

FLUROSIC[®], SICABON[®]

SiC Equipment for Most Demanding Applications



Applications

SiC equipment is frequently used in the pharmaceutical and chemicals industry for heating, cooling, evaporation and condensation of aggressive media. Furthermore, it provides significant advantages to the solar, steel, mining and environmental industries:

- ▶ Increased process efficiency through e.g.
 - higher chemical conversion
- ▶ Smaller dimensions
- ▶ Longer product lifetime
- ▶ Lower TCO

SiC heat exchangers and equipment are a key tool for any heating and cooling task. Heat exchangers convey energy from one medium through a wall to another medium, hence they must have an excellent thermal conductivity. On top of this, these media are frequently challenging in terms of temperature level, corrosion, erosion and abrasion.

Technological benefits

SiC heat exchangers are a premium tool for heat transfer in aggressive media. Key features:

- ▶ Premium corrosion and abrasion resistance
- ▶ High thermal conductivity up to 120 W/m·K
- ▶ Superior pressure and thermal shock resistance



Block column of a SICABON[®] heat exchanger with SIGRABOND[®] baffles

Additional advantages for your processes:

- ▶ Comply with GMP guidelines and high purity requirements
- ▶ Prevent cross contamination
- ▶ Are fully drainable and easy to clean

Broad Base. Best Solutions.

Design

SiC heat exchangers are available in shell and tube design (FLUROSIC®) and block design (SICABON®). In addition to those standard types of equipment it is possible to provide SiC coated graphite in almost any shape. In particular for high-temperature applications and large scale applications, CVD coated graphite opens ways to new designs and ambitious chemical reaction conditions.

To meet your performance requirements, we offer three types of material with unique properties:

► α -SiC (EKasic®, Hexoloy®)

Tubes and blocks are manufactured from solid, pure sintered SiC without free silicon. Its surface properties concerning smoothness and hardness are unique. With regard to pressure vessel regulations, the material is qualified up to 400 °C and 16 barg.

► Si-infiltrated carbon and graphite

Coming from a carbon-based-material after liquid infiltration a very homogenous Si-SiC material is available. The corrosion stability is that of silicon. Temperatures up to 1200 °C can be applied.

► SiC-coated graphite

By CVD coating of different types of graphite an impervious SiC-layer from 30 to 150 μ m thickness can be applied. The result is a construction material with the advantageous core strength of graphite and the chemical resistance of SiC. Temperatures up to 1500 °C can be applied.

Recommended operating conditions and dimensions

		Shell & tube design FLUROSIC®	Block design SICABON®
Operating pressure	[barg]	-1 to 10	0 to 16
Operating temperature	[°C]	-40 to 230	-40 to 230
Heat exchange surface	[m ²]	0,2 to 34	0,5 to 10
Tube lengths / no. of blocks	[mm]	1000 to 4500	1 to 14
Tube diameters / bore diameters on process side	[mm]	14·1,5 or 19,05·2,2	8 or 16
Shell / block diameters	[mm]	DN 100 to DN 400	220 or 305
Nozzle sizes		DN 80 to DN 250	

Block design can be supplied as CVD-SiC coated graphite, too

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Hexoloy® is the registered trademark of Saint-Gobain Ceramics

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