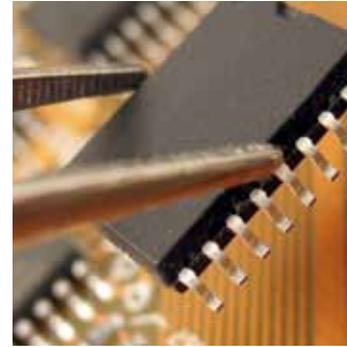


# Ceramics

When tradition builds a future



secure  
the future  
through  
tradition &  
innovation

Through continuous technological, scientific and innovative advances, the Ceramics Industry is making an immense impact on our everyday lives. While this impact is perhaps more obviously seen in familiar products around our homes, there are other products, particularly on the industrial side, which today are also being made from ceramics because of the very special properties which the materials possess. These technological developments promise an exciting future for the ceramics industry.

From the long European tradition of fine china and table ware manufacturing, to bricks, roofing tiles, wall and floor tiles, sanitary ware and, below ground, clay pipes, the Ceramic Industry plays a major role in our daily environment. Technical ceramics are now used in a whole range of high-tech products including computers, jet engines, lasers, radars, thermal imaging devices and artificial joints, to name but a few.

Equally important is the abrasive industry producing grinding tools. Last but not least, the manufacture of any steel, cement or glass is impossible without refractory ceramics. In fact, the importance of ceramics to everyday life in the 21<sup>st</sup> century cannot be overstated.

Throughout, the industry prides itself upon its responsible approach to the environmental and social impact of its activities. Our companies invest each year in such areas as site landscaping, energy efficient factories, emissions reduction and the recycling of heat and waste and much more. In addition the industry is passionate about resource efficiency which is the use of the Earth's limited resources in a sustainable manner. It means producing more value with fewer inputs, and consuming in a more intelligent fashion. In order to showcase the product range of this world leading industry, examples are presented here in the light of resource efficiency.

Ceramic building materials such as bricks and roof tiles provide the basis of our European architectural heritage and modern masonry design. Technology has transformed the production process to provide products that deliver efficient and healthy living conditions. From an environmental perspective buildings with pitched roofs are perfect for collecting and recycling rain water, masonry walls minimise maintenance, heating and cooling costs.

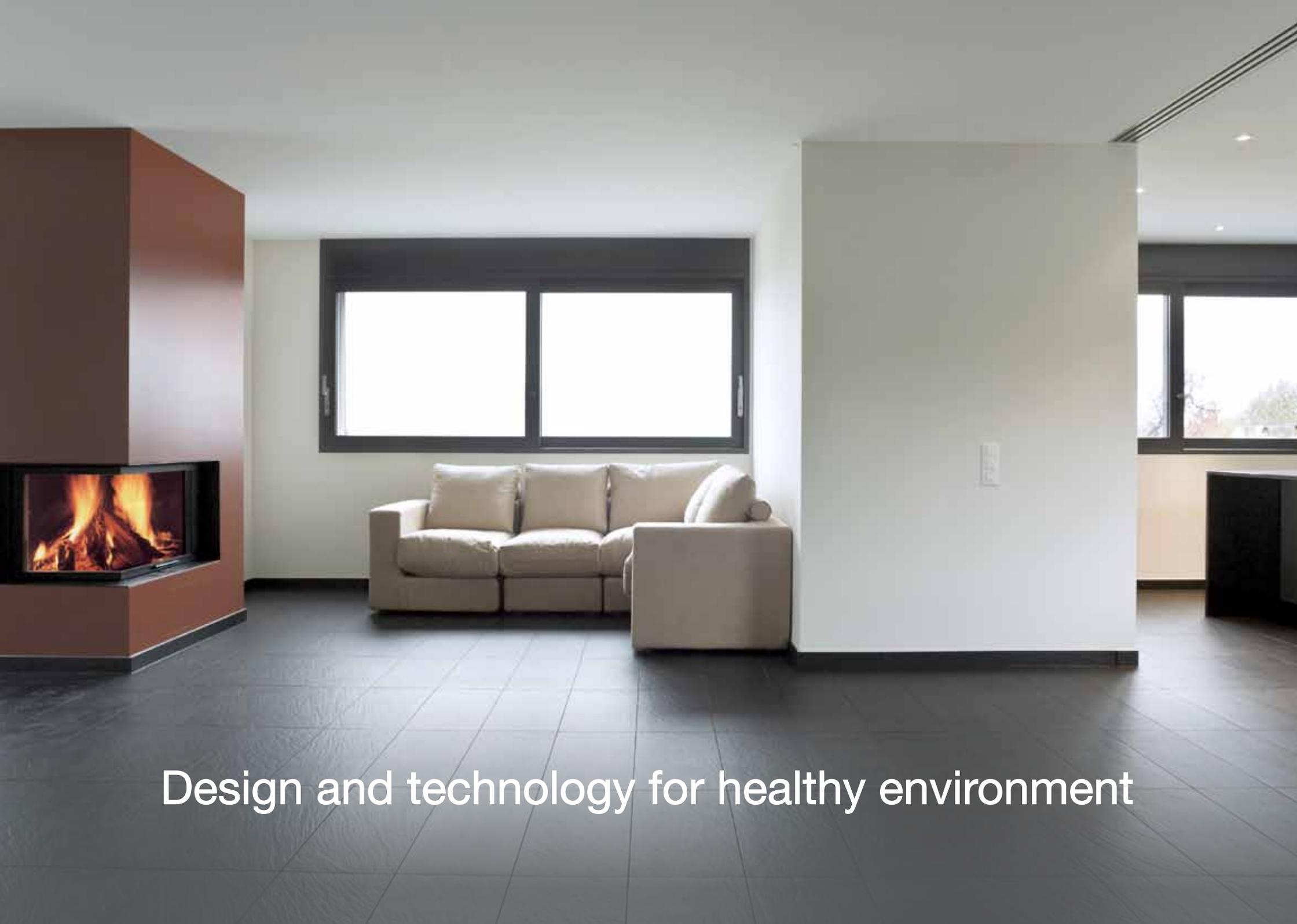
More so, ceramic building materials offer a healthy indoor climate with high seismic and fire resistance. Ceramic buildings have an average life-span of over a century and so allow a trans-generational transfer of ownership.



# Roof tiles & bricks

Long service-life  
and energy efficient  
construction





Design and technology for healthy environment

The European ceramic tiles industry has traditionally been recognised as the world leader in its field with regards to design, innovation and sustainability. Ceramic tiles applications include floor and wall covering and external cladding. In the production phase, the sector focuses on recycling and energy efficiency through, for example cogeneration. One of the major characteristic of ceramic tiles is that they are chemically and physically inert, which in use leads to improved health and hygiene through ease of cleaning and, more importantly, no release of dangerous substances to indoor air.

Other applications such as ventilated façades and insulating tiles also contribute to the energy efficiency of buildings. Ceramic tiles are highly resistant to mechanical friction and thermal shocks. Their durability makes them one of the most resource efficient construction materials.



# Wall & floor tiles

Refractory products are of strategic importance for life as we know it in the 21<sup>st</sup> century. They are vital in all high-temperature processes, such as the production of metals, cement, glass, ceramics and petrochemicals and therefore essential for the production of cars, planes, trains, buildings, chemistry, gas and electricity.

Over recent decades, this dynamic and innovative industry has considerably extended the lifetime of its products thereby contributing directly to resource efficiency.

The European refractory industry also continues to increase the quality of its products. This not only results in important energy savings and CO<sub>2</sub> reductions in the downstream industries but also enables the implementation of green technologies such as power generation through photovoltaic cells or wind turbines, and the use of light-weight or electrically powered cars.



# Refractories

A futuristic laboratory setting with a dark blue background. Several bright blue light beams are directed downwards from circular openings in the ceiling. In the foreground, there are dark, rectangular blocks. A red ribbon or cable is visible on the right side, draped over one of the blocks.

Strategic importance for green technologies



Leading technology for safety  
in use and effective life

The abrasive industry is investing significant resources into the development of sustainable grinding tools. The industry goes to enormous lengths to ensure that its customers can use its products safely.



A major target of the industry is maximising the effective life of grinding tools thereby reducing the raw material and energy consumption. More so, these production processes are systematically assessed in order to increase resource efficiency. Heat exchangers and afterburners help optimise energy use, while recycling of rejects and grains reduces raw material consumption. Best available technologies are applied to ensure both high quality products and a resource efficient production.

# Abrasives

The European table and ornamental ware industry has a very long tradition of manufacturing high-quality and beautiful household goods with a long lifetime. Traditional craft skills are still valued in the industry, although advanced manufacturing techniques including robotics are applied where appropriate. The industry has constantly modernised its production processes and increased its energy efficiency.

Over the last decades, the European table ware industry has successfully adapted to changing consumer taste, modernised its production techniques whilst respecting the most advanced environmental standards.



# Table & ornamental ware



Modern and energy efficient  
table ware production

A close-up, top-down view of a white ceramic sink. The sink is oval-shaped and features a silver-colored drain with a grid pattern in the lower right quadrant and a smaller circular hole, likely for a faucet, in the upper right quadrant. The background is a plain, light-colored surface.

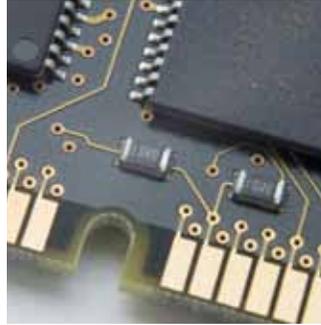
**Durable products for  
water saving solutions**

The European ceramic sanitary ware industry is focused on high quality products, made entirely from natural materials. Ceramic sanitary products are highly durable since they do not fade or age. They are resistant to the chemicals used in the bathroom.



The European ceramic sanitary ware industry constantly develops innovative water-saving solutions, such as waterless urinals, shallow depth wash basins and water efficient toilets and cisterns. Moreover, the industry has invested massively in sustainable production technologies for waste and water recovery and energy saving over decades.

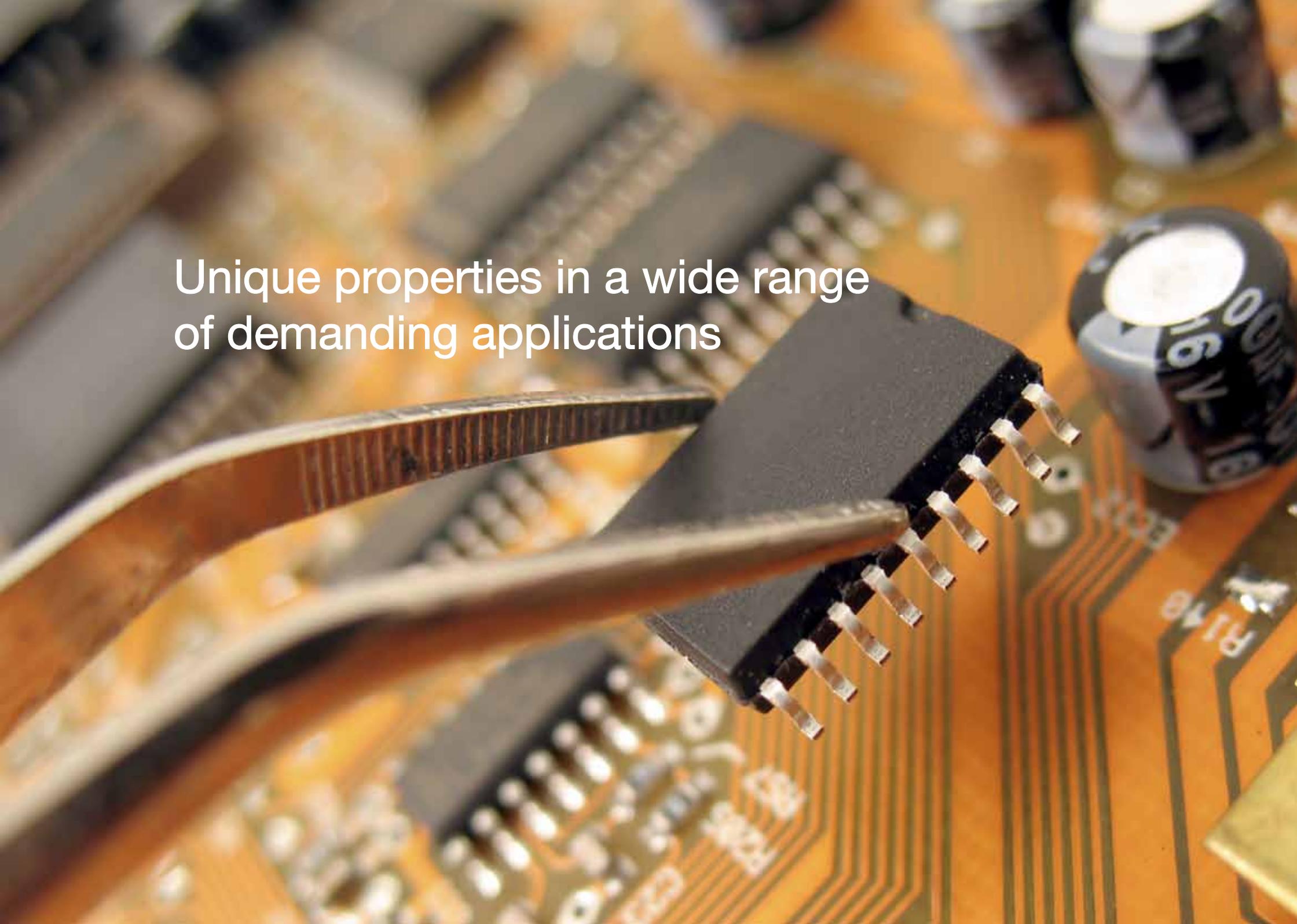
# Sanitary ware



Technical ceramics are characterised by their incredible versatility, possessing qualities of high mechanical strength, durability, and heat resistance. The wide range of applications is not limited to specialised markets but covers many strategic applications essential to everyday life including global resource efficient solutions. A few striking examples include the airbag sensors, heart pacemakers, filters, catalytic converters and high temperature fuel injection systems.

# Technical ceramics

Unique properties in a wide range  
of demanding applications





Sustainable protection of groundwater and soil

The European clay pipes industry is committed to forward-looking products in the field of wastewater for drains and sewers. A modern vitrified clay pipe is a combination of unique material features, added to years of experience, research and development. Vitrified clay pipes meet all specifications that are laid down for sewers and are designed for a very long lifetime of up to 100 years and more. The pipes are made of natural surface minerals that are abundant and mined in an environmentally sensitive manner. The production process is low energy-intensive and the vitrified clay pipes can be recycled.



# Vitrified clay pipes



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