Rostabil
Secondary antioxidants

PCC ROKITA

General Description

Rostabil series – phosphite thermal stabilizers – provide unique protection against degradation during processing and entire life-cycle of plastics.
Considered as the most effective co-stabilizers exhibit outstanding thermal stabilization with primary antioxidants.
Dedicated to rigid and flexible PVC industry, also used in powder coatings, polyurethane foams, thermosets and rubber industry.

Key application

- Ducting pipes
- Window frames
- Wires & cables
- Household appliances
- Car tires
- Technical foils & films

Key features

- Enhance thermal stabilization during processing
- Provide brighter, more consistent colors
- Sustain excellent protection against degradation
- Ensure high performance at low loadings

Typical Properties

Properties	Appearance	Colour (Hazen units)	Acid value (mg KOH/g)	Density at 25°C (g/ml)	Refractive index n_D^{25}
Rostabil TNF	Slightly colored	Max 150	Max 0.3	0.975	1.530
Rostabil TPP	Clear liquid	Max 50	Max 0.5	1.183	1.588
Rostabil DDPP		Max 100	Max 0.1	0.947	1.4817
Rostabil DPDP			Max 0.1	1.030	1.5214
Rostabil TTDP			Max 0.2	0.884	1.4630
Rostabil TDP		Max 50	Max 0.1	0.887	1.4547

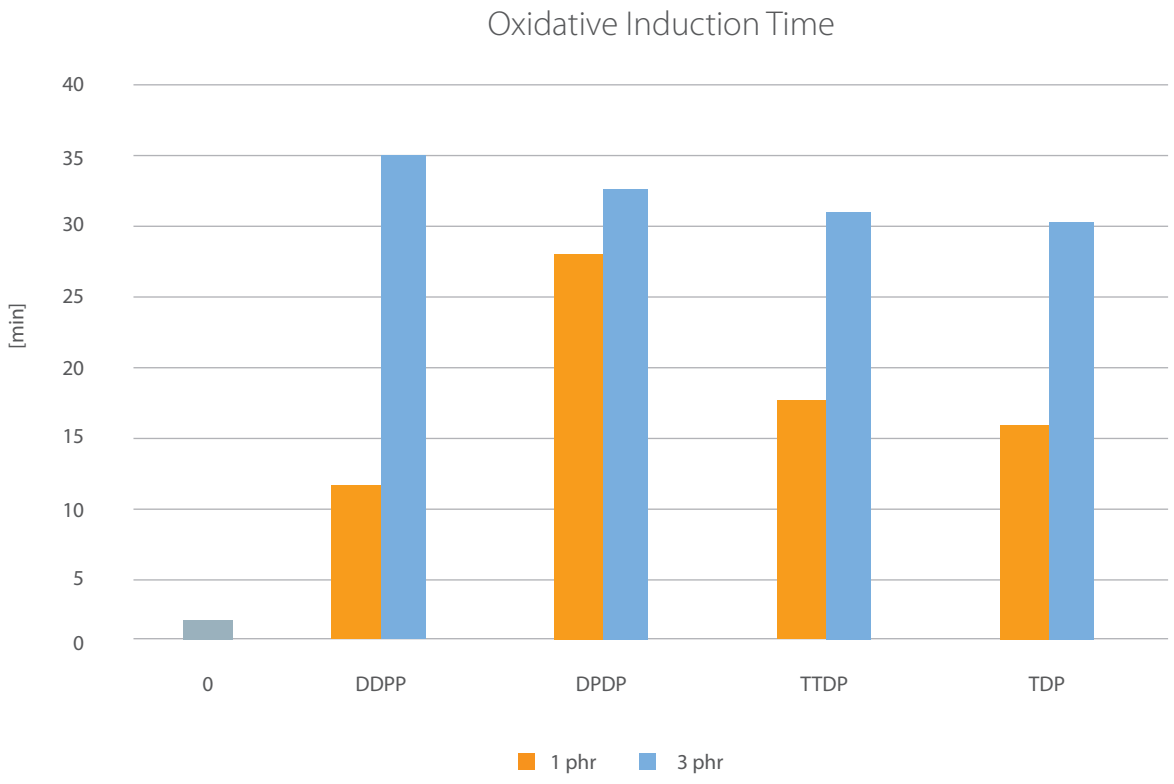
Application

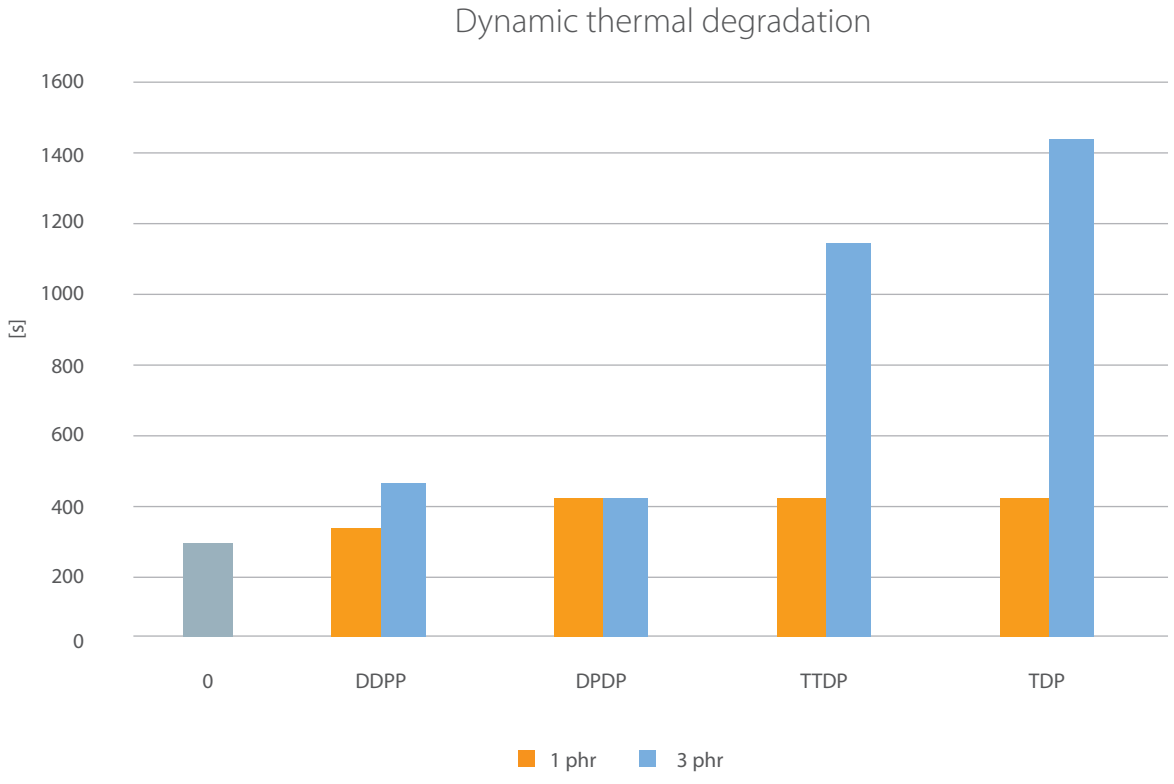
Rigid PVC - basic formulation

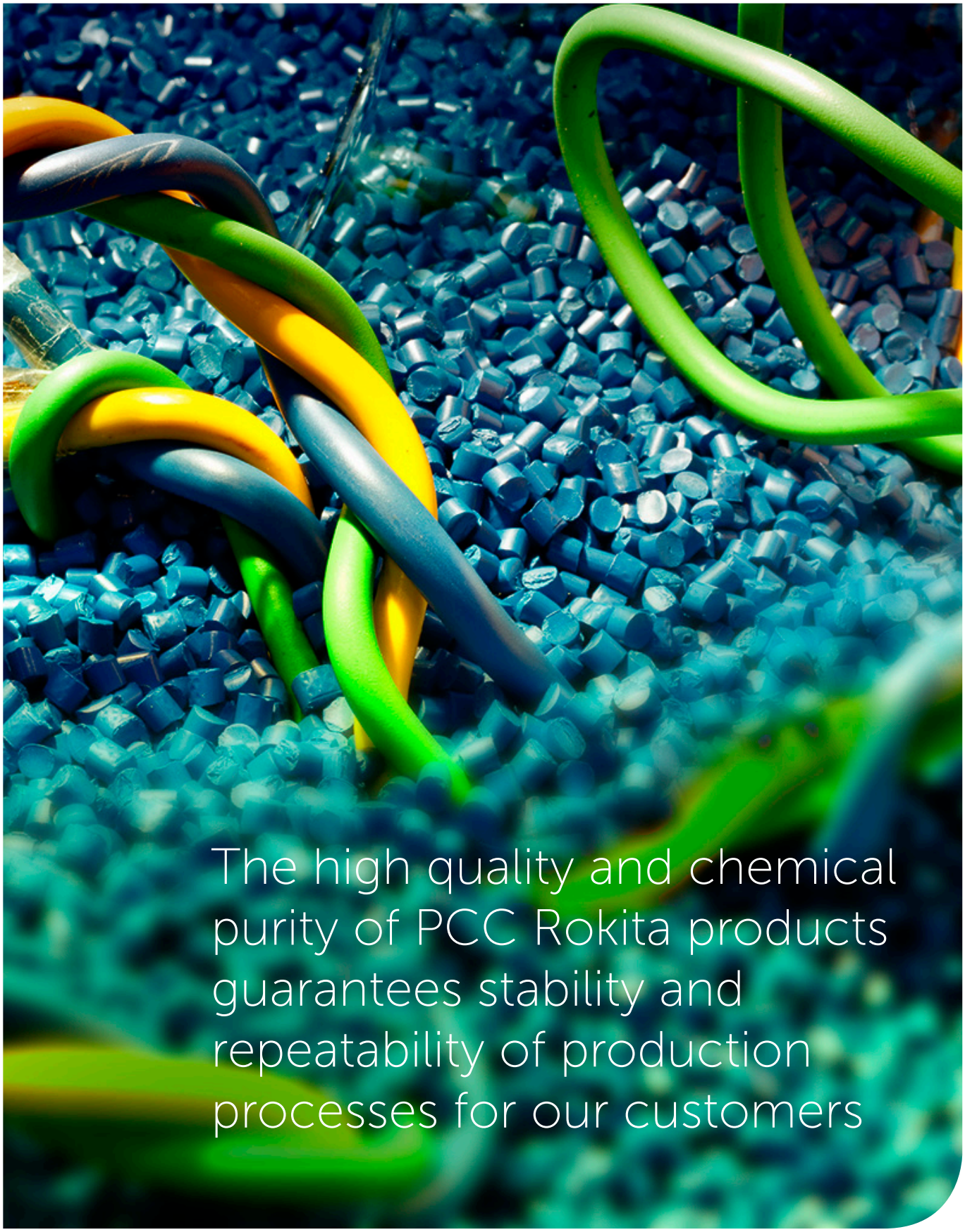
Compound	phr
PVC-s	100
Primary stabilizers (Zn/Ca mixed metals)	4
Secondary stabilizer	0-3*

Rostabil stabilizers - thermal degradation tests results

Secondary stabilizer	phr*	First color change[1] [min]	Total blacking[1] [min]	Oxidative Induction Time[2] [min]	Dynamic thermal degradation[3] [s]
n/a	-	0	25	1	304
Rostabil DDPP	1	10	15	11	356
Rostabil DPDP		25	35	28	438
Rostabil TTDP		10	30	17	424
Rostabil TDP		10	25	15	438
Rostabil DDPP	3	25	35	35	532
Rostabil DPDP		25	35	33	428
Rostabil TTDP		20	35	31	1176
Rostabil TDP		20	30	30	1418


Oxidative Induction Time
40
35
30
25
20
15
10
5
0
[min]
0
DDPP
DPDP
TTDP
TDP
1 phr
3 phr


Dynamic thermal degradation
1600
1400
1200
1000
800
600
400
200
0
[s]
0
DDPP
DPDP
TTDP
TDP
1 phr
3 phr

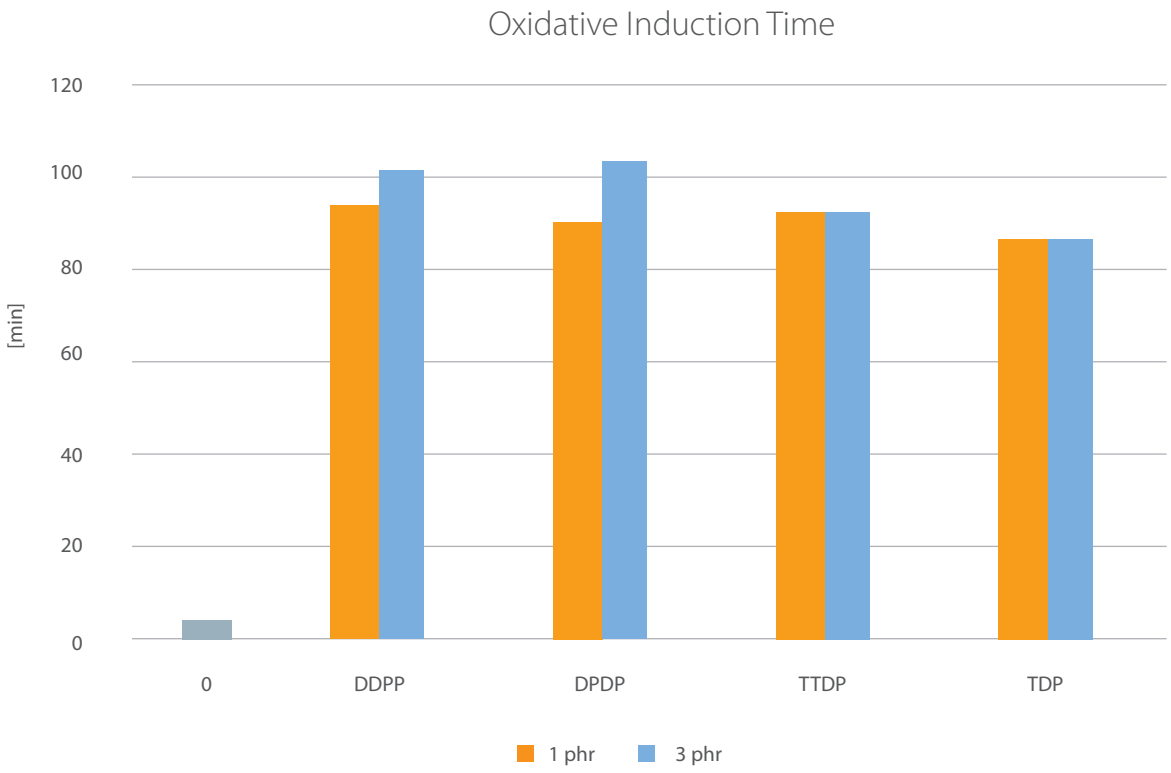

The high quality and chemical purity of PCC Rokita products guarantees stability and repeatability of production processes for our customers

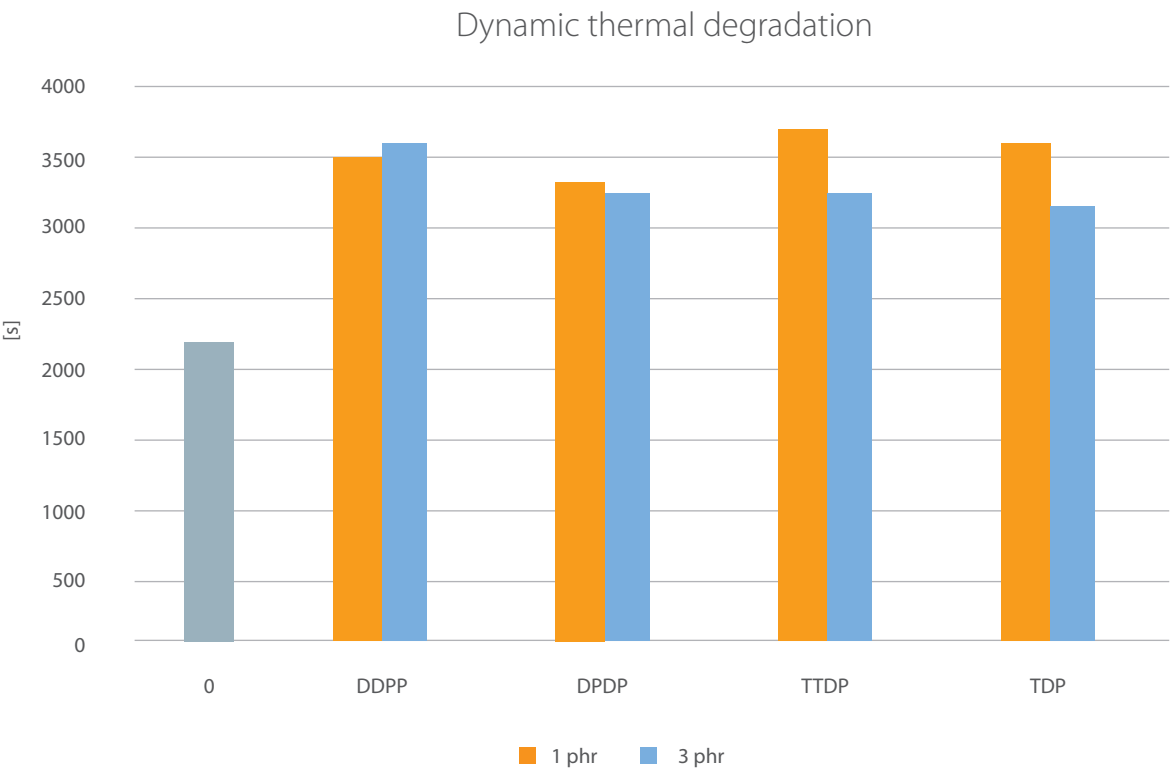
Flexible PVC - basic formulation

Compound	phr
PVC-s	100
DOTP (dioctyl terephthalate)	40
Primary stabilizers (Zn/Ca mixed metals)	4
Secondary stabilizer	0-3*

Rostabil stabilizers - thermal degradation tests results

Secondary stabilizer	phr*	First color change[1] [min]	Total blacking[1] [min]	Oxidative Induction Time[2] [min]	Dynamic thermal degradation[3] [s]
n/a	-	10	90	4	2140
Rostabil DDPP	1	90	110	94	3508
Rostabil DPDP		80	110	90	3380
Rostabil TTDP		50	80	90	3588
Rostabil TDP		50	80	86	3568
Rostabil DDPP	3	90	110	101	3540
Rostabil DPDP		90	110	102	3216
Rostabil TTDP		70	90	90	3268
Rostabil TDP		50	90	86	3112





[1] Test comprised color change observation in non-oxygen, isothermal (170°C) conditions. Defined two levels of PVC degradation: first color change (as first degradation step) and total blacking (as complete degradation).
[2] Oxidative Induction Time (OIT) was performed on Differential Scanning Calorimetry (DSC). Test illustrated PVC ability to prevention against oxygen degradation in isothermal conditions.
[3] Dynamic thermal degradation test simulated standard processing procedure. Degradation was measured by changes in polymer viscosity during processing in isothermal (170°C) conditions.

PCC Rokita SA
Innovations for the future

PCC Rokita SA is one of the leading chemical companies operating in Central and Eastern Europe. We provide high-tech solutions in the area of chemical production to deliver unique products for a wide range of industrial applications. Our key focus is the engineering, manufacturing and distribution of chemical products vital for broad range of businesses including plastics, construction, textiles, coating, and many others. We run our activity on a global basis. Sales outside of Poland represent approximately 60% of the total company revenue. Of this revenue, the most important market is Germany, which generates about 40% of our total sales.

Our product portfolio includes over 250 products that may be divided into four product groups:

- polyols
- PAG (polyalkylene glycols)
- alkalis, chlorine and chlorine derivatives
- phosphorus and naphthalene derivatives

The Company runs its activity based on strategic business units.

CHLORINE BUSINESS UNIT

The Chlorine Business Unit runs one of the most high-tech, environmentally friendly installations of membrane electrolysis. We provide – among many other products - chlorine and alkalis. Chlorine is a key raw material used in the production of 55% of all the products in the chemical industry. PCC Rokita SA is the biggest supplier of chlorine to water installations in Poland. Apart from chlorine, the unit also manufactures sodium hydroxide, chlorobenzene and hydrochloric acid.

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POLYOLS BUSINESS UNIT

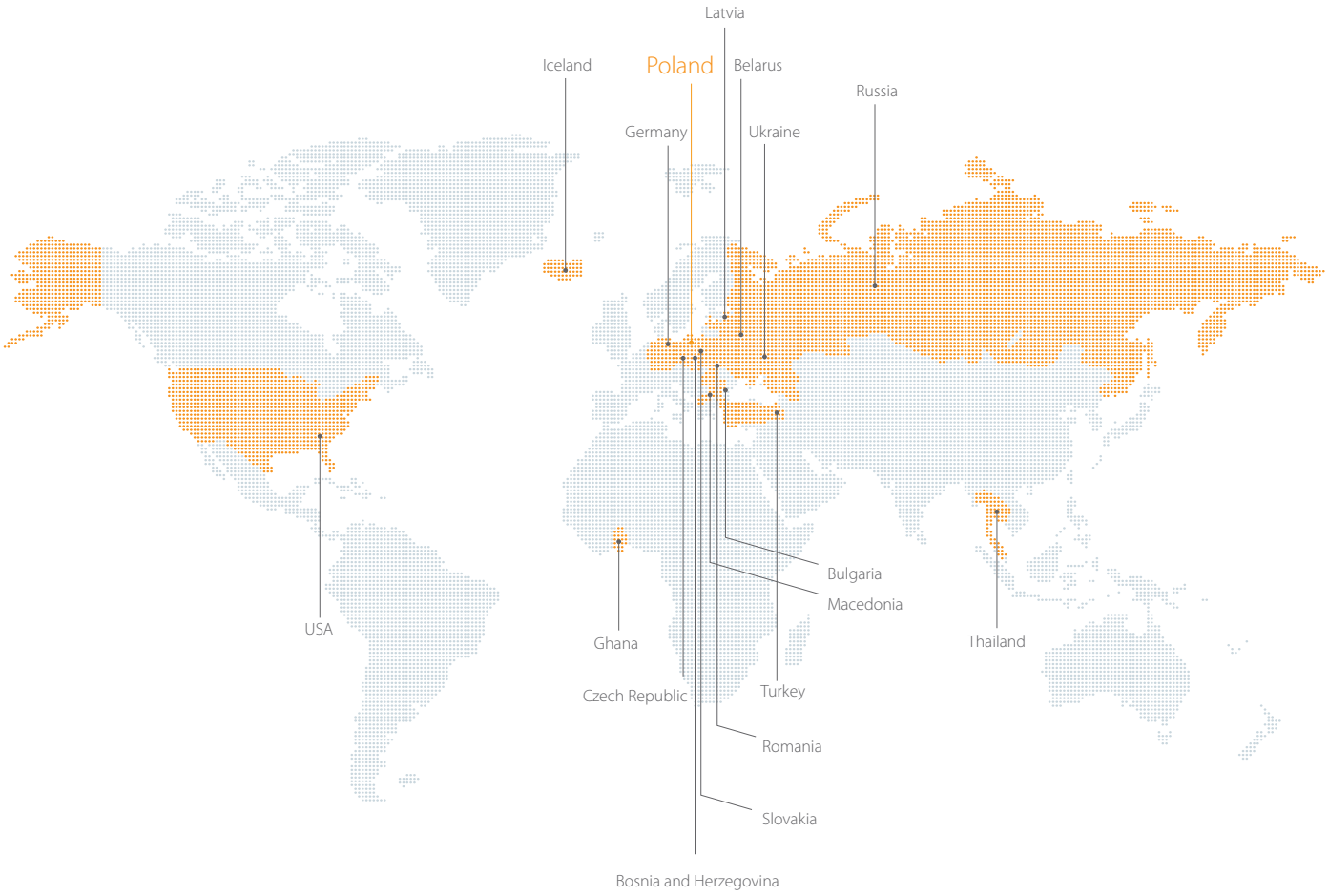
The Polyols Business Unit is one of the biggest European manufacturers of polyether polyols registered under the ROKOPOL® trade name. The ROKOPOL® product line finds its application mainly in the production of flexible foams, rigid foams and CASE applications. The foams are being used in the furniture industry, automotive industry and many others. The unit's other important product line is ROKOLUB® - a wide range of PAG (polyalkylene glycols) providing the base stock for lubricants.

PHOSPHORUS CHEMISTRY BUSINESS UNIT

The Phosphorus Chemistry Business Unit is the biggest producer of phosphorus flame retardants, for polyurethane foams, in Eastern Europe. We also provide naphthalene based super plasticizers for large infrastructure investments in Central and Eastern Europe. Moreover, the portfolio of the business unit also includes innovative products like polymer additives (e.g. flame retardant plasticizers, antioxidants, heat stabilizers) as well as fire-resistant hydraulic fluids and lubricant additives.

As a dominating business entity, PCC Rokita SA runs the PCC Capital Group, which includes over a dozen companies operating mainly in the chemical industry and specialist services industry. These companies provide services both for the PCC Capital Group and for the external market. The strategic investor of the PCC Rokita Group is the German company - PCC SE, which operates on multiple international markets including raw materials for chemistry, transport, energy, coal, coke, fuels, plastics and metallurgy. The International PCC SE Group consociate 78 companies operating in 17 countries of the world.

PCC Group in the world



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)
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PCC Autochem Sp. z o.o.

PCC Intermodal SA

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Grammage	200
Number of pages	8
COVER PAGES	
Brand	Cocoon Silk
Grammage	250
Number of pages	4
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Quantity	350

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