

## Industrial Corrosion Protection



# STEULER 1908

**1917** brings the establishment of a second pillar: acquisition of a wall sheeting factory in Mühlacker, Germany – today Steuler-Fliesen GmbH.

**1965** Expansion: Steuler Plant Construction is expanded to become a separate, independent division.

**1970** is the year Steuler merges the structural materials concrete and plastic to create the thermoplastic lining Bekaplast; development of the liquid film Oxydur UP 82.

**1975** sees the patent for the Steuler self supporting ceramic dome for reaction towers.

**1910** sees the construction of a factory building in Höhr-Grenzhausen with one furnace. In-house manufacturing of acid-resistant brick begins; a next step in development sees the production of refractory brick.

**1908** marks the beginning of Steuler-Industriewerke with the development of the world's first acid-resistant cement. This innovation paves the way for Georg Steuler to build large-scale technical chemical plants.

**1867** marks the establishment of the company through a lien to mine Westerwälder clay "at the lignite mine Berggarten" in Siershahn.

**1926** sees the construction of a fireclay factory, production of acid-resistant and refractory grade brick.

**1936** brings the acquisition of the specialty corrosion construction company Keramchemie in Andernach.

**1974** is the date for the start of in-house production of rubber linings.

# 1867 KCH

**1966** sees not only the making of thermoplastic constructions but also the production of components made of fiberglass reinforced polyester and epoxy resins.

Steuler has become large and known around the world for its Industrial Corrosion Protection unit, which includes the fields of Surface Protection, Refractory Systems and Plastics Engineering. Together they create a unique combination of innovative material developments and lining technologies.

Steuler Plant Construction/Environmental Technology implements custom-tailored, turnkey plants all around the world, always with an eye to protecting the environment.

A further pillar of the company is the Steuler Tile Group. Contemporary, design based and exclusive wall, floor and decor tiles are manufactured for the global market at four different sites.

The traditional company Keramchemie (KCH) has also been developing over the decades to become a successful, internationally active corrosion protection provider, headquartered in Siershahn, Germany.

**1985** marks the development of refractory chrome-corundum brick for toxic waste incineration plants.

**2004** comes with the development of wet electrostatic precipitator bundles with conductive interior walls.

**2008** and Steuler celebrates its 100th anniversary.

**1999** brings the acquisition of the Westerwälder Korrosionsschutz GmbH (WKS).

**2010** acquisition of the KCH activities by Steuler.

**STEULER  
KCH**



With the integration of KCH, Steuler is taking a further significant step in its corporate evolution. For clients of the two brands, which have been in competition to date, excellent new prospects have opened up: The joint range of corrosion protection products and services allows even greater synergies to be attained for both clients and large scale international projects.

Whether it is protective linings, rubber sheeting, refractory masonry, industrial flooring, brick and tile, or mechanically

anchored thermoplastic linings; STEULER-KCH develops convincing solutions for every application. Refractory lining systems and equipment, tanks or piping made of thermoplastics and duroplastics complement and complete the portfolio.

There is even an experienced project and installation team available for the safe and secure sealing of swimming pools.

## **ASSEMBLY / INSTALLATION**

Expert installers  
Monitoring of assembly by  
STEULER-KCH supervisors  
Application technology  
Quality assurance



## **CONSTRUCTION AND ENGINEERING**

Technical consulting  
Engineering  
Project execution

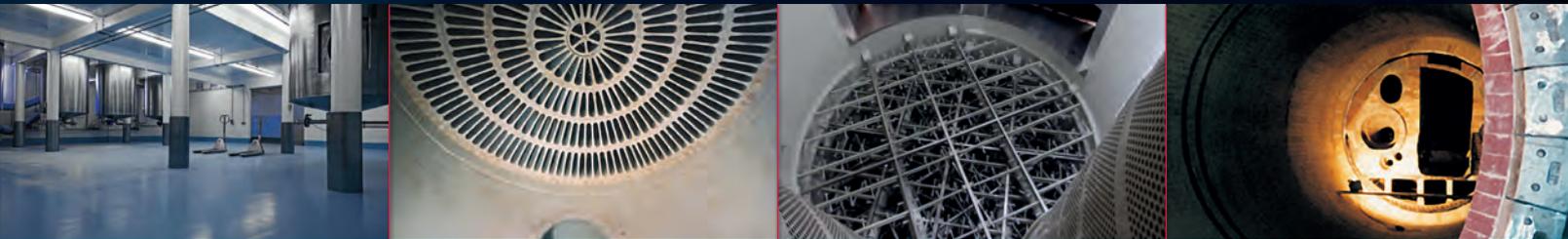
## **RESEARCH AND DEVELOPMENT FULL PRODUCTION FACILITIES**

From its vast range of materials, STEULER-KCH can select, together with its clients, the most technically effective and economically sensible lining system.

From research and development, consultancy, design and engineering, production and construction, installation and service, STEULER-KCH offers complete solutions from a single source.

Delivering complete solutions also means that smooth project management is always at the client's side.

Technical consultancy comes from the experienced STEULER-KCH specialists who advise and work out the optimal solution for each project. Tested and qualified by a comprehensive, international quality assurance and management system.



## Flawless interplay down to the last detail: Materials, know-how and service

### **SURFACE PROTECTION DIVISION**

Lining and floor coating systems, cements, jointing materials, brick and rubber linings

### **PLASTICS ENGINEERING DIVISION**

Thermoplastic lining systems  
equipment, piping and tanks made of duroplastics and thermoplastics

### **REFRACTORY SYSTEMS DIVISION**

Refractory lining systems

### **POOL CONSTRUCTION DIVISION**

From the first consultation to final execution, the client has at his disposal a partner he can come to for all application and technical issues in often complex plants.

A project team plans and coordinates skilled execution of the works. Discussions among material suppliers and installing contractors, providing installation instructions, on site construction supervision and the proper, professional processing of its products is an asset of STEULER-KCH.

Together with our international subsidiaries and representatives, STEULER-KCH offers its client's a worldwide network that develops and deploys comprehensive corrosion protection solutions.

This is why STEULER-KCH is a permanent fixture among engineering companies worldwide; always in demand for large-scale projects around the globe.



**Above:** Self supporting Steuler Dome constructed of acid proof ceramic, above a gas inlet.



**Above:** Reactors lined with chemical and abrasion resistant linings.

- | Membranes based on polyurethane, epoxy resin, unsaturated polyester resin, vinylester resin, resin, rubber linings and thermoplastics.
- | Standard bricks, formed bricks and special shaped bricks are available in a variety of grades (acid-resistant ceramic, graphite, carbon, and refractory).
- | Synthetic resin cements based on phenol, furane, unsaturated polyester and vinylester, including a variety of potassium (water glass) mortars.
- | A variety of synthetic resins based on polyurethane, epoxy, vinylester, unsaturated polyester and furane are trowel-applied, poured, sprinkled or applied as laminate systems.

- | Coordinated layered system (primers, adhesive and levelling coats, interim layers, top and wear coats, sealants) with a variety of fillers and reinforcing materials.
- | Using acid-resistant ceramic brick and tile, also carbon materials in standard and special sizes in connection with bedding and jointing cements and mortars on a water glass or synthetic resin base, high-quality flooring systems are created.
- | Building permits for resin systems based on polyurethane, epoxy, vinylester and furane for all test groups in accordance with the permit guidelines of the German DIBt (German Institute of Building Technology) and other chemical tests.

STEULER-KCH possesses and manufactures a comprehensive product portfolio of acid resistant membranes, cements, bricks and mortars that meet all the demands for industry. For high temperature applications or specific arduous zones, we can supply a complete installation.

STEULER-KCH is thus your experienced partner for such membrane and brick lining; for example: pickling plants, regeneration plants, process tanks, flue gas piping, reactor vessels, venturi scrubbers, autoclaves, absorption towers and many more processing units. With our practical experience and know-how of our innovative construction department, we can advise you on selecting the lining system that will best suit the process you are operating with.

Our vast selection of reliable materials enables you to find the system solution that fits each application.

**Below:** Membrane and brick linings in autoclaves and flash vessels.

**Below:** Thermoplastic drains and channels, mechanically anchored in the foundation, with special detailed solutions to connect them to the tiled industrial floors.

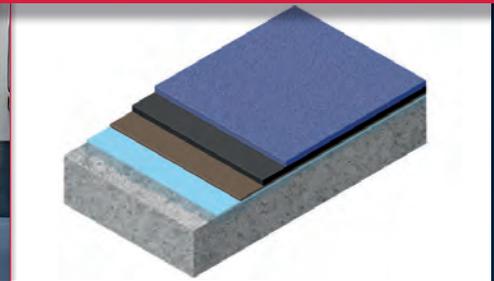
**Below:** Flooring systems for the pharmaceutical industry are to be leak proof, even with expansion joints.



## STEULER-KCH Surface Protection Division



**Above:** Floor coating for the cosmetic industry.



**Above:** Schematic buildup of a typical floor coating.

Flooring and acid-resistant tile from STEULER-KCH protects the concrete substrate from corrosive destruction, prevents chemicals and toxic materials from penetrating it and contributes to maintaining the value of your plant.

Solutions tried and proven in practice for expansion joints, channel connections and channel construction, as well as the sealing details for plinths and hall structures complete the vast array of flooring systems.

A large number of our flooring systems can be applied in a variety of RAL tones and in a high-quality look by sprinkling synthetic chips or colored sand onto the material. Special grades developed for the food processing and pharmaceuticals industries are available as well as electrically conductive systems for the electronics and other industries.

### **Linings with the general building and construction permit from the German Institute for Building Technologies, DIBt**

From its vast range of materials, STEULER-KCH can select the most technically effective and most economically sensible lining system. We back you up in your project from planning, approval, material selection, installation, right through to acceptance and commissioning. And furthermore, many of our systems even meet such additional demands as anti-skid surfaces, ability to support wheeled traffic or electrical conductivity.

As a specialist operation recognized in accordance with the German Water management Act, WHG, we are aware of our responsibility for the proper and professional installation by our own trained specialist installers.



**Above:** Rubber-lined area of a clean gas channel.

**Above:** Rubber-lined tank in phosphoric acid production.

- | Numerous grades of rubber linings for steel and concrete structures based on butyl (IIR), brombutyl (BIIR), chlorobutyl (CIIR), chloroprene (CR), natural rubber (NR) and other special grades.
- | Self-vulcanising or pre-vulcanised, hot water grades.
- | Crack bridging an elastic testable membrane with defined thickness.
- | High-performance trowel-applied coatings with fillers that determine its properties, for use against harsh chemical and mechanical attack, based on vinylster, epoxy and furane resin.

STEULER-KCH rubber linings are used for corrosion technology. The criteria for choosing rubber linings are: chemical resistance, temperature and abrasion resistance, as well as the size and geometry of the structure to be protected.

Additional demands on the rubber may be: resistance to vacuum, capability to be contaminated, a high level of resistance to diffusion and its crack-bridging capabilities for concrete structures, these characteristics are all in addition to the chemical resistance values.

STEULER-KCH rubber linings are widely used in a variety of areas such as: concrete trenches, concrete tanks, pressurised and vacuum equipment, pickling tanks, Venturi scrubbers, processing and storage tanks. In addition to a variety of soft rubber linings, STEULER-KCH also offers hard rubber linings with special resistance properties. Rubber linings are often used as membranes under masonry.

STEULER-KCH delivers and carries out the installation work.



**Right:** Spray-on polyurethane coating applied in a processing tank.

## STEULER-KCH Surface Protection Division

| Spray-on coatings based on polyurethane, vinylester, unsaturated polyester resin and epoxy resin with special flake fillers to achieve high diffusion resistance, special vinylester resin, unsaturated polyester resin, furane resin and epoxy resin coatings with approval for use with drinking water.

| Laminate linings with glass and synthetic fibre reinforcement based on furane resin, vinylester resin, unsaturated polyester resin and epoxy resin.



**Above:** Supporting concrete structures and floor surfaces beneath electrolysis cells are reliably protected with polyurethane coatings.



**Above:** Droplet separator in a coated scrubber nozzle.

Whether in new construction or the renovation of existing plant and equipment, our objective is to permanently protect storage tanks, drinking water tanks, pipes, scrubbers, flue gas channels, basins and combustion equipment, in order to minimize production downtimes and maintenance work. For such purposes, a huge number of tried-and-tested and innovative lining systems are available to select from, all of them resistant to the harshest chemical, mechanical and thermal conditions.

In plants with processing technology, linings are exposed to a myriad of corrosive conditions that they

have to cope with in every aspect. To achieve reliable and durable corrosion protection, STEULER-KCH also develops, in cooperation with its clients, customised solutions for their specific requirements and processing technologies.

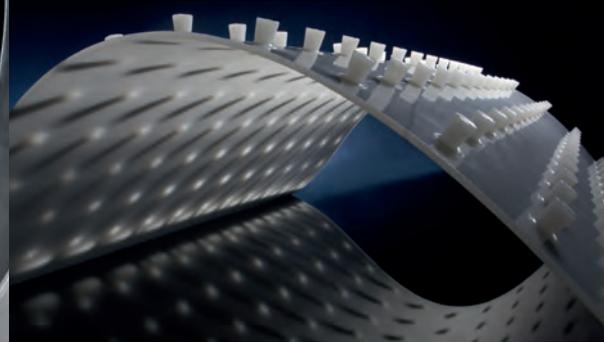
Rapid installation times and brief curing periods see to it that as little production time as possible is lost.

Our own expert installers and supervisors assure that innovative application technologies are implemented in guaranteeing a quick, cost effective and high quality execution of your project.



**Above:** Nozzle arrays and linings made of polypropylene in concrete flue gas scrubbers. Here one of two flue gas desulphurisation scrubbers for the 2,200 MW RWE lignite-fired power plants Neurath BoA II/III, built for AE&E.

**Below:** Bekaplast™ Lining 400: The knobs on the sheets create the mechanical bond with the concrete substrate.



- | Thermoplastic materials, such as: polypropylene (PP), polyethylene (PE), polyvinyl chloride (PVC), polyvinylidene fluoride (PVDF) and other special grades.
- | Duroplastic materials, manufactured from unsaturated polyester resins or vinylester resins, reinforced with e-glass, and in special cases also with carbon or other synthetic Fibres.
- | Composite materials made of thermoplastic inner liners (PE, PP, PVC, C-PVC, PVDF, ECTFE, FEP, PFA, PTFE-M) and duroplastic reinforcement material as noted above.

STEULER-KCH constructs plant and components from technical plastics. Clients are supported with competency and practical experience in accordance with their needs in plant and processing technology. STEULER-KCH provides from research and development through to engineering and design utilizing our own production facilities using state-of-the-art manufacturing equipment right through to plant assembly and installation. Therefore, STEULER-KCH offers complete plastic solutions from a single source.

Innovative materials, their skilled application and construction, as well as new material compounds are constantly expanding the opportunities for use of plastics in numerous applications.

STEULER-KCH is a specialist when it comes to using new components and fixtures to fundamentally enhance an existing plant. Instead of investing in completely new plant and equipment, it is often worthwhile integrating new developments into already existing plants to keep them state-of-the-art in respect to material and technological terms.

**Below:** Equipment internals made of KERA-Duroplast.

**Below:** Fibreglass reinforced ring pipe with internal layer for protection from chemicals.



## STEULER-KCH Plastics Engineering Division



**Above:** Throttle valve with actuator.



**Above:** Construction of a completely prefabricated Polypropylene Tank system for a steel band pickling plant.



**Above:** Tube bundles for wet electrostatic filter for a Gas Cleaning Plant made from flame retardant polypropylene.

### Bekaplast thermoplastic linings for steel and concrete structures

STEULER, more than 40 years ago realized the potential of corrosion resistant plastic linings and has been targeting their applications ever since.

Bonding an extremely corrosion and chemical resistant thermoplastic lining with concrete, which has high static solidity, leads to an ideal combination of stability, safety and durability. Whether for the chemical processing industry or for use in public sewage systems, the advantages of thermoplastic lined concrete and steel structures have proven themselves.

### Kera-Duroplast

KERA-Duroplast is a chemical and temperature resistant material based on phenol resins reinforced with glass or carbon fibers. By combining fibers and fillers, you receive the properties required for all technical applications.

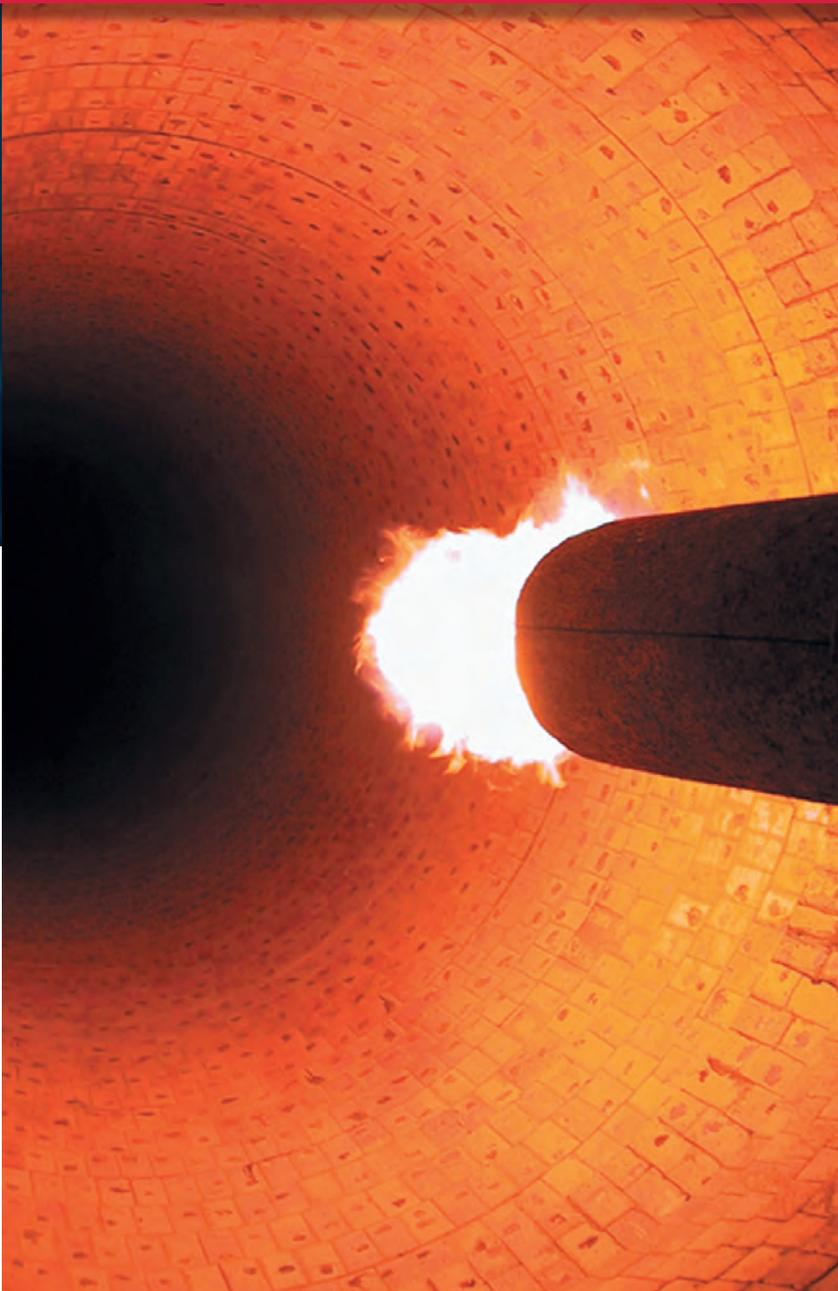
STEULER-KCH constructs; tanks, process equipment, pipes, chimneys and other special structures from KERA-Duroplast.

**Right:**  
A cathode shaft furnace lined  
with SiC materials.



#### Refractory lining systems for:

- | Iron and steel industry
- | Non-ferrous metallurgy
- | Thermal waster disposal
- | Chemical and petrochemical industry
- | Cement and lime industry
- | Ceiling and wall construction with ceramic anchoring systems
- | Moulded brick/special applications
- | Kiln furniture for the ceramics and powder metallurgy industry



**Left:** Rotary kiln in a zinc recovery plant, lined with chemically bonded andalusite brick.

Innovative material developments and grades also make STEULER-KCH a competent provider of refractory linings. Our products and know-how are in use around the globe by well-known companies in virtually every industrial sector.

The manufacturing programme encompasses; moulded, pressed, and monolithic products. The range of materials begins with dry, pressed fireclay for inlet zones and backing masonry and finishes up with corundum materials.

A wide selection of zirconium, silicon carbide and andalusite materials assure that clients are supplied with exactly what they need for their process application.

Below: Sulphur burning furnace for Sulphuric Acid production.



## STEULER-KCH Refractory Systems Division



**Above:** View into a refractory lined toxic waste incineration furnace.



**Above:** Refractory inlets of a hot blast tuyere for a steel blast furnace.

Depending on the application requirements, STEULER-KCH uses additives such as chrome oxide, or zirconium base. A special impregnation process has been developed for extreme alkali conditions.

Materials for backing masonry, such as lightweight and insulation materials, ceramic fibres, refractory concrete and ramming masses round out our delivery portfolio.

Engineering, execution of furnace construction services and complete assemblies are also part of our range of services. Demanding refractory solutions require our own research and development departments. In our laboratories, we develop new materials and test them on the basis of internationally recognised standards.

To ensure reliable development of refractory materials, we carry out all the required tests in advance. Tests range from extensive raw material selections and analysis of wear and slagging.

Based on the available steel construction drawings and processing data, STEULER-KCH develops the complete refractory layout for each plant and piece of equipment. Assembly drawings, heat transfer calculations, recommendations for heating up the equipment all belong to the scope of services supplied.

Trained supervisors monitor the entire sequence of work at the site and accompany the installation. This qualified work assures execution of complete refractory solutions.



- | Perfect planning with demanding detailed solutions.
- | Experience with the widest variety of materials for swimming pool construction (traditional ceramics, glass mosaics, and natural stone).
- | Swimming pool sealing system in accordance to building and construction test permit (P-121-06-03-600002676-1).

Anyone who wants to master complex swimming pool technology needs solid experience. Add to this the use of materials that have proved themselves in practice and provision of excellent craftsmanship in execution of construction.

A personal partner accompanies planners and operators through each phase of the project. This means: the best in project certainty and the best in care.

Reliable STEULER-KCH swimming pool technology is used in a vast array of different pool facilities. We construct hotel and wellness spas, and we excel in thermal, brine, mineral water and sea water pools.

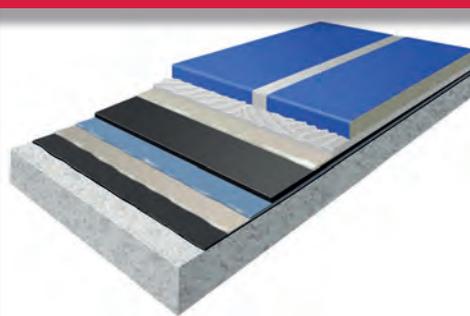
STEULER-KCH swimming pool sealing systems fulfil the highest demands.



Industrie Service



## STEULER-KCH Pool Construction Division



Swimming pool sealing systems from STEULER-KCH feature a special construction process with materials that have years of application experience behind them.

The heart of the swimming pool seal – the rubber sheet under the tile or mosaic topping with an elongation at tear of 400% – creates permanent security that can be tested for tightness in the early installation phase of the project.

For the top layer, traditional ceramics as well as glass mosaics and natural stone are used. The resin cement used to joint these materials meets all the arduous physical demands of pool construction.

STEULER-KCH also meets the extraordinary demands of planners or operators. We provide state-of-the-art CAD technology that helps us turn creative ideas into tangible plans – from detailed design drawings right through to the design and selection of the tile.



# STEULER KCH

**Alphaplast S.L.U.**  
Spain

**CIMA S.r.l.**  
Italy

**Ditescor S.A. de C.V.**  
Mexico

**Shanghai STEULER-KCH  
Anticorrosion Engineering  
Co. Ltd.**  
China

**STEULER-KCH Australia  
Pty. Ltd.**  
Australia

**STEULER-KCH Austria GmbH**  
Austria

**STEULER-KCH France S.A.R.L.**  
France

**STEULER-KCH GmbH / Jordan LLC**  
Jordan

**STEULER-KCH Maroc S.A.R.L.**  
Morocco

**STEULER-KCH Nordic AB**  
Sweden

**STEULER-KCH Polska Sp. z o.o.**  
Poland

**Steuler New Caledonia S.A.R.L.**  
New Caledonia

**Steuler Técnica S.L.**  
Spain

**STEULER-KCH (KSA BRANCH)**  
Kingdom of Saudi Arabia

**Tecnicas de Refractorios S.A.U.**  
Spain



Together with its international subsidiaries and representatives, STEULER-KCH offers its customers a worldwide network which develops and implements comprehensive system solutions.



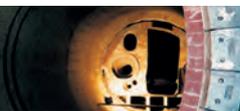
## **SURFACE PROTECTION**

Lining and flooring systems  
Cements, jointing materials,  
brick and rubber linings



## **PLASTICS ENGINEERING**

Equipment, piping and tanks made of  
duroplastics and thermoplastics  
Thermoplastic lining systems



## **REFRACTORY LININGS**

High temperature refractory linings



## **POOL CONSTRUCTION**

STEULER-Q<sup>7</sup>-System



Siershahn site



Höhr-Grenzhausen site

## **STEULER-KCH GmbH**

Berggarten 1  
56427 Siershahn | GERMANY

Phone.: +49 2623 600-0  
Fax: +49 2623 600-513

E-Mail: [info@steuler-kch.com](mailto:info@steuler-kch.com)

[www.steuler-kch.com](http://www.steuler-kch.com)



**Focus on Progress**