



CONCR3DE
YOUR 3D POWDERHOUSE

CONCR3DE WASHOUT CERAMIC



Material Data Sheet

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General properties

This high-performance, water-soluble material features excellent mechanical properties, granting strong, accurate, and sustainable sacrificial tooling in advanced composite manufacturing. CONCR3DE Washout Ceramic is used to create high-strength molds with a high surface quality and temperature resistance up to 180 degrees Celsius. This material is easy to washout out with tap water, allowing for the layup of complex geometries such as aircraft exhaust manifolds. This technology enables the creation of carbon or glass-fiber parts. The parts are compatible with an autoclave, withstanding temperatures up to 180°C. The combination of the above properties make this a very interesting and competitive option for lay-ups. Applications are found in for example the automotive and aerospace industries. Typical products produced with this technology are mandrels, ducts, molds, manifolds, tanks, and composite layups.

Material benefits

This material has advantages over other washout materials. The key advantage is in the sustainability compared to other binding systems, as the binder is sustainable and water soluble.

Collapsibility	●	●	●	●	●
Sustainability	●	●	●	●	●
Safety	●	●	●	●	●
Reclaimability	●	●	●	●	○
Temperature resistance	●	●	●	○	○
Accuracy	●	●	●	●	○
Strength	●	●	●	●	○

Printer compatibility

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

Material properties

The material properties and especially strength and Coefficient of Thermal Expansion (CTE) can be tweaked in the process by adjusting layer height. The material is water-soluble using regular tap water. The process requires an oven curing step in a conventional oven at 70°C. For more detailed or other information, please contact our material team.

Mechanical properties	Standard	Armadillo Gray/Elephant Gray
Bending strength	ASTM C1161	8 MPa

Other properties	Standard	Armadillo Gray/Elephant Gray
Density	ASTM C373	1.400 kg/m ³
Coefficient of Thermal Expansion (CTE)	ASTM E831	7 ppm/°C
Heat resistance*	ASTM E831	180°C
Accuracy	N/A	200 µm* meter
Solvent for removal	N/A	Regular tap water

*Maximum temperature depends on the autoclave process cycle and the type of material used for the layup.

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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