



Products

Principles, Processes and Instruments

A central principle of product development at Wienerberger is the creation of lasting value for our customers by supplying them with durable and innovative building material and infrastructure solutions. In our opinion, the relation between a product's useful life and its impact on the environment during raw material extraction, production, transport, installation, use and disposal plays an important role. Wienerberger brick products are an integral part of sustainable building concepts. They guarantee a high quality of life and contribute to climate protection, for example through their heat storage capacity. In the field of pipes and pavers, we offer system solutions for all present-day challenges, including the demands on water management resulting from climate change and increasing urbanization.

Research and development

In view of what users and developers expect of a modern building, and considering the numerous regulatory requirements to be met, such as the Energy Performance of Buildings Directive (EPBD), a system-based approach to building construction is getting more and more important. Integrated system solutions enable us to combine the outstanding properties of individual products of the Wienerberger product portfolio with products supplied by our partners in the field of building services and facilities in order to obtain the best possible results.

Wienerberger operates several research centers in Europe, each of them specializing in a different product group. Our product management specialists cooperate closely with the marketing and sales departments of the individual business units in order to adapt new developments to the needs of our customers. The market launch of new products across several countries is managed centrally, but the products are adjusted to local market conditions by our specialists on site. Thus, successful developments can be rolled out quickly and efficiently to the entire Group.

Wienerberger aims to secure and further strengthen its market positions through cost and technology leadership and product innovations. Therefore, research and development (R&D) are among the priorities of Wienerberger's strategic planning. R&D expenditure amounted to € 14.9 million in 2016, which corresponds to 0.5% of the Group's revenues.

Environmental product declarations and certifications

For many years, Wienerberger has been working intensively on the voluntary preparation of eco-balances and environmental product declarations (EPDs) for its entire product range.

All ceramic pipes and fittings produced by Steinzeug-Keramo as well as selected Semmelrock product lines have been certified according to the Cradle to Cradle® concept. This means that our products need not be disposed of as waste at the end of their useful life, but can be returned into the production cycle as feedstock for new products. Regular re-certification ensures a continuous improvement of the products according to the Cradle to Cradle® principles.

Results of our 2014 Materiality Analysis

At Group level, the following aspects relating to our products, their useful life and their "end-of-life" disposal were identified as material:

- › Innovative and durable products
- › Recyclability, recycling and re-use of products
- › Sustainability in construction and demolition
- › Ease of installation
- › Renewable energy for buildings
- › Contribution to the energy efficiency of buildings

Innovative Products

Products, system solutions or processes that represent an improvement over earlier versions or add to the diversity of the product range qualify as innovative. In a continuous effort up to 2015, the business units elaborated their own definitions of the innovative character of their products and system solutions in line with current market requirements, which facilitates Group-wide comparisons. These definitions refer to properties identified as material by our

Products

stakeholders, depending on the type of product or system solution. Durability, recyclability, recycling and re-use, contributions to energy efficiency, climate protection and the preservation of the cultural heritage, as well as cost efficiency and ease of installation, are considered to be of material importance. In 2016, innovative products and

system solutions accounted for 27% of the Group's total revenues. The specific quantitative targets of the individual business units regarding the contribution of innovative products and system solutions to revenues, as well as the results for 2016, are shown in the following overview.

Targets for the contribution of innovative products to revenues	Period	2015 in %	2016 in %	
Clay Building Materials Europe: 25%	<i>Every year</i>	27	26	These innovations include new products and system solutions that are durable and cost-efficient, contribute to the energy efficiency of buildings and to climate protection, ensure security and health for users of the buildings, facilitate correct planning, are easy to use and well-suited for an interesting architectural design.
North America: 50%	<i>2017</i>	46	49	The definition agreed upon in 2016 includes product innovations and system solutions that facilitate compliance with the new energy standards (International Energy Conservation Code, IECC), offer a higher level of energy efficiency and are well-suited for the construction of tornado-proof houses.
Pipelife: 20%	<i>Every year</i>	21	20	The definition includes product innovations that represent either a completely new development or a significant improvement of an existing product as regards the production process, cost-efficiency, technical properties or ecological advantages.
Semmelrock: 30%	<i>Every year</i>	39	37	The definition includes product innovations that offer an added value for customers on account of their cost-efficiency, their technical properties and their ecological advantages, such as water-permeable paving systems for unsealed surfaces.
Steinzeug-Keramo: 35%	<i>Every year</i>	41	39	The definition includes recently introduced products (e.g. Kerapro shafts), products for particularly innovative applications (e.g. jacking pipes for trenchless installation), particularly sustainable products in terms of energy efficiency and climate protection (e.g. climate-neutral pipes).

The targets of the individual business units and the measures relating to innovative products are presented in the following section, with a special focus on product properties identified as material.

Targets and Measures Relating to Products

The following targets and measures were defined by the Managing Board of Wienerberger AG and the management

of the individual business units on the basis of the materiality matrix developed in 2014. They are part of the Wienerberger Sustainability Roadmap 2020.

The data on North America do not include the North American production site of Pipelife. All data on Pipelife include Pipelife's production site in North America.

Innovative and durable products

*Clay Building
Materials Europe***Quantitative target**

- › The percentage of innovative products is to be maintained at 25% through continuous product development and market launches.

2016

- › Innovative products accounted for 26% of the business unit's revenues.
- › Product improvements were made and further innovation management measures were implemented. Customers were involved in these processes and life cycle analyses were performed. The processes included strategic reviews, innovation workshops, activity reports and the documentation of the respective projects.

2017

- › The product improvement and innovation management processes will be further advanced.

*North America***Quantitative target**

- › The percentage of innovative products is to be increased to 50% in 2017 through continuous product development and market launches.

2016

- › Innovative products accounted for 49% of the business unit's revenues.
- › The lighthouse project focused on the construction of tornado-proof homes was completed in Tuscaloosa/Alabama in cooperation with Habitat for Humanity.

2017

- › Potential local partners for cooperation on a further lighthouse project near Nashville are being evaluated.

*Pipelife***Quantitative target**

- › The percentage of innovative products is to be maintained at no less than 20% of the business unit's revenues through continuous product development and market launches.

2016

- › Innovative products accounted for 20% of the business unit's revenues.
- › Research and development projects aimed at product optimization as well as further innovation management measures were implemented.

2017

- › The activities described above are being continued.
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Innovative and durable products

Semmelrock

Quantitative target

- › The percentage of innovative products is to be maintained at 30% of the business unit's revenues through continuous product development and market launches.

2016

- › Innovative products accounted for 37% of the business unit's revenues.
- › The further development of water-permeable paver systems for unsealed surfaces was actively pursued. Examples include ecological paver systems with wide water-permeable joints that allow water to seep easily into the ground.

2017

- › Product solutions for water-permeable surfaces will be rolled out, the first step being the market launch of ASTI Breite Fuge in Hungary.
- › The newly developed surface treatment system, combined with an optimized application technology, will be rolled out to the local companies.

Steinzeug-Keramo

Quantitative target

- › The percentage of innovative products is to be maintained at 35% of the business unit's revenues through continuous product development and market launches.

2016

- › Innovative products accounted for 40% of the business unit's revenues.
- › A new innovation process was implemented in cooperation with an external partner.

2017

- › Work on the innovation process is being continued.

Recyclability, Recycling and Re-use

Clay Building

Materials Europe

2016

- › Various possibilities of using recycled brick material were evaluated within the framework of a pilot project carried out in cooperation with the Vienna University of Natural Resources and Life Sciences.

2017

- › The research and development project will be completed.
 - › Further measures will be defined on the basis of the results of the aforementioned research and development project.
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Recyclability, Recycling and Re-use

*North America***2016**

- › Work on the optimization of the closed resource cycle was continued.
- › New possibilities of using secondary raw materials as additives were tried out.
- › More packaging material was recycled.
- › The sale of products in “bulk bags” (stable, re-usable containers) instead of paper bags was rolled out.

2017

- › The aforementioned measures are being continued and their implementation will be evaluated at plant level and by the regional management.
- › Cooperation with suppliers will focus on packaging efficiency and the recycling of packaging material.
- › A supplier guideline will be elaborated to promote the re-use and/or recycling of packaging material.
- › An internal initiative will be aimed at identifying the causes of waste and reducing the volume of waste generated.

*Pipelife***Quantitative target**

- › By 2020, the amount of recycled material per ton of products produced is to be increased to 70 kg.

2016

- › Research projects were carried out to establish the optimum percentages of primary and secondary plastic materials to be used in Pipelife products.
- › The technical feasibility of using recycled material was further investigated and production sites suited for implementation were identified.

2017

- › The research projects are being continued and the results will be put into practice at additional production sites.
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Recyclability, Recycling and Re-use

Semmelrock

2016

- › The recycling potential in the various product groups was analyzed.
- › On the basis of the results obtained, possibilities of substitution in the company's product range were evaluated.

2017

- › Studies on the possibility of using secondary raw materials without compromising quality are being continued.
- › The substitution of recycled material for primary raw materials, e.g. in road construction, will be further optimized.
- › The re-certification of ARTE interlocking pavers according to the Cradle to Cradle® concept is being prepared. The ARTE product family comprises a selection of pavers in various formats, 8 and 10 cm high, with an integrated interlocking system designed especially for surfaces under high traffic load that prevents shifting and deformation.

Steinzeug-Keramo

2016

- › All the necessary measures were taken to obtain the scheduled Cradle to Cradle® re-certification.
- › The percentages of internal and external secondary raw materials used in production were evaluated for all production lines. Currently, the average percentage of secondary raw materials used is 40%. This value is subject to continuous evaluation on the basis of ecological, technological and economic criteria.

2017

- › Additional possibilities of improving material properties while increasing the recycling rate as much as possible are being evaluated.

Ease of installation

Clay Building

Materials Europe

2016

- › Intensive efforts were made to develop new products and/or system solutions to speed up and facilitate masonry work and to minimize the risk of mistakes made at the construction site.
- › Special analog and digital planning tools as well as personal support services were provided to familiarize architects and designers with the best possible way of using brick products.

2017

- › The solutions available for the applications described above will be further improved and upgraded.
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Ease of installation

Semmelrock

2016

- › The safe use of products for their respective applications was supported by a CAD design service for private, commercial and public projects, and the design of tailor-made public spaces was facilitated.
- › The process of setting pavers at the construction site was facilitated through product optimization.

2017

- › Additional visualization tools are being developed for optimum application of the products supplied.
- › Slabs and pavers in large formats are being developed and products requiring a high level of application know-how are being optimized.
- › Work on product optimization to facilitate setting is being continued.

Pipelife

2016 and 2017

- › For years, Pipelife has been working on solutions that facilitate the installation and use of plastic pipe systems. This issue will remain at the focus of Pipelife's research and development activities.

Renewable energy for buildings

Pipelife

Renewable energy for buildings is an important topic for Pipelife.

2016

- › Pipelife's range of geothermal products was broadened and the related revenues increased.

2017

- › The range of such products available will be further extended.
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Contribution to the energy efficiency of buildings

*Clay Building
Materials Europe*

2016

- › The development of clay blocks filled with insulating material was advanced, especially for use in multi-story residential buildings.
- › High thermal insulation clay blocks without infill material but with a special hole geometry were further developed, both for use in single-family homes and for non-load-bearing infill masonry.
- › New facing brick formats for multi-layer exterior walls were introduced to permit the use of more efficient and thicker insulating material without increasing the wall thickness.
- › Special solutions for upon-rafter insulation of pitched roofs were included in the delivery program.

2017

- › The solutions available for the applications described above will be further optimized and upgraded.

North America

2016 and 2017

- › North America is continuously working on the development of new products and system solutions that facilitate compliance with the new energy standards (International Energy Conservation Code, IECC) and offer a higher degree of energy efficiency.

Pipelife

2016

- › The product portfolio for heating and cooling systems for buildings was enlarged.
- › Pipelife continuously optimized and enlarged the range of planning tools that can be used to measure the heat loss and the heat requirements of individual residential units and entire buildings as a basis for the design of more efficient heating systems.

2017

- › The range of products available for these applications will be further enlarged.
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