CONCR3DE
YOUR 3D POWDERHOUSE

CONCR3DE INVESTMENT CASTING

Material Data Sheet

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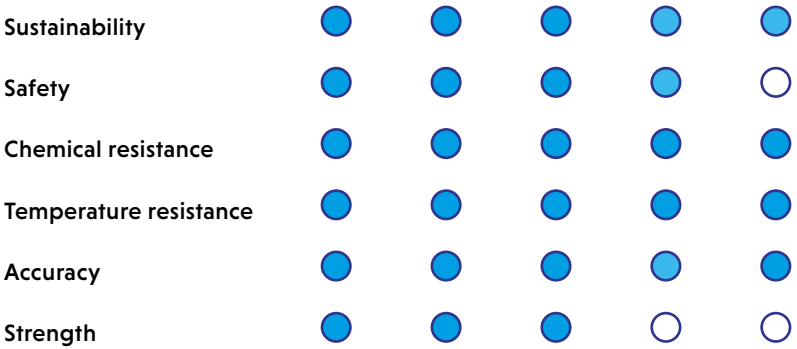
General properties

CONCR3DE Investment Casting is a Plug-and-Play material to start 3D printing free molds for investment casting. Combining the Brightorb™ Engineering ceramic powder with our aqueous binder, this material enables sustainable molding. It defeats the purpose of creating wooden or metal molds, resulting in shorter lead times and cost reductions. Brightorb™ is based on an artificial sand that is created using a recycled by-product of the refractory manufacturing process for glass kilns. The exceptionally low firing shrinkage and high dimensional accuracy make it possible to combine printed ceramics with other material types. Since the powder and binder do not contain any organic content, this material does not generate gas during casting. Our CONCR3DE 3D printers allow printing of this material on a large scale, with a great surface quality.

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 material properties below are the standard properties used for CONCR3DE Investment Casting materials. For more detailed or other information, please contact our material team.

DEVELOPED BY BRIGHTORB™

Chemical composition	
$Al_2O3 + SiO_2 + ZrO2_3$	94 %
CaO	5 %

Mechanical properties	Standard	Armadillo Blue/Elephant Blue
Compressive strength	N/A	20 MPa
Bending strength	N/A	26 MPa (glazed) / 19 MPa (unglazed)
Bending fracture load	N/A	648 N (glazed) / 423 N (unglazed)

Other properties	Standard	Armadillo Blue/Elephant Blue
Specific gravity	N/A	1,8
Thermal expansion	N/A	0,6 % at 1.000 °C
Thermal conductivity	N/A	0,6 $Wm^{-1}K^{-1}$
Specific heat	N/A	1.000 $Jkg^{-1}K^{-1}$
Density	N/A	2.120 kg/m^3 (glazed) / 2.070 kg/m^3 (unglazed)
Forced Water Absorption	N/A	16% (glazed) / 18 % (unglazed)

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.

CONCR3DE
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