Thermally and electrically insulating calcium silicates

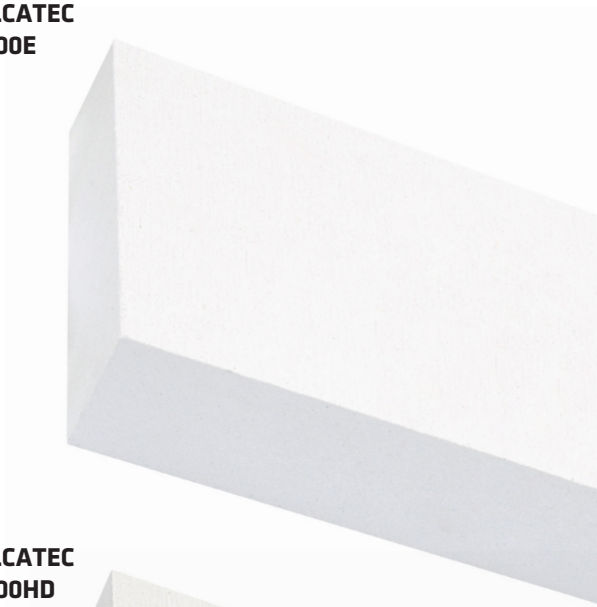
# SILCATEC 1000E, 1000HD

**SILCATEC 1000E** and **SILCATEC 1000HD** are technical ceramics on the basis of calcium silicates. They have densities of 1,050 to 1,300 kg/m³ and are temperature resistant up to 1,000 °C.

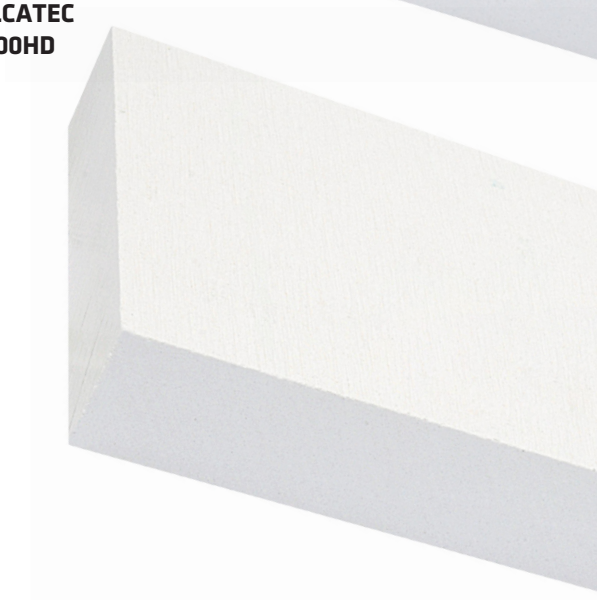
**SILCATEC** has excellent thermal and electrical insulating properties and is used in mechanical engineering and apparatus construction for thermal and electrical insulating components at elevated temperatures. Typical are induction furnace casings, arc chutes, jigs for brazing, welding.

**Machining**
**SILCATEC** can be precisely machined to close tolerances. With our 5-axis processing machines we can produce the most complicated geometries.

**SILCATEC 1000E**

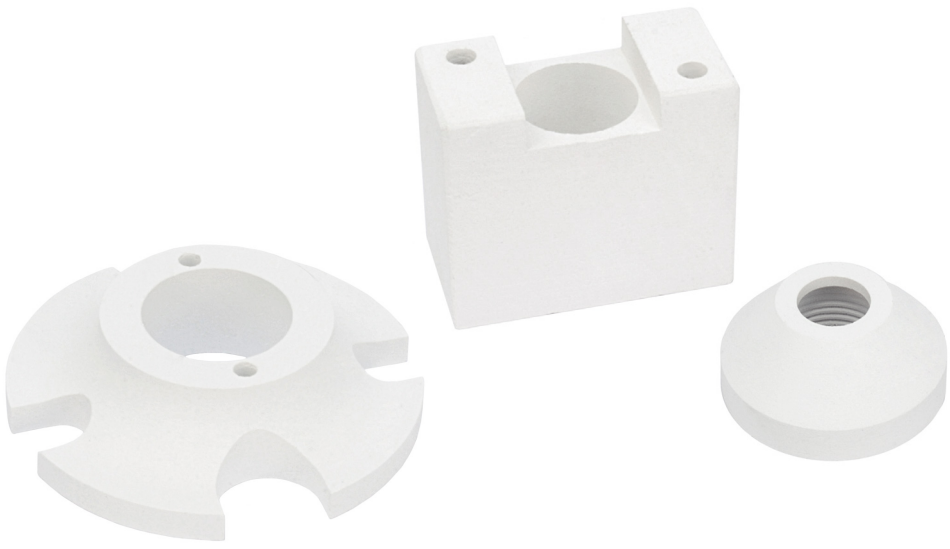


**SILCATEC 1000HD**



## SPECIAL FEATURES

- high mechanical strength
- high edge stability
- dimensionally stable
- good electrical insulation
- good thermal insulation
- precisely machinable
- physiologically harmless



# SILCATEC 1000E, 1000HD

| SILCATEC | | Method | Unit | 1000E | | 1000HD | |
|---|---|---|---|---|---|---|---|
| Upper application limit temperature | | EN 1094-6 | °C | 1,000 | | 1,000 | |
| Bulk density (± 10 %) | | EN 1602 | kg/m³ | 1,050 | | 1,300 | |
| Open porosity (in acc. with standard) | | EN 993-1 | % | 60 | | 52 | |
| Compression strength | | EN 826 | MPa | 28 | | 43 | |
| Flexural strength | | EN 12089 | MPa | 15 | | 17 | |
| Hardness | | DIN 53505 | Shore D | > 70 | | 75 | |
| Shrinkage after 12 h | | EN 1094-6 | | | | | |
| Length and width | 750 °C | | % | 0.30 | | 0.15 | |
| Thickness | 750 °C | | | 2.00 | | 0.90 | |
| Length and width | 1,000 °C | | | 0.35 | | 0.20 | |
| Thickness | 1,000 °C | | | 2.50 | | 1.50 | |
| Thermal conductivity λ at $t_m$ | 200 °C | EN 12667 | W/(m K) | 0.27 | | 0.31 | |
| | 400 °C | | | 0.29 | | 0.33 | |
| | 600 °C | | | 0.31 | | 0.35 | |
| | 800 °C | | | 0.35 | | 0.38 | |
| Specific thermal capacity | | | kJ/(kg K) | 0.9-1.1 | | 1.0-1.2 | |
| Coefficient of expansion | RT-750 °C | DIN 51045-5 | | ⊥ | // | ⊥ | // |
| ⊥ perpendicular to board plane | | | | | | | |
| // parallel to board plane | | | $K^{-1} \times 10^{-6}$ | 4.3 | 5.3 | 5.6 | 5.8 |
| Chemical composition | | | | | | | |
| Calcium silicate | | | % | 91 | | 94 | |
| $R_xO_x$ (R=Fe, Ti, K, Na) | | | | 1 | | 1 | |
| Annealing loss | | | | 8 | | 5 | |
| Electrical properties | | | | | | | |
| Breakdown voltage and dielectric strength | | EN 60243-1 | kV/mm | 3.9 | | 4.5 | |
| High voltage arc resistance | | EN 61621-1 | s | 345 (step 30; 30 mA) | | > 420 (step 40; 40 mA) | |
| Comparative tracking index (CTI) | | EN 60112 | | > 600 | | > 500 | |
| Dimensions | | | | | | | |
| Standard sizes | | Tolerances | | | | | |
| | Length | ±2; *0/+50 | mm | 1,000/1,500/3,000* | | | |
| | Width | 0/+20 | mm | 1,250 | | | |
| | Thickness | 0/+0.8 | mm | 10/12/15/20/25/30/40/50/75/100 | | | |
| | Surfaces ground on both sides, without trimming. | | | | | | |
| Other dimensions are available on request. | | | | | | | |

The properties mentioned are typical values obtained according to the listed methods. Product variations have to be taken into account. The data do not represent guaranteed properties and cannot be used for any warranty claim. Data are subject to technical modifications.

silca refractory solutions

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