 E				●						
ROKAFENOL N4	127087-87-0	N	Oily liquid	8.9	Nonylphenol + 4 EO	min. 99.0	31-36 E				●						
ROKAFENOL N8	127087-87-0	N	Oily liquid	12.8	Nonylphenol + 8 EO	min. 99.0	48-56 A				●						
ROKAFENOL N9	127087-87-0	N	Oily liquid	13.1	Nonylphenol + 9 EO	min. 99.9	58-61 A				●						
ROKAFENOL N10	127087-87-0	N	Oily liquid	13.3	Nonylphenol + 10 EO	min. 99.0	62-65 A				●						
ROKAMIN SR8 concentrate	61791-26-2	N	Viscous liquid	12.4	Tallow Amine + 10 EO	min. 99.0	75-80 ³⁾					●					
ROKAMIN SR11	61791-26-2	N	Liquid/ Semi-liquid paste	12.5	Tallow Amine + 11 EO	min. 99.0	70-75 ³⁾					●					
ROKANOL B2	68002-96-0	N	Liquid	6.7	Alcohols, C16-18 + EO/PO	min. 99.5	30-39 A							●			
ROKANOL DB3	68131-39-5	N	Liquid/Paste	7.8	Alcohols, C12-15 + 3 EO	min. 99.7	164-172 ⁴⁾						●				
ROKANOL DB5	68131-39-5	N	Liquid	10.5	Alcohols, C12-15 + 5 EO	min. 99.5	65-72 D						●				
ROKANOL DB7	68131-39-5	N	Liquid/Paste	12.0	Alcohols, C12-15 + 7 EO	min. 99.5	100-114 ⁴⁾						●				
ROKANOL DB7W	68131-39-5	N	Oily liquid	12.0	Alcohols, C12-15 + 7 EO	90-93	48-52 A						●				
ROKANOL ID5	68439-45-2	N	Liquid	11.7	Alcohols, C10 + 5 EO	min. 99.5	66-69 E						●				
ROKANOL ID7	68439-45-2	N	Liquid	13.2	Alcohols, C10 + 7 EO	min. 99.5	56-62 A						●				
ROKANOL ID8	68439-45-2	N	Liquid	13.8	Alcohols, C10 + 8 EO	min. 99.5	65-68 A						●				
ROKANOL IT3	69011-36-5	N	Liquid	8.0	Alcohols, C13, -ISO + 3 EO	min. 99.0	48-51 D						●				
ROKANOL IT5	69011-36-5	N	Liquid	10.5	Alcohols, C13, -ISO + 5 EO	min. 99.5	60-62 E						●				
ROKANOL IT6	69011-36-5	N	Liquid	11.4	Alcohols, C13, -ISO + 6 EO	min. 99.5	69-72 D						●				
ROKANOL IT7	69011-36-5	N	Liquid	12.1	Alcohols, C13, -ISO + 7 EO	min. 99.0	65-70 E						●				
ROKANOL IT7W	69011-36-5	N	Liquid	12.1	Alcohols, C13, -ISO + 7 EO	89-91	65-70 E						●				
ROKANOL IT8	69011-36-5	N	Liquid/Paste	12.8	Alcohols, C13, -ISO + 8 EO	min. 99.5	76-78 D						●				
ROKANOL IT9	69011-36-5	N	Oily liquid/ Paste	13.3	Alcohols, C13, -ISO + 9 EO	min. 99	56-60 A						●				

Wetting agents - product list

PRODUCT CHARACTERISTIC								PRODUCTS GROUP									
PRODUCT	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Cloud point [°C] Tanaka ¹⁾ Saponification value ²⁾ [mgKOH/g] Amine value ³⁾ [mgKOH/g] Hydroxyl value ⁴⁾ [mgKOH/g]	Alkylbenzene sulfonates	EO/PO block copolymers	Castor oil ethoxylates	Nonylphenol ethoxylates	Fatty amine ethoxylates	Fatty alcohol ethoxylates	EO/PO alcohol alkoxylates	Sorbitan esters ethoxylates	Sulfosuccinates	Alkyl ether sulfates
ROKANOL IT12	69011-36-5	N	Liquid/Paste	14.5	Alcohols, C13, branched + 12 EO	min. 99.5	79-85 A						●				
ROKANOL K5	9005-04-3	N	Liquid/Paste	9.2	Alcohols, C16-18 unsaturated + 5 EO	min. 99.0	7.0-8.5 ¹⁾						●				
ROKANOL K7	9005-04-3	N	Semi-liquid paste	10.8	Alcohols, C16-18 unsaturated + 7 EO	min. 99.5	9.0-10.5 ¹⁾						●				
ROKANOL L4	68002-97-1	N	Liquid	10.0	Alcohols, C12-14 + 4 EO	min. 99.5	59-63 E						●				
ROKANOL L4P5	68439-51-0	N	Liquid	5.3	Alcohols, C12-14 + EO/PO	min. 99.5	98-108 ⁴⁾							●			
ROKANOL L5P5	68439-51-0	N	Liquid	6.0	Alcohols, C12-14 + EO/PO	min. 99.5	27-31 A							●			
ROKANOL LK2	68439-50-9	N	Liquid	6.2	Alcohols, C12-14 + 2 EO	min. 99.9	192-204 ⁴⁾						●				
ROKANOL LK3	68002-97-1	N	Liquid/Paste	7.8	Alcohols, C12-14 + 3 EO	min. 99.8	165-173 ⁴⁾						●				
ROKANOL LP2024	37251-67-5	N	Liquid	6.3	Polyoxyalkylene glycol fatty alcohol eter	min. 99.5	20-24 A							●			
ROKANOL LP2529	68551-13-3	N	Liquid	3.5	Polyoxyalkylene glycol fatty alcohol eter	min. 99.5	25-29 E							●			
ROKANOL NL3	68439-46-3	N	Liquid	8.5	Alcohols, C9-11 + 3 EO	min. 99.8	185-193 ⁴⁾						●				
ROKANOL NL5	160901-09-7	N	Liquid	11.6	Alcohols, C9-11 + 5 EO	min. 99.5	33-39 A						●				
ROKANOL NL6	160901-09-7	N	Liquid	12.5	Alcohols, C9-11 + 6 EO	min. 99.5	50-57 A						●				
ROKANOL NL8	160901-09-7	N	Liquid	13.8	Alcohols, C9-11 + 8 EO	min. 99.5	78-85 A						●				
ROKANOL NL8P4	154518-36-2	N	Liquid	9.5	Alcohols, C9-11 + EO/PO	min. 99.0	38-48 A							●			
ROKANOL O3	9004-98-2	N	Liquid	6.6	Alcohols, C16-18 unsaturated + 3 EO	min. 99.0	37-41 E						●				
ROKANOL T12	68439-49-6	N	Wax	13.5	Alcohols, C16-18 + 12 EO	min. 99.5	85-100 A						●				
ROKANOL UD5	127036-24-2	N	Liquid	11.0	Alcohols, C11, branched + 5 EO	min. 99.5	60-65 E						●				
ROKANOL UD7	127036-24-2	N	Liquid	12.3	Alcohols, C11, branched + 7 EO	min. 99.0	51-56 A						●				
ROKWINOL 60	9005-67-8	N	Liquid/Paste	14.9	Sorbitan Monostearate + 20 EO	min. 99.0	45-55 ²⁾								●		
ROKWINOL 80	9005-65-6	N	Liquid/ Semi-liquid paste	15.0	Sorbitan Monooleate + 20 EO	min. 99.0	45-55 ²⁾								●		
SULFOSUCCINATE DOSS	577-11-7	A	Liquid	—	Di (2-ethylhexyl) Sulfosuccinic acid, sodium salt	min. 60.0	—									●	
SULFOROKANOL L 225/1	68891-38-3	A	Viscous liquid	—	Sodium Laureth Sulfate + 2 EO	25-27	—										●
SULFOROKANOL 270/1	68891-38-3	A	Paste/Liquid gel	—	Sodium Laureth Sulfate + 2 EO	68-72	—										●
SULFOROKANOL 327	125301-92-0	A	Liquid	—	Sodium Pareth Sulfate + 3 EO	26-28	—										●
SULFOROKANOL 370/1	13150-00-0	A	Paste/Liquid gel	—	Sodium Laureth Sulfate + 3 EO	68-72	—										●

A 1 g in 100 g deionized water

B 1 g in 100 g NaCl (50 g/l)

C 1 g in 100 g NaCl (100 g/l)

D 5 g in 45 g butyldiglycol 25%

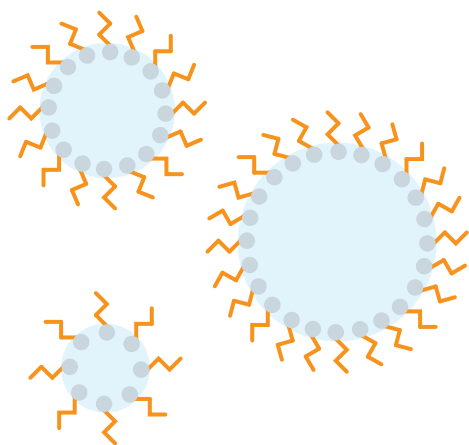
E 5 g in 25 g butyldiglycol 25%



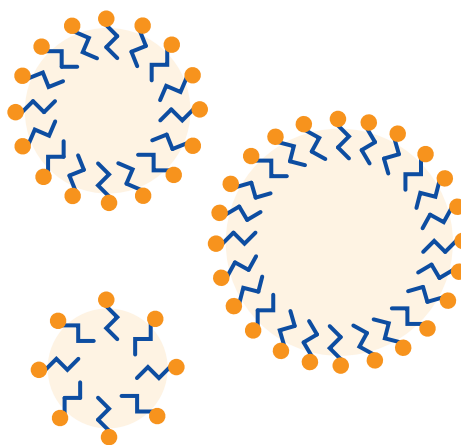
Emulsifiers

Agents that promote the formation of an emulsion. An emulsifier involves water soluble hydrophilic parts and oil-soluble lipophilic parts within it. By adding an emulsifier to a mixture of water and oil, the emulsifier is arranged on the interface, anchoring its hydrophilic part into water and its lipophilic part into oil. On the interface surface of water, the hydrophilic part and the lipophilic part are

adsorbed and arranged around the interface. This reduces interfacial tension. The result is that oil and water are easily mixed. The hydrophilicity and lipophilicity are different among emulsifiers, and the balance between the two is called HLB value (ranges from 0 to 40). An emulsifier with higher lipophilicity shows a lower HLB, whereas, higher hydrophilicity has a high HLB.



Low HLB surfactants



High HLB surfactants

Benefits

- enables the wetting and dispersion of the oil phase into the aqueous phase by decreasing interfacial tension
- facilitates the dispersion of the oil-phase upon addition into water
- introduces electrostatic and steric stabilization to fine droplets; prevents coalescence or flocculation
- improves compatibility with other components in the aqueous phase

Emulsifiers - product list

PRODUCT CHARACTERISTIC								PRODUCTS GROUP									
PRODUCT	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Cloud point [°C] Tanaka ¹⁾ Saponification value ²⁾ [mgKOH/g] Amine value ³⁾ [mgKOH/g] Hydroxyl value ⁴⁾ [mgKOH/g]	Alkylbenzene sulfonates	EO/PO block copolymers	Castor oil ethoxylates	Nonylphenol ethoxylates	EO/PO nonylphenol alkoxylates	Fatty amine ethoxylates	Fatty alcohol ethoxylates	EO/PO alcohol alkoxylates	Sorbitan esters ethoxylates	Sulfosuccinates
ABSNa50	68411-30-3	A	Paste	—	Sodium Dodecylbenzenesulfonate	48-52	—	●									
ROKAMER 2000	9003-11-6	N	Liquid	2.4	PEG/PPG - Copolymer	min. 99.0	23-27 A		●								
ROKAMER 2600	9003-11-6	N	Liquid	5.6	PEG/PPG - Copolymer	min. 99.0	16-20 A		●								
ROKAMER 2330	9003-11-6	N	Viscous liquid	4.9	PEG/PPG - Copolymer	min. 99.0	21-26 A		●								
ROKAMER 2950	9003-11-6	N	Viscous liquid/ Semi liquid paste	8.1	PEG/PPG - Copolymer	min. 99.0	54-60 A		●								
ROKAMER 1010	9003-11-6	N	Wax	16.6	PEG/PPG - Copolymer	min. 99.0	—		●								
ROKACET O7	9004-96-0	N	Liquid	10.6	Oleate + 7 EO	min. 99.0	86-96 ²⁾			●							
ROKACET R11	61791-12-6	N	Liquid	6.9	Castor oil + 11 EO	min. 99.0	45-50 A			●							
ROKACET R26	61791-12-6	N	Liquid	11.0	Castor oil + 26 EO	min. 99.5	74-82 ²⁾			●							
ROKACET R40	61791-12-6	N	Paste	13.0	Castor oil + 40 EO	min. 99.0	55-64 ²⁾			●							
ROKACET R70	61791-12-6	N	Paste	15.4	Castor oil + 70 EO	min. 99.0	40-45 ²⁾			●							
ROKACET RZ50	61791-12-6	N	Solid	18.5	Castor oil + 250 EO	min. 99.0	65-70 C			●							
ROKACET RZ17	70914-02-2	N	Oily liquid	—	Rape oil + 17 EO	min. 99.0	90-110 ²⁾			●							
ROKACET S7	9004-99-3	N	Paste	10.6	Stearate + 7 EO	min. 99.0	92-97 ²⁾			●							
ROKACET S24	9004-99-3	N	Wax	15.8	Stearate + 24 EO	min. 99.0	40-45 ²⁾			●							
ROKAFENOL N4	127087-87-0	N	Oily liquid	8.8	Nonylphenol + 4 EO	min. 99.0	31-36 E				●						
ROKAFENOL N5	127087-87-0	N	Oily liquid	10.0	Nonylphenol + 5 EO	min. 99.0	48-52 E				●						
ROKAFENOL N6	127087-87-0	N	Oily liquid	11.0	Nonylphenol + 6 EO	min. 99.0	60-65 E				●						
ROKAFENOL N6P4	37251-69-7	N	Oily liquid	5.2	Nonylphenol + EO/PO	min. 99.0	17-20 A					●					
ROKAFENOL N8	127087-87-0	N	Oily liquid	12.8	Nonylphenol + 8 EO	min. 99.0	48-56 A				●						
ROKAFENOL N9	127087-87-0	N	Oily liquid	13.1	Nonylphenol + 9 EO	min. 99.9	58-61 A				●						
ROKAFENOL N10	127087-87-0	N	Oily liquid	13.3	Nonylphenol + 10 EO	min. 99.0	62-65 A				●						
ROKAFENOL N14	127087-87-0	N	Semi-liquid Paste	15.0	Nonylphenol + 14 EO	min. 99.0	60-65 C				●						
ROKAFENOL N22	127087-87-0	N	Paste/Wax	16.2	Nonylphenol + 22 EO	min. 99.0	71-76 C				●						
ROKAFENOL N22/30	127087-87-0	N	Liquid	16.2	Nonylphenol + 22 EO	25-26.5	71-76 C				●						
ROKAFENOL N30/70	127087-87-0	N	Liquid	17.8	Nonylphenol + 30 EO	69-71	73-79 C				●						
ROKAFENOL N40	127087-87-0	N	Wax	17.6	Nonylphenol + 40 EO	min. 99.0	72-76 C				●						
ROKAMIN K15	61791-14-8	N	Liquid	15.5	Cocamine + 15 EO	min. 97.0	63-73 ³⁾						●				
ROKANOL B2	68002-96-0	N	Liquid	6.7	Alcohols, C16-18 + EO/PO	min. 99.0	30-39 A							●			

Emulsifiers - product list

PRODUCT CHARACTERISTIC								PRODUCTS GROUP									
PRODUCT	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Cloud point [°C] Tanaka ¹⁾ Saponification value ²⁾ [mgKOH/g] Amine value ³⁾ [mgKOH/g] Hydroxyl value ⁴⁾ [mgKOH/g]	Alkylbenzene sulfonates	EO/PO block copolymers	Castor oil ethoxylates	Nonylphenol ethoxylates	EO/PO nonylphenol alkoxyates	Fatty amine ethoxylates	Fatty alcohol ethoxylates	EO/PO alcohol alkoxyates	Sorbitan esters ethoxylates	Sulfosuccinates
ROKANOL D5	68002-97-1	N	Liquid	11.9	Alcohols, C10-16 + 5 EO	min. 99.5	40-43 A							●			
ROKANOL D7	68002-97-1	N	Liquid	13.1	Alcohols, C10-16 + 7 EO	min. 99.5	73-76 A							●			
ROKANOL DB3	68131-39-5	N	Liquid/ Paste	7.8	Alcohols, C12-15 + 3 EO	min. 99.7	164-172 ⁴⁾							●			
ROKANOL DB5	68131-39-5	N	Liquid	10.2	Alcohols, C12-15 + 5 EO	min. 99.5	65-72 D							●			
ROKANOL DB7	68131-39-5	N	Liquid/ Paste	12.0	Alcohols, C12-15 + 7 EO	min. 99.5	100-114 ⁴⁾							●			
ROKANOL DB7W	68131-39-5	N	Oily liquid	12.0	Alcohols, C12-15 + 7 EO	90-93	48-52 A							●			
ROKANOL DB11W	68131-39-5	N	Oily liquid/ Paste	13.6	Alcohols, C12-15 + 11 EO	88-92	60-64 C							●			
ROKANOL ID7	68439-45-2	N	Liquid	13.2	Alcohols, C10- + 7 EO	min. 99.5	56-62 A							●			
ROKANOL ID8	68439-45-2	N	Liquid	13.8	Alcohols, C10- + 8 EO	min. 99.5	65-68 A							●			
ROKANOL IT3	69011-36-5	N	Liquid	8.0	Alcohols, C13, -ISO + 3 EO	min. 99.0	48-51 D							●			
ROKANOL IT5	69011-36-5	N	Liquid	10.5	Alcohols, C13, -ISO + 5 EO	min. 99.5	60-62 E							●			
ROKANOL IT6	69011-36-5	N	Liquid	11.4	Alcohols, C13, -ISO + 6 EO	min. 99.5	69-72 D							●			
ROKANOL IT7	69011-36-5	N	Liquid	12.1	Alcohols, C13, -ISO + 7 EO	min. 99.0	65-70 E							●			
ROKANOL IT7W	69011-36-5	N	Liquid	12.1	Alcohols, C13, -ISO + 7 EO	89-91	65-70 E							●			
ROKANOL IT8	69011-36-5	N	Liquid/ Paste	12.8	Alcohols, C13, -ISO + 8 EO	min. 99.5	76-78 D							●			
ROKANOL IT9	69011-36-5	N	Oily liquid/ Paste	13.2	Alcohols, C13, -ISO + 9 EO	min. 99.0	56-60 A							●			
ROKANOL IT9W	69011-36-5	N	Liquid	13.2	Alcohols, C13, -ISO + 9 EO	89-92	58-62 A							●			
ROKANOL IT12	69011-36-5	N	Liquid/ Paste	14.5	Alcohols, C13, -ISO + 12 EO	min. 99.0	79-85 A							●			
ROKANOL K3	68920-66-1	N	Semi-liquid paste	7.0	Alcohols, C16-18 unsaturated + 3 EO	min. 99.0	4.2-5.1 ¹⁾							●			
ROKANOL K5	9005-04-3	N	Liquid/ Paste	9.2	Alcohols, C16-18 unsaturated + 5 EO	min. 99.0	7.0-8.5 ¹⁾							●			
ROKANOL K18	9005-04-3	N	Paste/ Wax	15.8	Alcohols, C16-18 unsaturated + 18 EO	min. 99.0	74-79 C							●			
ROKANOL K21	9005-04-3	N	Paste/ Wax	16.5	Alcohols, C16-18 unsaturated + 21 EO	min. 99.5	74-79 C							●			
ROKANOL L3A	68551-12-2	N	Liquid	8.0	Alcohols, C12-16 + 3 EO	min. 99.7	53-55 E							●			
ROKANOL L4	68002-97-1	N	Liquid	10.0	Alcohols, C12-14 + 4 EO	min. 99.5	59-63 E							●			
ROKANOL L4P5	68439-51-0	N	Liquid	5.3	Alcohols, C12-14 + EO/PO	min. 99.5	98-108 ⁴⁾								●		

Emulsifiers - product list

PRODUCT CHARACTERISTIC								PRODUCTS GROUP									
PRODUCT	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Cloud point [°C] Tanaka ¹⁾ Saponification value ²⁾ [mgKOH/g] Amine value ³⁾ [mgKOH/g] Hydroxyl value ⁴⁾ [mgKOH/g]	Alkylbenzene sulfonates	EO/PO block copolymers	Castor oil ethoxylates	Nonylphenol ethoxylates	EO/PO nonylphenol alkoxylates	Fatty amine ethoxylates	Fatty alcohol ethoxylates	EO/PO alcohol alkoxylates	Sorbitan esters	Sulfosuccinates
ROKANOL L5P5	68439-51-0	N	Liquid	6.0	Alcohols, C12-14 + EO/PO	min. 99.5	27-31 A								●		
ROKANOL L7	68002-97-1	N	Liquid	12.9	Alcohols, C12-14 + 7 EO	min. 99.5	30-40 C							●			
ROKANOL L7W	68002-97-1	N	Liquid	12.9	Alcohols, C12-14 + 7 EO	89-92	30-40 C							●			
ROKANOL L10	6540-99-4	N	Paste	13.8	Alcohols, C12-14 + 10 EO	min. 99.7	59-63 C							●			
ROKANOL LK3	68002-97-1	N	Liquid/ Paste	8.0	Alcohols, C12-14 + 3 EO	min. 99.7	165-173 ⁴⁾							●			
ROKANOL LP2024	37251-67-5	N	Liquid	6.3	Polyoxyalkylene glycol fatty alcohol ether	min. 99.5	20-24 A								●		
ROKANOL LP2529	68551-13-3	N	Liquid	3.5	Polyoxyalkylene glycol fatty alcohol ether	min. 99.5	25-29 E								●		
ROKANOL NL8P4	154518-36-2	N	Liquid	9.5	Alcohols, C9-11 + EO/PO	min. 99.0	38-48 A								●		
ROKANOL O3	9004-98-2	N	Liquid	6.6	Alcohols, C16-18 unsaturated + 3 EO	min. 99.0	37-41 E							●			
ROKANOL O18	9004-98-2	N	Paste	16.3	Alcohols, C16-18 unsaturated + 18 EO	min. 99.0	70-74 C							●			
ROKANOL O20	9004-98-2	N	Paste	15.3	Alcohols, C16-18 unsaturated + 20 EO	min. 99.0	71-76 C							●			
ROKANOL O100	9004-98-2	N	Wax	18.8	Alcohol, C16-18 unsaturated + 100 EO	min. 99.0	—							●			
ROKANOL T6	68439-49-6	N	Wax	10.0	Alcohols, C16-18 + 6 EO	min. 99.5	105-115 ⁴⁾							●			
ROKANOL T10	68439-49-6	N	Wax	12.5	Alcohols, C16-18 + 10 EO	min. 99.5	85-95 ⁴⁾							●			
ROKANOL T12	68439-49-6	N	Wax	13.5	Alcohols, C16-18 + 12 EO	min. 99.5	85-100 A							●			
ROKANOL T18	68439-49-6	N	Wax	15.8	Alcohols, C16-18 + 18 EO	min. 99.0	74-77 C							●			
ROKANOL UD5	127036-24-2	N	Liquid	11.0	Alcohols, C11, -ISO + 5 EO	min. 99.5	60-65 E							●			
ROKANOL UD7	127036-24-2	N	Liquid	12.3	Alcohols, C11, -ISO + 7 EO	min. 99.0	51-56 A							●			
ROKWIN 60	1338-41-6	N	Solid wax	4.7	Sorbitan Monostearate	min. 98.5	145-160 ²⁾									●	
ROKWIN 80	1338-43-8	N	Oily liquid	4.3	Sorbitan Monooleate	min. 98.5	145-170 ²⁾									●	
ROKWINOL 60	9005-67-8	N	Liquid/ Paste	14.9	Sorbitan Monostearate + 20 EO	min. 99.0	45-55 ²⁾									●	
ROKWINOL 80	9005-65-6	N	Liquid/Se- mi-liquid paste	15.0	Sorbitan Monooleate + 20 EO	min. 99.0	45-55 ²⁾									●	
SULFOSUCCINATE DOSS	577-11-7	A	Liquid	—	Di (2-ethylhexyl) Sulfosuccinic acid, sodium salt	min. 60.0	—										●

A 1 g in 100 g deionized water

B 1 g in 100 g NaCl (50 g/l)

C 1 g in 100 g NaCl (100 g/l)

D 5 g in 45 g butyldiglycol 25%

E 5 g in 25 g butyldiglycol 25%

Low foaming agents

This group of surfactants is high-performance and shows excellent low foam characteristics (inhibits bubbles forming in an agitated liquid by reducing the surface tension), chemical stability and a long list of other valuable performance properties. They are made by polym-

erizing ethylene oxide (EO), propylene oxide (PO) in the same molecule. The ratio and order of oxide addition, together with the choice of initiator, regulate the chemical and physical properties.

PRODUCT CHARACTERISTIC								PRODUCTS GROUP	
PRODUCT	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Saponification value ¹⁾ [mgKOH/g] Hydroxyl value ²⁾ [mgKOH/g]	EO/PO block copolymers	EO/PO alcohol alkoxylates
ROKAMER 2000	9003-11-6	N	Liquid	2.4	PEG/PPG- Copolymer	min. 99.0	23-27 A	●	
ROKAMER 2600	9003-11-6	N	Liquid	5.6	PEG/PPG-Copolymer	min. 99.0	16-20 A	●	
ROKAMER 2330	9003-11-6	N	Viscous liquid	4.9	PEG/PPG-Copolymer	min. 99.0	21-26 A	●	
ROKAMER 2950	9003-11-6	N	Viscous liquid/ Semi liquid paste	8.1	PEG/PPG-Copolymer	min. 99.0	54-60 A	●	
ROKAMER 1010	9003-11-6	N	Wax	16.6	PEG/PPG-Copolymer	min. 99.0	—	●	
ROKANOL L4P5	68439-51-0	N	Liquid	5.3	Alcohols, C12-14 + EO/PO	min. 99.5	98-108 ²⁾		●
ROKANOL L5P5	68439-51-0	N	Liquid	6.0	Alcohols, C12-14 + EO/PO	min. 99.5	25-31 A		●
ROKANOL LP2024	37251-67-5	N	Liquid	6.3	Polyoxyalkylene glycol fatty alcohol ether	min. 99.5	20-24 A		●
ROKANOL LP2529	68551-13-3	N	Liquid	3.5	Polyoxyalkylene glycol fatty alcohol ether	min. 99.5	25-29 E		●
ROKANOL NL8P4	154518-36-2	N	Liquid	9.5	Alcohols, C9-11 + EO/PO	min. 99.0	38-48 A		●
ROKANOL RZ4P11	68002-96-0	N	Liquid	—	Alcohols, C16-18 + EO/PO	min. 99.0	23-27 E		●

A 1 g in 100 g deionized water

B 1 g in 100 g NaCl (50 g/l)

C 1 g in 100 g NaCl (100 g/l)

D 5 g in 45 g butyldiglycol 25%

E 5 g in 25 g butyldiglycol 25%

Benefits

- prevents the formation of foam
- combines of low foaming properties with other functions (wetting, emulsifying)

Other products

PRODUCT CHARACTERISTIC									PRODUCTS GROUP					
PRODUCT	Functions	CAS number	Ionic character	Physical form	HLB	Description	Active content (%)	Cloud point [°C] Cloud point [°C] Tanaka ¹⁾ Saponification value ²⁾ [mgKOH/g] Amine value ³⁾ [mgKOH/g] Hydroxyl value ⁴⁾ [mgKOH/g]	Alkyl sulfates	Alkylbenzene sulfonates	Fatty amine ethoxylates	Fatty alcohol ethoxylates	EO/PO alcohol alkoxylates	Castor oil ethoxylates
ROSULFAN L	This is a high active anionic surfactant used in a variety of agricultural delivery systems	85586-07-8	A	Liquid	—	Sodium Lauryl Sulfate	27.5-30	—	●					
ABS ACID	Providing excellent compatibility with other anionic, amphoteric and nonionic surfactants	85536-14-7	A	Liquid	—	Dodecylbenzene Sulfonic Acid	min. 96.0	—	●					
ROKAMIN SR22	Good leaf penetrant for herbicides such as glyphosate, electrolyte tolerant surfactant	61791-26-2	N	Paste	16.1	Tallow Amine + 25 EO	min. 99.0	37-45 ³⁾			●			
ROKANOL IT5	Spreading aid	69011-36-5	N	Liquid	10.5	Alcohols, C13 + 5 EO	min. 99.0	60-62 E				●		
ROKANOL O18	Aqueous dispersant	9004-98-2	N	Paste	16.3	Alcohols, C16-18 unsaturated +18 EO	min. 99.0	70-74 C				●		
ROKANOL O20	Aqueous dispersant	9004-98-2	N	Paste	16.3	Alcohols, C16-18 unsaturated +18 EO	min. 99.0	71-76 C				●		
ROKANOL O100	Aqueous dispersant	9004-98-2	N	Wax	18.8	Alcohol, C16-18 unsaturated + 100 EO	min. 99.0	—				●		
ROKANOL L4P5	Spreaders improved fluidity	68439-51-0	N	Liquid	5.3	Alcohols, C12-14 + EO/PO	min. 99.5	98-108 ⁴⁾					●	
ROKANOL L5P5	Spreaders improved fluidity	68439-51-0	N	Liquid	6.0	Alcohols, C12-14 + EO/PO	min. 99.5	25-31 A					●	
ROKANOL LP2024	Spreaders improved fluidity	37251-67-5	N	Liquid	6.3	Polyoxyalkylene glycol fatty alcohol ether	min. 99.5	20-24 A					●	
ROKANOL LP2529	Spreaders improved fluidity	68551-13-3	N	Liquid	3.5	Polyoxyalkylene glycol fatty alcohol ether	min. 99.5	25-29 E					●	
ROKANOL T10	Compatibility agent	68439-49-6	N	Wax	12.5	Alcohols, C16-18 + 10 EO	min. 99.5	70-73 D				●		
ROKACET S7	Solubilizer	9004-99-3	N	Paste	10.6	Stearate + 7 EO	min. 99.0	92-97 ²⁾						●
ROKACET S24	Solubilizer	9004-99-3	N	Wax	15.8	Stearate + 24 EO	min. 99.0	40-45 ²⁾						●

A 1 g in 100 g deionized water

B 1 g in 100 g NaCl (50 g/l)

C 1 g in 100 g NaCl (100 g/l)

D 5 g in 45 g butyldiglycol 25%

E 5 g in 25 g butyldiglycol 25%

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.

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

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

HLB for ester type compounds (polyoxyethylenated fatty acids):

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

where:

LZ saponification number of oxyethylenation product, mgKOH/g

LK acid number of acids subjected to oxyethylenation, mgKOH/g

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

Cloud point

Cloud point is an indicator determining the behaviour of water or other organic solutions of nonionic 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 discriminated:

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)

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



PCC Group

We build value through sustainable innovation



Operating in 17 countries,
in 39 different locations,
PCC SE currently employs
3300 people.

Each project or venture with a long-term success story shares one common thing – it's based on in-depth market research and on the knowledge acquired through years of experience. It is knowledge and experience that enables 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 through taking advantage of innovative technology 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 are always ready to reach our strategic goals. Efficient and dynamic management helps our employees to fully develop their potential and therefore enhances the overall PCC Group value. 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 nearly 3300 people. We operate in 17 countries, in 39 different locations around the world. Our portfolio includes eight basic segments. Individual operational responsibility is assigned to seven of them - Polyols, Surfactants, Chlorine, Specialty Chemicals, Consumer Products, Energy and Logistics. Each of these segments is supported by 19 business units, all under the management of the PCC Group.

The divisions, segments and business units of the PCC Group

Divisions	Segments	Business units	Divisions	Segments	Business units
Chemicals	 Polyols	• Polyols • Polyurethane Systems	Energy	 Energy	• Renewable Energies • Conventional Energies
	 Surfactants	• Anionic Surfactants • Non-ionic Surfactants • Amphoteric Surfactants (Betaines)	Logistics	 Logistics	• Intermodal Transport • Road Haulage • Rail Transport
	 Chlorine	• Chlorine • MCAA • Other Chlorine Downstream Products	Holding	 Holding	• Portfolio Management • Projects • Services
	 Specialty Chemicals	• Phosphorus and Naphthalene Derivatives • Alkylphenols • Chemicals and Commodities Trading • Quartzite			
	 Consumer Products	• Household and Industrial Cleaners, Detergents and Personal Care Products • Matches and Firelighters			

PCC Group - Industrial Park in Brzeg Dolny, Poland

PCC Rokita SA

PCC Rokita Capital Group, 22 companies, including:

PCC Rokita SA

PCC Prodex Sp. z o.o.

PCC Prodex GmbH (Germany)

PCC PU Sp. z o.o.

IRPC PCC Co. Ltd. (Thailand)

PCC Therm Sp. z o.o.

PCC EXOL SA

PCC EXOL Capital Group, 5 companies, including:

PCC EXOL SA

PCC Chemax Inc. (the USA)

PCC EXOL Kimya Sanayi Ve Ticaret Limited Şirketi (Turkey)

PCC CP Kosmet Sp. z o.o.

Capital Group PCC CP Kosmet, 3 companies, including:

PCC CP Kosmet Sp. z o.o.

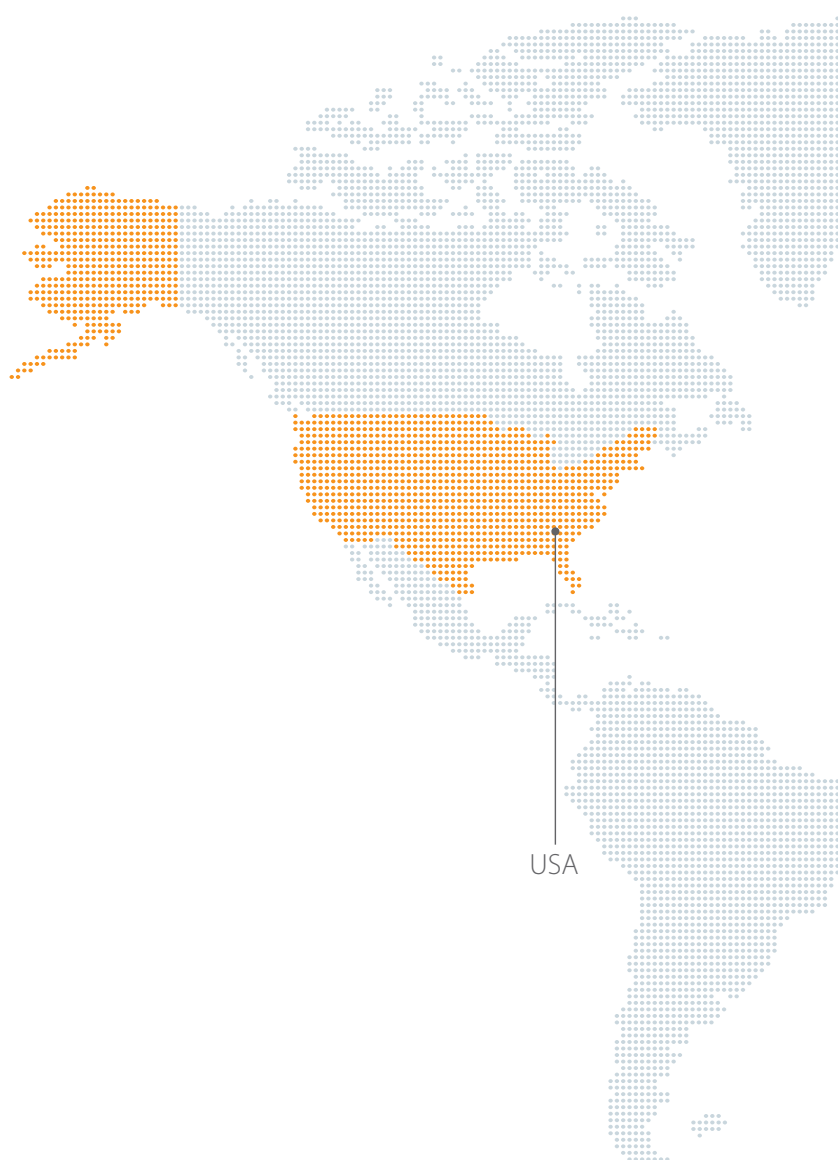
OOO PCC Consumer Products Navigator (Belarus)

OOO PCC Consumer Products (Russia)

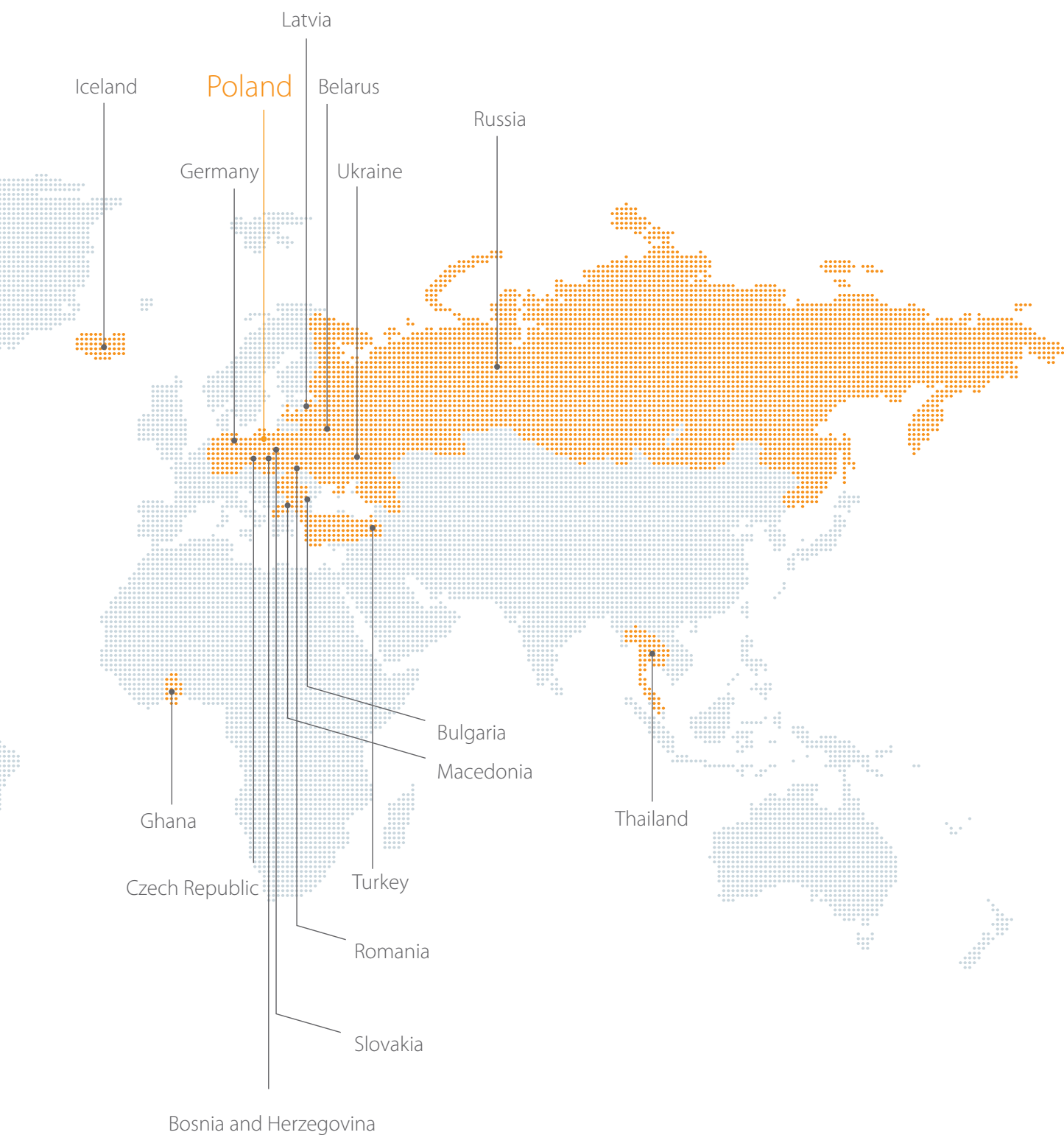
PCC MCAA Sp. z o.o.

PCC Autochem Sp. z o.o.

PCC Intermodal SA



PCC Group in the world



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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a full page of blank, lined paper. It features approximately 28 horizontal blue or grey lines spaced evenly apart, typical of notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings on the page.



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Number of pages	28

COVER PAGES

Brand	Cocoon Silk
Grammage	250
Number of pages	4

PUBLICATION

Size (cm)	21 x 29.7
Quantity	100

By using Cocoon Silk rather than non-recycled paper, the environmental impact was reduced by:

14		kg of landfill
2		kg CO ₂ and greenhouse gases
20		km travel in the average European car
583		litres of water
34		kWh of energy
24		kg of wood

Carbon footprint data evaluated by Labelia Conseil in accordance with the Bilan Carbone® methodology. Calculations are based on a comparison between recycled paper used versus a virgin fibre paper - according to the latest European BREF data (virgin fibre paper) available.



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The information in the catalogue is believed to be accurate and to the best of our knowledge, but should be considered as introductory only. Detailed information about products is available in TDS and MSDS. Suggestions for product applications are based on our the best of our knowledge.

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