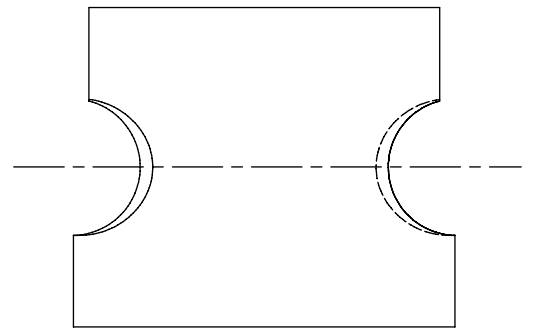


# SiCRATH®

SiC-Refractory linings of  
domestic waste incinerators



METALS



CERAMICS



GLASS



SPECIAL  
FURNACES



FUELS  
CHEMICALS  
ENERGY

top technology |  
creates confidence

**RATH**

# SiCRATH®

## Refractory systems and linings for environmental technologies and incineration.

The SiCRATH® refractory materials were carefully selected to ensure a long and trouble-free working life of the incinerators. High and varying temperatures, mechanical wear by waste, heat and dust, oxidizing and reducing or alternating atmospheres and chemical attack by gases and molten slag require highest most suitable grade of SiC-materials.

- › High temperature application
- › Excellent corrosion and oxidation resistance
- › High thermal conductivity
- › Good thermal shock resistance
- › Resistant to acids and non-basic slags
- › Resistant to non-iron metals (like aluminum, zinc and copper)

### SiCRATH® Technical data

Information «

	SICRATH 80	SICRATH 85E
Raw material base	Nitride bonded silicon carbide	Nitride bonded silicon carbide
Maximum service temperature (neutral and non-corrosive kiln atmosphere)	1,590 °C	1,650 °C
Chemical analysis		
SiC	75%	77%
Si <sub>2</sub> ON <sub>2</sub> -Si <sub>3</sub> N <sub>4</sub>	22%	20%
Others	3%	3%
Bulk density in g/cm <sup>3</sup> (EN993-1)	2.63	2.68
Open porosity (EN993-1)	13 Vol.-%	10 Vol.-%
Cold crushing strenght in MPa (EN993-5)	145	160
Thermal conductivity in W/mK		
200 °C	25	25
600 °C	21.5	21
1,000 °C	17.7	17.5
1,200 °C	16.8	16.5
Thermal shock resistance (DIN51068)	100 number of quenching	100 number of quenching
Thermal expansion at 1,000 °C (DIN 51045)	0.47%	0.45%
Dimensional tolerances	≥ 200 mm/± 1% // ≤ 200 mm/± 1.5 mm	≥ 200 mm / ± 1% // ≤ 200 mm/± 1.5 mm
Warpage	By warpage up to 0.75 % of the largest dimension.	By warpage up to 0.75 % of the largest dimension.
Mortar	SiC85	SiC80

\*THIS TABLE CONTAINS ONLY AN EXTRACT OF THE RATH PRODUCT RANGE.

### **SiCRATH® - SiC-Refractories will be successfully used in the following applications**

- › Tube tile & grate shapes for domestic incinerators
- › Kiln furniture for the porcelain industry and technical ceramics
- › Hearth, muffles and skid rails in heat treatment kilns
- › Immersion heater sheath in the cement industry
- › Non-iron transfer/holding and melting furnaces, copper shaft furnaces, zinc-cadmium and lead melting furnaces, aluminum reduction cells
- › Wear resistant parts, like burner blocks, immersion heater tubes, spray nozzles in coal fired power plants, raw coal chutes & hoppers, feed bunkers, mill pipe-work, coal mill pulverizers

### **SiCRATH® - SiC-Refractories: Features & benefits**

- › High temperature corrosion resistance for the membrane walls in the domestic incinerators
- › Reduces maintenance stops and costs in incinerators and coal fired power plants
- › Uniform heat flow in the heat treatment furnaces by using SiC-muffles
- › Its primary use will be where highest wear resistance and oxidation resistance is needed for zinc retorts and copper shaft furnaces
- › High thermal conductivity leads to lower heat losses and raises the productivity of the furnace and boilers
- › Highest abrasion resistance in impinging, scrubbing and slurry service, nozzles pump components, hydro cyclone liners and pulverized coal combustion equipment liners in coal fired power plants

### **SiCRATH® - SiC-Refractories make the difference**

- › Excellent resistance to molten metals, aluminum, zinc, cadmium, lead, copper
- › High resistance to molten cryolite
- › Very high oxidation resistance. It is suitable in the air, steam, CO and CO<sub>2</sub>, below 850 °C and above 1150 °C, for this critical temperature range special bond systems were developed
- › Corrosion resistance against acids, like HCl, H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, H<sub>3</sub>PO<sub>4</sub>/ Room temperature, Na<sub>2</sub>CO<sub>3</sub>, NH<sub>2</sub>OH;
- › And to gases like HCl, NH<sub>3</sub>, SO<sub>2</sub>

### **Rath Services**

- › Application advice
- › Chemical analysis
- › Engineering, heat transfer calculations
- › Installation instructions and supervision

**Rath offers complete solutions for all environmental technologies like domestic incinerators. Rely on us, because we have the right product for your application.**



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