

The FIVEN logo is located in the top right corner. It consists of the word "FIVEN" in a bold, white, sans-serif font. A stylized white checkmark or slash is positioned over the letter "V".

FIVEN

INNOVATION AT FIVEN

SIKA® ABR



Silicon Carbide



FIVEN - WE SHAPE INDUSTRIES

High-quality silicon carbide for abrasive applications

Fiven is the world's leading producer of silicon carbide. Based on long time experience and industrial expertise, we are delighted to provide a wide range of high quality products combined with excellent services. Together with our customers we are expanding in growing markets by increasing our production and processing capacities. Environmental protection and safety aspects are crucial for us, which we continuously develop by optimizing our production processes. Due to its high abrasion resistance and relatively low cost, silicon carbide is, in many different forms, used as a loose- or fixed-abrasive material in a wide variety of applications:

- Grinding wheels with organic or vitrified bonds
- Honing sticks
- Cut-off and thin wheels
- Snagging wheels
- Stone polishing segments
- Coated abrasive sheets, belts and discs
- Non-woven abrasive
- Lapping and polishing of substrates and mechanical components
- Surface blasting
- Anti-slip flooring

Our long experience in serving leading manufacturers in the abrasives industry, from our many local production platforms, allows us to have a deep understanding of our Abrasive customers' requirements.

In addition to our broad product range, we have the capability to co-develop with our clients new tailor-made solutions.

Properties of silicon carbide

SiC is a ceramic material with an outstanding hardness, only surpassed by diamond, cubic boron nitride and boron carbide. The material is highly wear-resistant and chemically inert to all alkalis as well as acids. It can also withstand very high temperatures. These properties make silicon carbide an outstanding abrasive and ceramic material to be used under extreme operating conditions.

Silicon carbide abrasives are ideal for grinding low tensile materials like grey iron and unannealed malleable iron, non-metallic materials such as stone, ceramic, glass, plastic and rubber. Silicon carbide is also used for non-ferrous material, cast iron and stainless steel.



Silicon Carbide

The background image is a high-contrast, blue-tinted photograph of an industrial grinding process. A large, dark, curved grinding wheel is shown in motion, creating a dense spray of bright sparks that fan out towards the bottom left. The scene is set in a factory or workshop, with various industrial components and structures visible in the background. The image is overlaid with large, semi-transparent geometric shapes in shades of blue and teal, creating a modern, technical aesthetic.

SIKA® ABR

Products for Abrasive
Applications

Each particular product in our wide range of solutions is adapted to the customer needs, and is characterized by the following parameters:

Particle size distribution

All micro and macro grit sizes according to FEPA, JIS, and ANSI standards

Particle shape

Blocky or sharp-shape grits

Crystal grade

Green and black silicon carbide

Surface chemistry

Various purity levels dependent on the type of treatment: chemically-treated, water-washed, air-dusted

Density

3,21 g/cm³

Vickers Hardness

29 GPa

Coefficient of thermal expansion

5·10⁻⁶ K

Thermal conductivity

50 to 100 W/m K

Temperature resistance

**1500 °C in air,
2400 °C in inert atmosphere**

Specific heat capacity

750 J/kg K



| SIKA® ABR | Characteristics & Color | Classification | Grit Sizes | Description |
|--------------|---|----------------|-----------------------------|--|
| I | high purity green silicon carbide | MAC + MIC | F24 – F220, F230 – F2000 | produced to comply with FEPA standard and particularly suitable for high quality vitrified and resin bonded grinding wheels, honing stones, lapping and polishing applications |
| II | high quality green silicon carbide | MAC + MIC | F16 – F220, F230 – F1200 | produced to comply with FEPA standard and particularly suitable for vitrified and resin bonded grinding wheels, honing stones and polishing applications |
| II A | green silicon carbide | MAC + MIC | F8 – F220, F230 – F800 | produced to comply with FEPA standard and particularly suitable for vitrified and resin bonded grinding wheels, honing stones and polishing applications |
| III | high purity black silicon carbide | MAC + MIC | F24 – F220, F230 – F2000 | produced to comply with FEPA standard and particularly suitable for high quality vitrified or resin bonded grinding wheels, lapping and polishing applications |
| III L | special grains in black silicon carbide for lapping | MIC | F400L – 800L | produced to comply with FEPA standard and particularly suitable for lapping applications. Special designed grains enable smooth surface finish without scratches or cracks |
| IV | high quality black silicon carbide | MAC + MIC | F8 – F220, F230 – F1200 | produced to comply with FEPA standard and particularly suitable for high quality resinoid bonded grinding wheels, cut-off oder snagging wheels, flap-discs and anti-slip flooring applications |
| IV A | black silicon carbide | MAC | F8 – F220, F240 – F800 | produced to comply with FEPA standard and particularly suitable for resinoid bonded grinding wheels, cut-off or snagging wheels, anti-slip flooring applications |
| P | high quality black silicon carbide | MAC + MIC | P8 – P5000 | produced to comply with FEPA standard and particularly suitable for high quality coated abrasives for surface preparation and finishing |
| Stone | high quality black silicon carbide | MIC | F230 – F600 | produced to comply with FEPA standard and particularly suitable for stone polishing applications |

EXCELLENT PROPERTIES FOR HIGH PERFORMANCE ABRASIVE APPLICATIONS

Products for bonded abrasive – Vitrified bond (glass)

| SIKA® ABR | Grit Sizes | Color |
|-----------|-------------|-------|
| I | F24 - F2000 | green |
| II | F16 - F1200 | green |
| III | F24 - F2000 | black |
| IV | F8 - F1200 | black |

Products for bonded abrasive – Organic bond (resin, rubber, plastic)

| SIKA® ABR | Grit Sizes | Color |
|-----------|-------------|-------|
| I | F16 - F1200 | green |
| II A | F16 - F800 | green |
| IV | F8 - F1200 | black |
| IV A | F8 - F800 | black |

Products for stone polishing

| SIKA® ABR | Grit Sizes | Color |
|-----------|-------------|-------|
| IV A | F8 - F800 | black |
| IV | F8 - F220 | black |
| Stone | F240 - F600 | black |

Products for lapping and polishing

| SIKA® ABR | Grit Sizes | Color |
|-----------|----------------|-------|
| I | F8 - F2000 | green |
| III | F230 - F2000 | black |
| III L | F400L - F1000L | black |

Products for flooring

| SIKA® ABR | Grit Sizes | Color |
|-----------|------------|-------|
| IV A | F8 - F40 | black |
| IV | F8 - F40 | black |

Products for blasting

| SIKA® ABR | Grit Sizes | Color |
|-----------|------------|-------|
| IV A | F8 - F220 | black |
| IV | F8 - F220 | black |

Products for coated abrasive

| SIKA® ABR | Grit Sizes | Color |
|-----------|------------|-------|
| P | P8 - P5000 | black |

Products for abrasives and ceramic grains

SIKA® ABR I and II green SiC FEPA-F and JIS, SIKA® ABR III and IV black SiC FEPA-F-P and JIS

| Macro Sizes | | | | | Macro Sizes | | | | |
|-------------|-----------|-----------------|-----|-----|-------------|-----------|-----------------|----|-----|
| µm | ASTM mesh | Median value of | | | µm | ASTM mesh | Median value of | | |
| | | F | P | JIS | | | F | P | JIS |
| 63 | | 220 | | 220 | 450 | | 40 | | 40 |
| 65 | | | 220 | | 500 | 35 | | | |
| 75 | 200 | 180 | | 180 | 525 | | | 36 | |
| 80 | | | 180 | | 530 | | 36 | | 36 |
| 90 | 170 | 150 | | 150 | 600 | 30 | | | |
| 98 | | | 150 | | 625 | | | 30 | |
| 106 | 140 | | | | 630 | | 30 | | 30 |
| 110 | | 120 | | 120 | 710 | 25 | | | |
| 120 | | | 120 | | 740 | | | 24 | |
| 125 | 120 | | | | 750 | | 24 | | 24 |
| 130 | | 100 | | 100 | 850 | 20 | | | |
| 150 | 100 | | | | 880 | | 22 | | 22 |
| 155 | | 90 | | 90 | 980 | | | 20 | |
| 160 | | | 100 | | mm | | | | |
| 180 | 80 | | | | 1.00 | 18 | | | |
| 190 | | 80 | | 80 | 1.04 | | 20 | | 20 |
| 200 | | | 80 | | 1.18 | 16 | | | |
| 212 | 70 | | | | 1.25 | | 16 | | 16 |
| 220 | | 70 | | 70 | 1.30 | | | 16 | |
| 250 | 60 | | | | 1.40 | 14 | | | |
| 260 | | | 60 | | 1.48 | | 14 | | 14 |
| 270 | | 60 | | 60 | 1.70 | 12 | | | |
| 300 | 50 | | | | 1.75 | | 12 | 12 | 12 |
| 320 | | 54 | | 54 | 2.00 | 10 | | | |
| 330 | | | 50 | | 2.10 | | 10 | | 10 |
| 355 | 45 | | | | 2.36 | 8 | | | |
| 390 | | 46 | | 46 | 2.50 | | 8 | | 8 |
| 415 | | | 40 | | 2.80 | 7 | | | |
| 425 | 40 | | | | 3.35 | 6 | | | |

Products for abrasives and ceramic grains

Apertures for ASTM sieve and the 50% point for F-P and JIS grits

| Micro Sizes | | | | | Micro Sizes | | | | |
|-------------|-----------|-----------------|------|-------|-------------|-----------|-----------------|-----|-----|
| μm | ASTM mesh | Median value of | | | μm | ASTM mesh | Median value of | | |
| | | F | P | JIS | | | F | P | JIS |
| 0.4 | | | | 10000 | 29.2 | | 320 | | |
| 0.7 | | | | 9000 | 30.0 | | | | 400 |
| 1.2 | | 2000 | | 8000 | 30.2 | | | 500 | |
| 2.0 | | 1500 | | 6000 | 35.0 | | | 400 | 360 |
| 2.7 | | | 5000 | | 36.5 | | 280 | | |
| 3.0 | | 1200 | | 4000 | 38.0 | 400 | | | |
| 3.6 | | | 4000 | | 40.0 | | | | 320 |
| 4.0 | | | | 3000 | 40.5 | | | 360 | |
| 4.5 | | 1000 | 3000 | | 44.5 | | 240 | | |
| 5.4 | | | 2500 | | 45.0 | 325 | | | |
| 5.5 | | | | 2500 | 46.2 | | | 320 | |
| 6.5 | | 800 | 2000 | | 48.0 | | | | 280 |
| 6.7 | | | | 2000 | 52.2 | | | 280 | |
| 8.0 | | | | 1500 | 53.0 | 270 | 230 | | |
| 8.6 | | | 1500 | | 57.0 | | | | 240 |
| 9.3 | | 600 | | | 58.5 | | | 240 | |
| 9.5 | | | | 1200 | | | | | |
| 11.5 | | | | 1000 | | | | | |
| 12.8 | | 500 | | | | | | | |
| 14.0 | | | | 800 | | | | | |
| 15.3 | | | 1200 | | | | | | |
| 17.0 | | | | 700 | | | | | |
| 17.3 | | 400 | | | | | | | |
| 18.3 | | | 1000 | | | | | | |
| 20.0 | | | | 600 | | | | | |
| 21.8 | | | 800 | | | | | | |
| 22.8 | | 360 | | | | | | | |
| 25.0 | | | | 500 | | | | | |
| 25.8 | | | 600 | | | | | | |

Regional Offices and Contacts

Headquarter (Norway) Fiven AS

Apotekergata 10, 0180 Oslo, Norway

Europe

Belgium

Fiven Belgium
Matériaux Céramiques SA
Route de Villers 19
B-4162 Hody
Belgium

Customer Service:
Phone: +32 4 383 98 20
Mail: order.be@fiven.com

Germany

Fiven GmbH
Gertrudenstraße 30-36
DE-50667 Cologne
Germany

Phone: +49 221 6507 6097
Mail: sika_emea@fiven.com
Web: www.fiven.com

Norway

Fiven Norge AS
P.O. Box 113
N-4790 & N-4792 Lillesand
Norway

Customer Service:
Phone: +47 372 60 000
Mail: order.no@fiven.com

South America

Brazil

Fiven Brazil
Carbeto de Silício Sika Brasil
Rod. Br 265 km, km 208-Zona Rural
36202-630 Barbacena-Minas Gerais-MG
Brazil

Customer Service:
Phone: +55 32 3339 1700
Mail: sika_sa@fiven.com

North America

The United States

FIVEN North America, Inc.
651 Holiday Drive
Plaza 5 – Suite 400
Pittsburgh, PA 15220

Sales
Phone: +1 (412) 706-1544
Mail: sika_na@fiven.com

Asia

China

Fiven AS
Room 329, F-space, 198 Le Yuan Road,
Pu Dong new district 201206,
Shanghai
China

Mobile: +86 139 17729448
Mail: jack.zhong@fiven.com



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