



ROKAmer[®] R Series

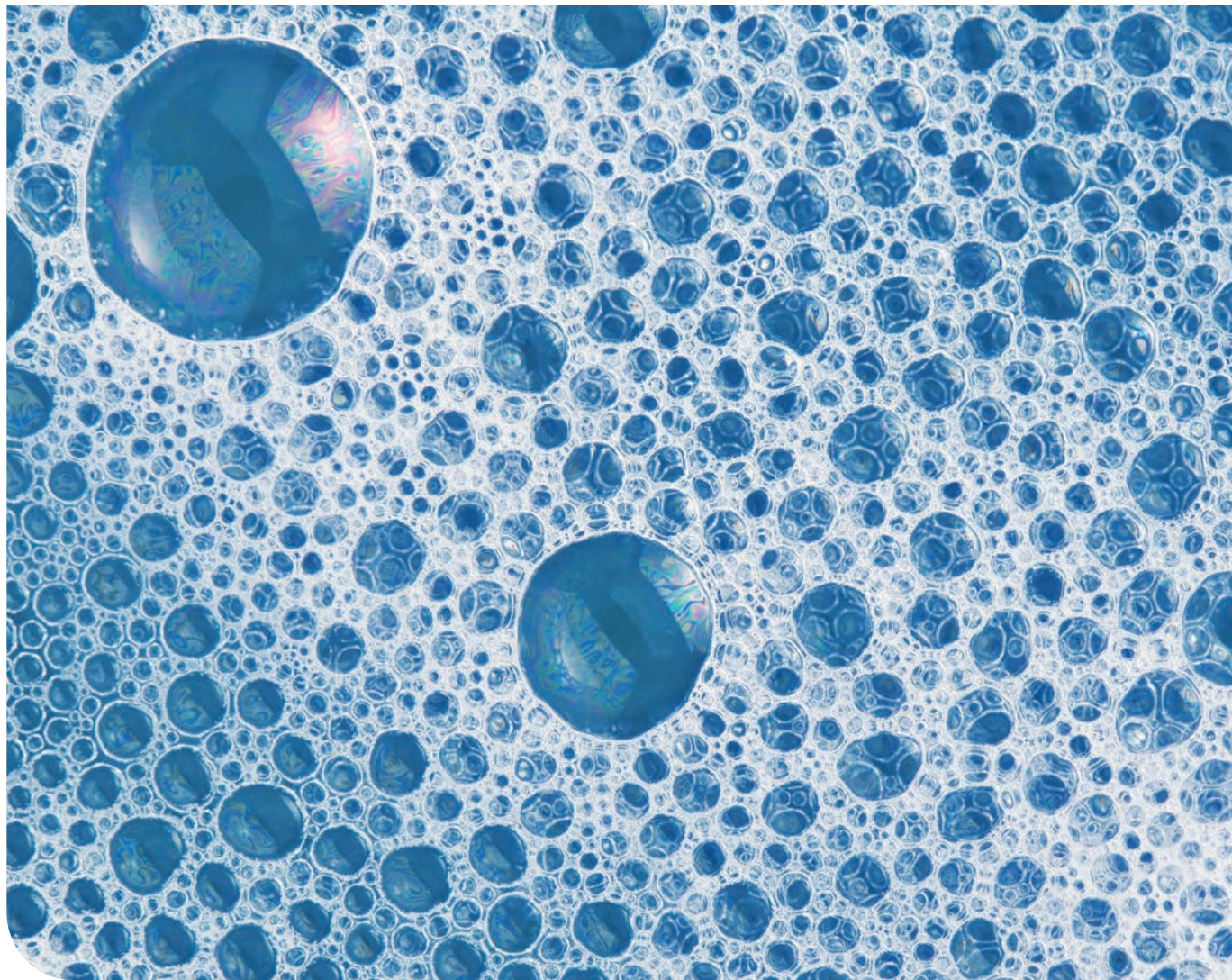
ROKAmer R Series

Chemical description

ROKAmer R-series products are non-ionic surfactants of the ethylene oxide/propylene oxide block copolymer type. Thanks to their anti-foaming properties, the products can be used in many industrial processes, e.g. pulp making and fermentation, food and sugar processing, vegetable washing or as an anti-foaming additive in cleaning formulations, dishwasher detergents, CIP washing. ROKAmer R- series products can be also used as lubricants in synthetic processing fluids and release agents. Products are approved in accordance with FDA’s CFR regulations.



where: $x+y$ – average number of ethylene oxide units
 n – average number of propylene oxide units



Physicochemical data

Parameters	ROKAmer R2150	ROKAmer R2650	ROKAmer R2800
CAS	9003-11-6	9003-11-6	9003-11-6
Appearance at 20-25 °C	clear liquid	clear liquid	clear liquid
Molecular weight, Da	2200	2700	2800
Hazen colour at 25°C	max. 100	max 100	max. 100
Density at 25°C [g/cm³]	approx. 1.03	approx. 1.05	approx.1.01
Viscosity at 20°C, MPa.s	approx. 400	approx. 500	approx. 550
pH 2.5% in ethanol: water 50:50 at 20°C	6-8	6-8	4-7
Method A 1% in water solution, °C	33-38	44-48	22-25
Method D 10% solution in 25% BDG solution, °C	40-43	54-57	28-31
Method E 16.7% solution in 25% BDG solution, °C	37-40	50-53	24-27
Solidification point, °C	<-20	2	<-20
Water content [% by weight]	max. 0.4	max. 0.5	max. 0.5



Application properties

Solubility

Solubility in water and other solvents has been shown in the table below.

Solubility – at 25°C, 10% SOLUTIONS

Product name	Demineralized water	Methanol	Hexane	Xylene	Mineral oil	Ethylene glycol
R2150	1	1	4	2	4	4
R2650	1	1	4	2	4	4
R2800	1	1	1	1	4	4

- Legend
- 1 very good soluble
 - 2 soluble
 - 3 weak soluble
 - 4 macroscopic phase separation



Wetting capability

The capability of wetting cotton fabric was determined according to EN 1772:2001. Wetting time (time in seconds necessary for wetting the textile material) was measured at ROKAmers' solution with a concentration of 10.0 g/l in demineralized water at a temperature of 25°C.

Product name	Demineralized water
R2150	moderate
R2650	none
R2800	excellent

Time (s)	Description
<20	excellent
20-50	good
50-100	moderate
100-300	low
>300	poor

Foaming capability

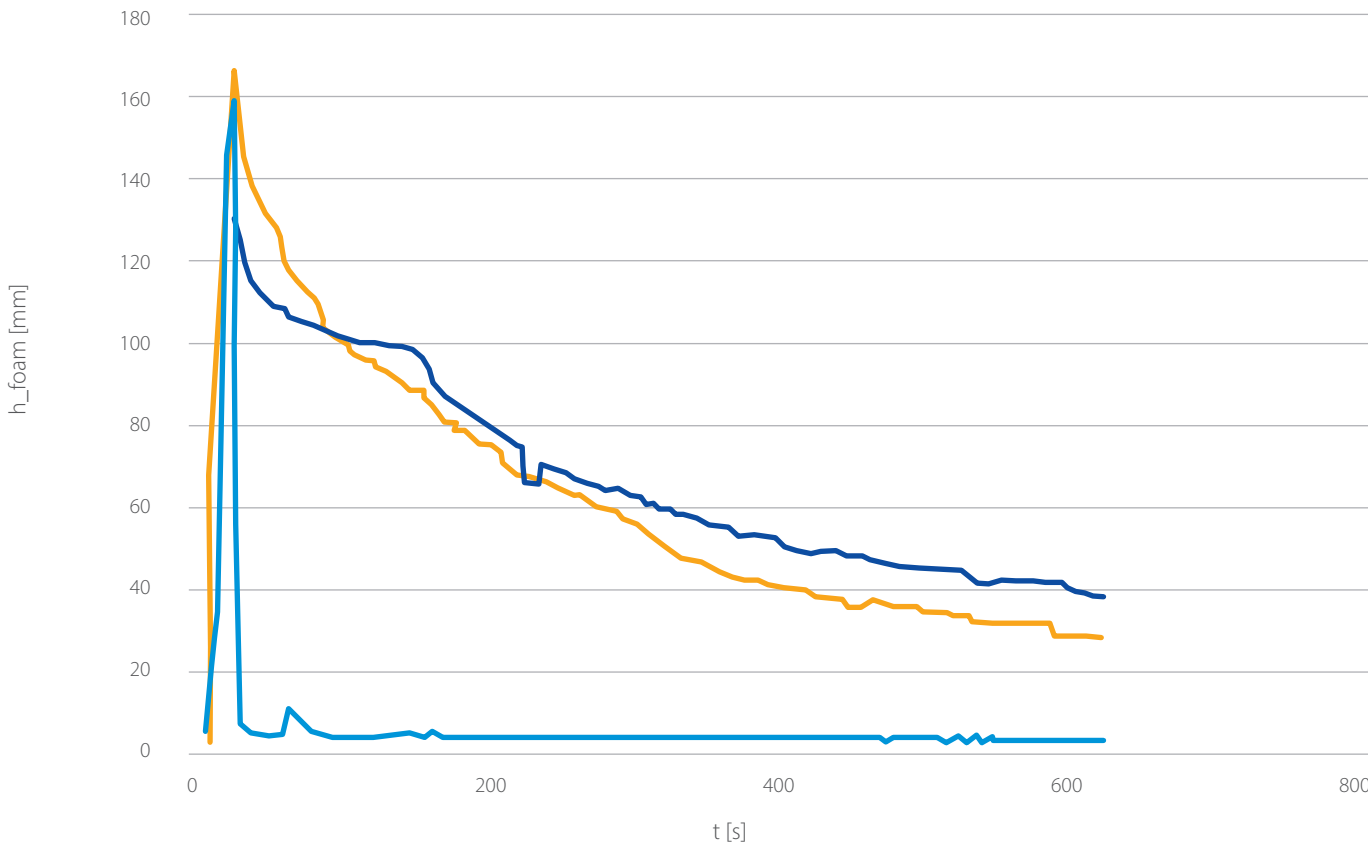
Determination of the foaming capability was preformed according to PN-ISO 696:1994 (the modified Ross-Miles method) for solution with a concentration of 1.0 g/l in demineralized and hard water at a temperature of 25°C.

Product name	Demineralized water	Hard water
R2150	none	none
R2650	none	none
R2800	none	none

Testing the foaming properties of ROKAmer R-series products.

A solution of 1% SDS (sodium dodecyl sulphate) was prepared by dissolving it in demineralised or hard water with a hardness of 17 dH, using a Kruss DFA100 foam analyser, the solution obtained was foamed by injecting 150 ml of air at a rate of 0.5 l/min, then the ROKAmer test solution was injected. The measurement was carried out at 20±2 °C for 10 minutes.

Foam height vs. time graph for ROKAmer R2150, R2650 and R2800 in demineralized water.

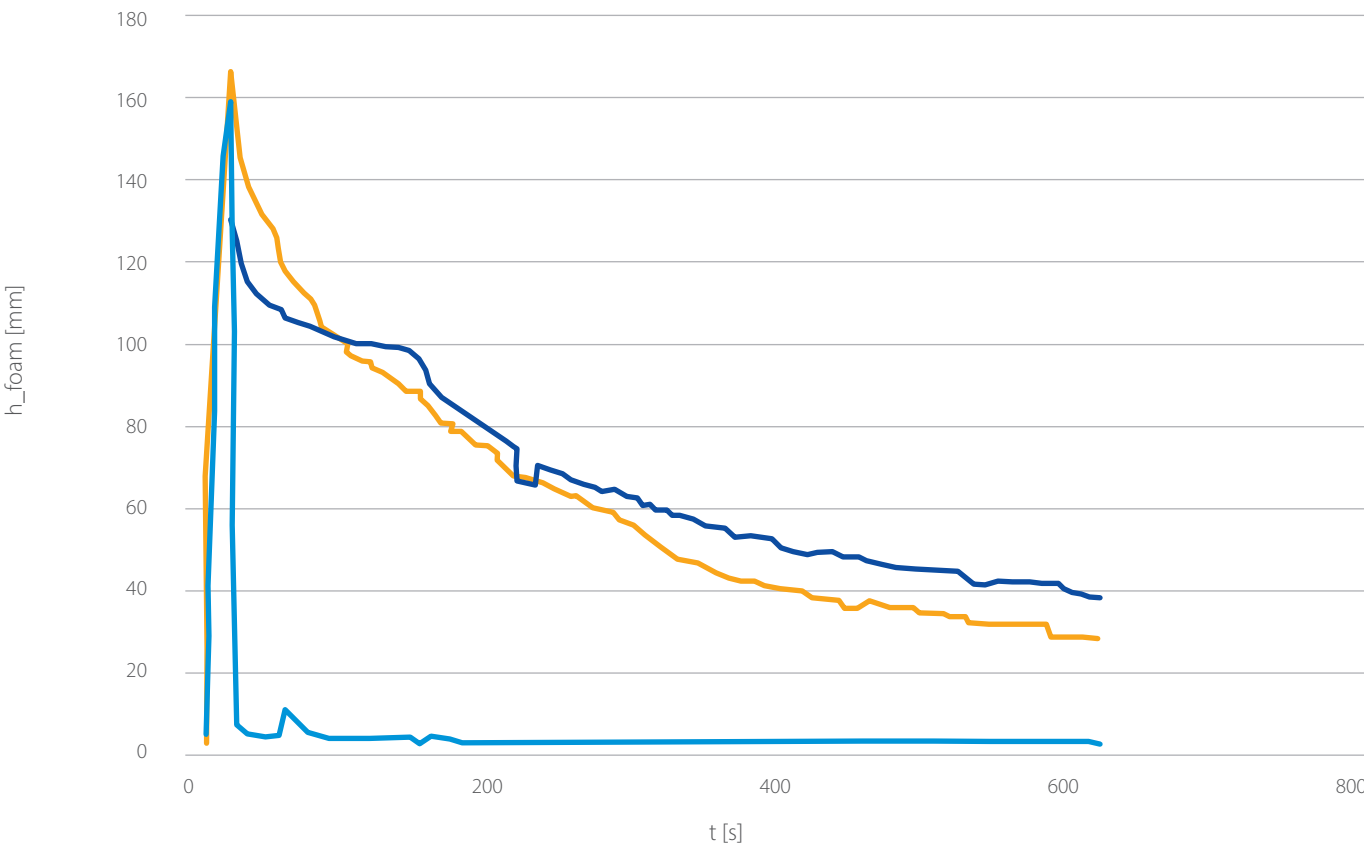


— ROKAmer 2150
— ROKAmer 2650
— ROKAmer 2800

Foam stability parameters for demineralized water

Product name	t _{FLS 75%} [s]	t _{FLS 50%} [s]	t _{FLS 25%} [s]
ROKAmer R2150	22	27	46
ROKAmer R2650	22	33	64
ROKAmer R2800	19	23	24

Foam height vs. time graph for ROKAmer R2150, R2650 and R2800 in hard water 17dH



— ROKAmer 2150
— ROKAmer 2650
— ROKAmer 2800

Foam stability parameters for hard water 17dH

Measurement name	t _{FLS 75%} [s]	t _{FLS 50%} [s]	t _{FLS 25%} [s]
ROKAmer R2150	22	25	30
ROKAmer R2650	22	26	32
ROKAmer R2800	23	27	36

Legend:

t_{FLS 75%} [s] - 25% drainage time: time at which the FLS has reduced to 75% of its initial value
t_{FLS 50%} [s] - 50% drainage time: time at which the FLS has reduced to 50% of its initial value
t_{FLS 25%} [s] - 75% drainage time: time at which the FLS has reduced to 25% of its initial value
FLS - liquid stability in foam; the percentage of the volume of liquid remaining in the foam in relation to the maximum volume of liquid after foaming has ceased.

PCC EXOL SA

Sustainable technologies for new generations



PCC EXOL SA combines innovative technologies with experience in designing, producing and selling surfactants and chemical formulations

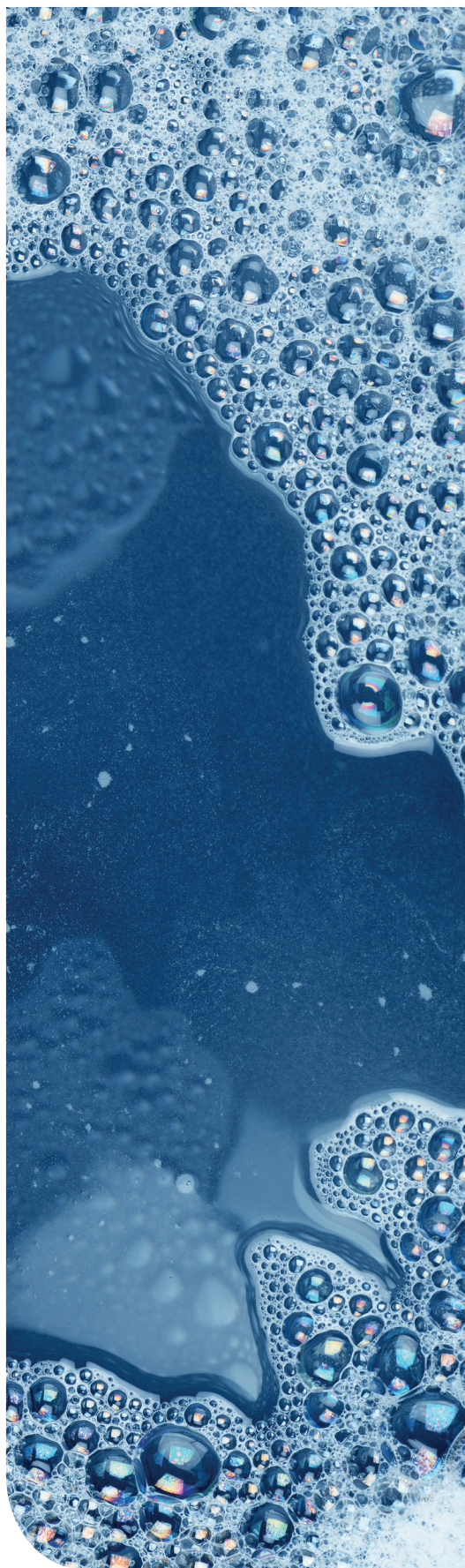
PCC EXOL SA is a company that combines cutting-edge technologies with rich experience in production of surfactants (surface active agents). The company is located in Brzeg Dolny (Poland), where anionic, nonionic and amphoteric surfactant production plants have been launched. Due to the flexible production processes, the company offers a wide spectrum of surfactants and industrial formulations, which are often suited for the individual customers operating in plenty of various industry sectors. As one of the leading surfactant manufacturers, PCC EXOL SA carries out new investment projects and implements innovative technologies based on the global sustainability trends.

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flexible production, knowledge as well as experienced personnel.

PCC EXOL SA has the key competence necessary for a worldwide production of surfactants. The ongoing projects will soon bring the new opportunities for the company's further development and expansion into new markets. The company offers not only a wide portfolio and professional servicing but most of all flexible production and comprehensive system solutions that meet individual customer demands. The strategic PCC EXOL SA investor is PCC SE, operating on international markets of the chemical raw materials, transport, energy, coal,

coke, petrol, plastics and metallurgy. PCC SE includes 80 companies operating in 39 different locations in 17 countries.



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September 2023

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