CONCR3DE
YOUR 3D POWDERHOUSE

CONCR3DE SILICON CARBIDE CARBON A (SISIC)

Material Data Sheet

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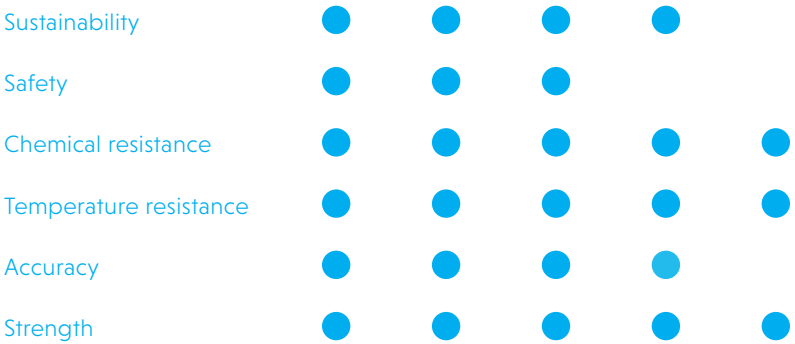
General information

3D Printed Silicon Carbide Carbon A (SiC+Si) is a Plug-and-Play ceramic material with outstanding mechanical, wear-resistant and heat-resistant properties. The added Carbon increases the final material density when compared to our SiSiC without Carbon. Binder jetting enables creating complex geometry with undercuts and cavities that are impossible to achieve using conventional techniques. 3D Printing SiSiC is a two-step process. First, SiC powder and an aqueous binder are combined to print the green object. Next, the object is infiltrated with liquid silicon. Silicon Carbide parts are used in the semiconductor, aerospace, automotive, energy, and defense industries. Typical applications include pump impellers, machine parts and casings, heat exchangers, ballistic protection, abrasive protection, burner nozzles and electric heaters.

Material benefits

This material has a number of advantages over alternative ceramic materials.



Printer compatibility

This material can be printed using our Armadillo Blue, Elephant Blue and Armadillo White 3D printers. Are you looking for even larger hardware options? Contact our team to learn more.

Material properties

The key material properties of reaction-bonded CONCR3DE Silicon Carbide Carbon A are shown below. The density of the final material can be customized during the infiltration process. For more detailed information, please contact our material team.

Developed by WZR ceramic solutions

Chemical composition	
SiC	70%
Si	30%

Mechanical properties	Standard	Armadillo Blue/Elephant Blue
Bending strength	N/A	220 MPa

Other properties	Standard	Armadillo Blue/Elephant Blue
Density	EN 1094-4	2.900 kg/m^3
Open porosity	EN 1094-4	0,1 %
Shrinkage	N/A	0 %
Thermal conductivity	DIN EN ISO 8894-2	150 Wm^{-1}K^{-1}

Notes

- Composition and mechanical properties may vary depending on the equipment used for sintering and debinding.
- Final material performances of 3D-printed objects are impacted by certain factors, including but not limited to part geometry and design, application, environment and more.
- Final 3D-printed objects are produced using certified CONCR3DE consumables. Use of alternate powders and binders compromise the mechanical properties.

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