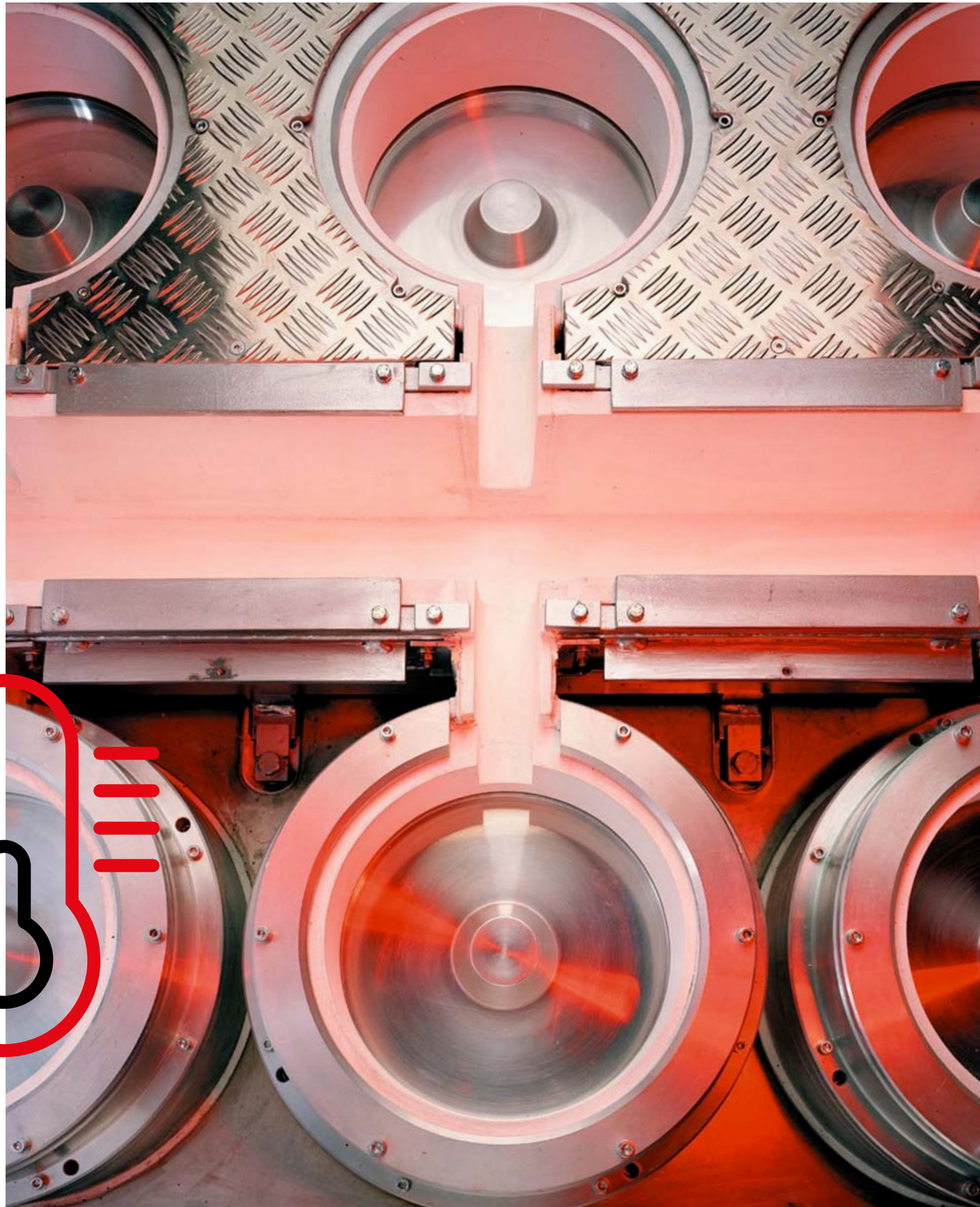


# LIGHT METAL CASTING



INNOVATIVE AND PERFORMANCE  
ENHANCING PRODUCTS ACCORDING  
TO YOUR IDEAS



## INNOVATIVE PRODUCTS FOR LIGHT METAL CASTING

As a manufacturer of calcium silicates we are specialized in a wide range of applications in light metal casting, essentially in the areas of electrolysis, low-pressure die casting, gravity casting, chill casting as well as transfer of melt.

Based on our extensive experience we manufacture innovative and performance-improving products which for certain do not only meet modern requirements but also your own personal ideas. Thus, in our CALCAST® product family you will of course find the suitable material for any application (e.g. LPDC, CPC, HPDC, etc.)

**CALCAST® CC 60**

**CALCAST® CC 100 - CC 350**

**CALCAST® CC 155 G4, G8, G16**

**CALCAST® CC 500**

All CALCAST® high temperature insulating materials are manufactured on the basis of calcium silicate. In principal they present the following outstanding characteristics:

- dimensionally stable
- excellent edge stability
- no wetting by liquid non-ferrous metals
- high compressive and bending strength
- physiologically harmless
- precise workability in close tolerances
- low thermal expansion
- no reaction against basic or neutral media and lubricants





#### SPECIFICATIONS

- upper application limit temperature: 1.000 °C
- bulk density: 850 kg/m³

#### SPECIAL FEATURES

- pseudoplastic fracture behaviour
- thermal shock resistant
- high productivity due to long service life

## CALCAST® CC 60

CALCAST® CC 60 is the latest innovation within our CALCAST® product portfolio. The material made of calcium silicate / carbon fibre contains up to **3 % of carbon fibres** with a length of 12 mm, has very good insulating properties and can be used at temperatures up to 1.000 °C. It is mainly used in direct contact with liquid aluminium alloys for transfer, distribution and flow control of the metal.

CALCAST® CC 60 has an exceptional pseudoplastic behaviour. This means that due to the integrated carbon fibre the fracture toughness in the matrix is very high. The carbon fibre has no chemical bond to the matrix and thus neither form fit nor force lock. Therefore, emerging cracks lose their fracture energy. The fracture toughness is reinforced by the long fibres and considerably increases the fracture work.

#### APPLICATIONS

- Hot top rings
- Transition and header plates



## CALCAST® CC 100 – CC 350

CALCAST® is a high-temperature insulating material of calcium silicate. The material is used in direct contact with liquid aluminium alloys for the transfer, distribution and flow control of the metal. The high compression and bending strength as well as an excellent edge stability allow the precise manufacture of complex moulded parts with high accuracy.

#### APPLICATIONS

- Hot top rings
- Transition and header plates
- Floats / Spouts
- Feeder boxes
- Feeders, adapter tubes, sprue bushings
- Nozzles
- Stoppers
- Furnace and launder linings



#### SPECIFICATIONS

- upper application limit temperature: 1.000 °C
- bulk density: 860 – 1.040 kg/m³

#### SPECIAL FEATURES

- low thermal conductivity



**SPECIFICATIONS**

- upper application limit temperature: 1.000 °C
- bulk density: 1.000 – 1.150 kg/m³

**SPECIAL FEATURES**

- good thermal shock resistance
- uniform temperature distribution
- low oil absorption



G4

G8

G16

## CALCAST® CC 155 G4, G8, G16

CALCAST®-**Graphite** compounds combine the mechanical and physical properties of Calcium Silicate and **Graphite**. The result is a material with improved and customised properties for the application in casting processes with non-ferrous metals. The properties of the material are determined by the percentage of graphite in the calcium silicate. The increased thermal conductivity allows faster castings. An extremely high surface energy **prevents the liquid non-ferrous metal and especially metal oxides from bonding (non-wetting property)**.

**Thermal Conductivity**

The **thermal conductivity increases with an increasing percentage of graphite**. Since the graphite lattice is orientated in parallel to the board plane the conductivity is distinctly anisotropic. Parallel to the board plane the conductivities are by several factors higher and ensure an even temperature distribution. The conductivity drops with an increasing temperature due to the oxidation of the graphite. The rate of oxidation in applications with direct contact to liquid metal is low.

**APPLICATIONS**

- Hot top rings
- Rotors
- Shafts

## CALCAST® CC 500

One further high temperature insulating material out of calcium silicate is our CALCAST® CC 500. This quality stands out for its excellent thermal shock resistance. It is not without reason that this is the most **thermal shock resistant product** in our CALCAST® product group. In contrast to the other qualities CALCAST® CC 500 can be applied **up to 1.200°C**. The field of application for this product is e.g. as channel cover.

**APPLICATIONS**

- Channel cover
- Flapper plate

**SPECIFICATIONS**

- upper application limit temperature: 1.200 °C
- bulk density: 1.200 kg/m³

**SPECIAL FEATURES**

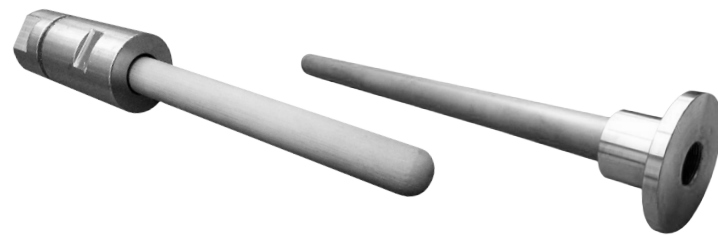
- excellent thermal shock resistance
- high productivity due to long service life





## SILCASIN ST / Syalon 101

SILCASIN ST / Syalon 101 are technical ceramics on the basis of beta silicon nitride (Si<sub>3</sub>N<sub>4</sub>). The chemical resistance, hardness, stability, conductivity and impact strength result in an almost indestructible material for applications in contact with liquid aluminium.



### APPLICATIONS

There is a wide range of applications in foundries and smelters:

- as thermocouple protective tube in the melt as well as for indirect measurements (ambient temperature)
- as riser pipe in low-pressure casting, e.g. in the production of aluminium rims
- as (dip) heating tube in order to prevent the heating elements from corrosion and damage
- Dispensing valves, pistons and fittings are mounted in pressurized corrosive and erosive control devices.

For further information about these products please contact our partner SRS Amsterdam B.V.  
+31-(0)20-6935209, [www.srsamsterdam.com](http://www.srsamsterdam.com)

## SILCADUR HTP

SILCADUR HTP (high temperature paste) is SILCA's latest innovation. The paste facilitates the disassembly and assembly of components after a longer production time and prevents the burning in of bolts, hinges and screw connections. Furthermore, it is also used for the lubrication of chains as well as movable and sliding parts in non-ferrous die-casting and low pressure moulds.



- Colour: silver-grey
- Solid lubricants: inorganic constituents
- Operating temperature: -25 °C to 1.000 °C
- Dropping point DIN ISO 2176: no
- NLGI class: 1
- Transport ADR/SDR: no dangerous good

## SILCAL 1100, MICROCAL® 1100, SILCAPOR

SILCAL 1100 and MICROCAL® 1100 are light weight and environmentally compatible calcium silicates with high insulation values. By using these qualities as back insulation layers, the heat loss, shell temperature and weight are additionally reduced. In combination with our microporous insulation material SILCAPOR Ultra 950, an up-to-date insulation system for the back-up insulation of industrial furnaces and casting systems, is obtained.

### APPLICATIONS

- Melting furnaces
- Holding furnaces
- Transport launders
- Transport crucibles for liquids

### SPECIFICATIONS

- maximum application temperature: 950 – 1.100 °C
- Bulk density: 200 – 260 kg/m<sup>3</sup>

### SPECIAL FEATURES

- environmentally compatible
- excellent insulation properties
- good workability
- dimensionally stable
- low bulk density

SILCAL 1100

MICROCAL® 1100

SILCAPOR  
Ultra 950

Detailed information and product data sheets are available on our homepage [www.silca-online.de](http://www.silca-online.de).





## SILCA: MORE THAN 30 YEARS OF KNOW-HOW AND INNOVATION

SILCA is an internationally operating service and sales company of the CALSITHERM group specialized in high temperature materials as well as lightweight thermal insulation in different fields of application. Over the past years we have been the only German producer of calcium silicates to show that with innovative products you can continuously improve both, safety and productivity. In refractory technologies we cover all areas in a wide variety of industries, ranging from aluminium casting over domestic fire places and chimneys to heat treatment plants. In addition to the supply of material we also offer a comprehensive service regarding technical demands and innovations. This service includes technical consultation, engineering, material supply, complete service including the assembly of high temperature facilities.

With our companies SILCA Italia, SILCA Insulation (SEA) Malaysia, SILCA South Africa, SILCA Mexico as well as SRS Amsterdam we are operating on a worldwide basis.

Consistent quality requires the systematical cooperation of all parties involved in the processes of production, sales and application. Thus, we develop efficient products that meet our customer's high quality requirements. The basis for our quality and innovation is our know-how gained from more than 30 years of experience.

The main keys of our success are the exceptional quality of our products, the high level of customer satisfaction as well as our motivated and qualified employees.



**SILCA Service- und Vertriebsgesellschaft für Dämmstoffe mbH**

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