



STEULER Plastic | Linings

KERA® DUROSTRONG
HIGH PERFORMANCE PLASTICS

Focus on Performance

STABLE AND HIGHLY CHEMICALLY RESISTANT — A UNIQUE MATERIAL

Whether hydrogen chloride gas is being split into its chemical components by electrolysis, phosphoric acid is being converted into white acid for the food industry or tyre cord and textile products made from viscose are being spun in hot acid: KERA® DUROSTRONG is the material of choice for chemical processes where maximum chemical resistance at high temperatures is required. Thanks to decades of experience with the high-performance thermosetting plastic, it can rightly be described as one of the most successful materials used in chemical plants.

KERA® DUROSTRONG is a phenolic or furan-resin-based thermosetting polymer that allows to design the shape of vessels, process equipment and pipelines as well as precise mechanical components in accordance to the customer demands. The material can be reinforced with glass and/or carbon fibres as well as special fillers and offers excellent chemical resistance to numerous chemicals, and in particular, non-oxidising acids and many solvents. Different to composite systems, the chemical resistance is not limited to the liner material, but extends across all surfaces and into the core. This makes KERA® DUROSTRONG a material that is chemical and temperature resistant throughout the entire component – with permanent exposure of up to 140 °C and short-term resistance up to 170 °C. In addition to basic storage vessels, KERA® DUROSTRONG is ideal for the construction of absorbers and absorption towers including all the installed components, such as trays and support plates.

KERA® DUROSTRONG convinces with its durability and the possibility of carrying out modifications easily and on site. It also meets high safety requirements for high mechanical and chemical loads. Thanks to its PFAS-free composition, KERA® DUROSTRONG is also future-proof and ideally suited for regulated industries and growing sustainability requirements.

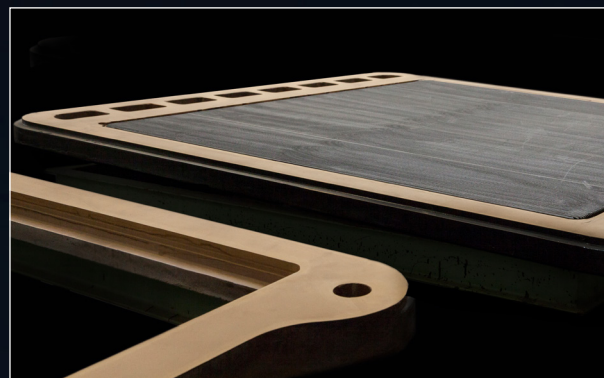
With Steuler Plastic Linings you have a partner at your side who implements the advantages of KERA® DUROSTRONG in a targeted, safe and economical manner.

BENEFITS

- Custom design
- PFAS-free
- High rigidity
- With or without glass-fibre and/or carbon-fibre reinforcement
- Outstanding chemical resistance
- High temperatures of up to 140 °C max. 170 °C
- Easy to repair on site
- flame-retardant

NUMEROUS APPLICATIONS IN

- Chemical industry
- Metal processing industry
- Chlorine-alkali electrolysis
- Pickling and acid regeneration plants
- Titanium dioxide production
- Metal ore processing
- Isocyanate manufacture
- Flue-gas scrubbers
- Acid concentration plants
- Pulp and paper industry
- Fertiliser industry
- Spun viscose fibre industry
- High-purity chemicals
- Process gas incineration plants



Stable, self-supporting and dimensionally accurate electrolysis frames made from KERA® Fibre L.



Hydrochloric acid (HCl) is separated during electrolysis with KERA® Fibre L frames into chlorine gas and hydrogen.

THE IDEAL MATERIAL FOR EVERY CHALLENGE

KERA® Plast L

- Chemically resistant to non-oxidising acids and many solvents
- Glass-fibre reinforced phenolic resin

KERA® Plast XL / Complex

- Chemically resistant to non-oxidising acids and many solvents
- Stands up very well to cyclic thermal and mechanical stresses
- With glass and carbon-fibre reinforced phenolic resin
- For the construction of complex components and coating of rollers (KERA® Complex only)

KERA® Conductive

- Highly chemically resistant to non-oxidising acids and many solvents
- Very good anti-static properties
- Well suited for use with highly flammable materials
- Also approved for media containing hydrogen fluoride
- Carbon-fibre-reinforced phenolic resin

KERA® Plast F

- Highly chemically resistant to non-oxidising acids and many solvents
- Also approved for alkaline environments as well as hydrofluoric acid
- Very good anti-static properties

KERA® Fibre L

- Chemically resistant to non-oxidising acids and many solvents
- Glass fibre reinforced phenolic resin
- Filled with cut glass for increased mechanical stability

Physical Data

		Plast L	Plast XL	Conductive	Plast F
Density	g/cm³	1,6	1,5	1,4	1,7
Tensile strength	N/mm²	13	20	15	20
Elongation at break	%	0,23	0,5	0,3	0,3
Young's modulus from tensile test	N/mm²	4400	5100	6000	7800
Flexural strength	N/mm²	35	40	40	34
Young's modulus from flexural test	N/mm²	3800	4500	5000	5500
Coefficient of linear expansion	10 ⁻⁶ /K	20	20	17	25

Chemical Resistance

Non-oxidising acids: Hydrochloric acid, hydrofluoric acid, hydrobromic acid, phosphoric acid, acetic acid	+
Oxidising acids: Nitric acid, perchloric acid	-
SiO₂-dissolving acids: Hydrofluoric acid	+
Salts: Sodium chloride, potassium chloride, iron chloride, copper sulphate, potassium cyanide	+
Caustic solutions/bases: Caustic soda solution, caustic potash solution, calcium hydroxide	-
Aliphatic hydrocarbons: Hexane, heptane, octane, isooctane	+
Aromatic hydrocarbons: Benzene, aniline, toluene, xylene	+
Chlorinated hydrocarbons: Carbon tetrachloride, dichlorobenzene, monochlorobenzene	+
Esters: Ethyl acetate, methyl acetate, isobutyl acetate	o
Ketones: Acetone, butanone	o
Alcohols: Ethanol, methanol, isopropyl alcohol	o
Oils / fats	+

+ resistant o conditionally resistant - not resistant



Rollers made from KERA® Complex used for cellulose processing, with 20 % sulphuric acid (H₂SO₄) as the process medium and a working temperature of 70 °C.



Complete HCl absorber made from KERA® Plast L / GRP for extreme operating environments. In this case, 32 % hydrochloric acid (HCl), operating temperatures of up to 120 °C, designed for an operating pressure of -1.0 / + 0.5 bar.



KERA® DUROSTRONG is always formed to create custom shapes in its uncured state. The time-consuming construction of complicated moulds is unnecessary. Complex components can be created in separate moulds and then joined together to form complete components or process equipment. Following curing in the autoclave, the result is a finished, self-supporting construction (depending on application) that can endure temperatures of 140 °C, and even 170 °C for a short time, without deforming. The stiffness of the construction can be significantly increased by way of an additional reinforcing laminate. Its chemical resistance is comparable to that of high-performance thermoplastics like highly chlorinated and fully fluorinated plastic liners. KERA® DUROSTRONG can also be worked on excellently with common machine tools and is a cost-effective alternative to components made from graphite and alloy metals.

PROCESS EQUIPMENT, COMPONENTS, PIPES — **STABLE AND RELIABLE**

The material is highly resistant to weathering and ageing. Should it become necessary to perform modifications, upgrades or repairs, they can also be carried out simply and easily on-site. This is made possible with a two-component installation kit that can even be processed by your own workers. These are just a few of the reasons why KERA® DUROSTRONG is particularly well-established in the chemical industry.

You can always rely on Steuler Linings: A wealth of expertise in manufacturing and processing combined with reliable service. Focusing on the individual needs of our customers, our engineers and technicians design and construct process vessels, storage tanks, piping systems and special components exactly according to specification. **We deliver efficient solutions of the highest quality** with the added bonus of project planning, installation and maintenance services — everything from one source. We advise and develop with you the ideal solution — from concept to on-site implementation.



Sulphuric acid process vessel made from KERA® Plast XL in the viscose fibre industry. The many individual segments are precisely assembled and securely bonded together on site.



Distributor made from KERA® Conductive.

STEULER

Plastic | Linings

Together with our subsidiaries and representatives, Steuler offers a worldwide network to our clients that develops and implements comprehensive system solutions.

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Ancorite Surface Protection Ltd.

United Kingdom

CIMA S.r.l.

Italy

Ditescor S.A. de C.V.

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