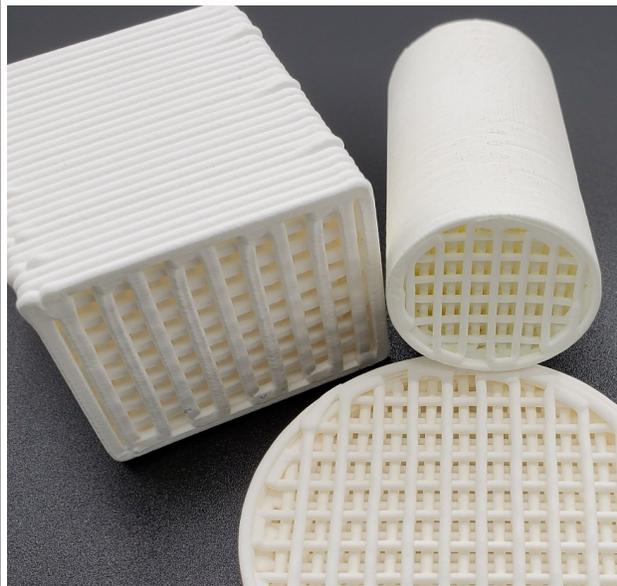




C12 Advanced Technologies

3D Printed Lattices and Catalytic Substrates Optimal performance, Custom materials, Flexible production



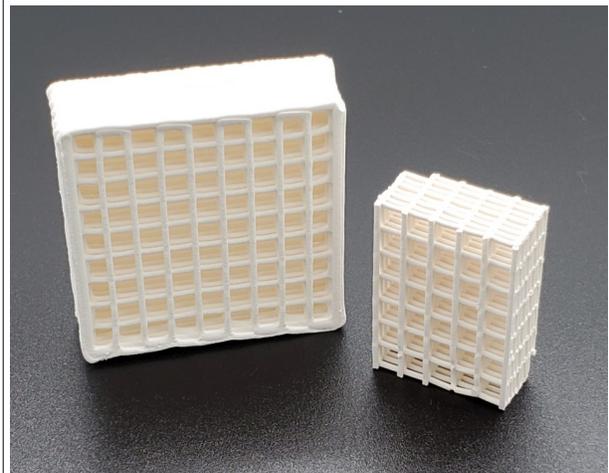
Alumina ceramic monoliths with FCC Lattice designs provide the highest surface area and mass transfer with excellent flow mixing and filtering properties.



Technical ceramics can be 3D printed in complex Lattice designs that are non-linear or functionally graded for optimized heat and mass transfer.



Cordierite ceramic monoliths with high resolution (200 – 400 cps) Lattice designs have excellent thermal shock resistance.



High purity MgO ceramic monoliths with SC Lattice designs provide higher surface area, better mass transfer, and low back pressure.

Applications Include:

- Customized catalyst supports featuring engineered lattice structures that provide repeatable pore sizes, flow characteristics, and catalyst coverage.

- High efficiency regenerative thermal oxidizers and heat recovery systems.
- High performance Lattice Filters™ and slag filters for molten metal alloys. **Lowest** possible introduction of contaminants into filtrate and **highest** working temperatures available (MgO > 2000C).
- Heat exchangers for new applications including concentrated solar energy plants, industrial burners and high temperature heat storage.
- Substrates for carbon dioxide capture, VOC, and selective waste stream removal.
- Lattice structures with enhanced thermal shock resistance for superior performance at high temperatures and in corrosive environments.

C12 Advanced Technologies produces state of the art 3D Engineered components for demanding applications. Our Direct Write 3D Printing capabilities can greatly enhance the performance of traditional cellular ceramics and make previously unobtainable designs a reality. Examples include efficient lattice structures and catalytic substrates with an optimized balance between pressure and flow which results in superior heat and mass transfer properties. Unlike traditional honeycomb and “foam” monoliths, 3D lattices with engineered cells and porosity can provide ideal heat transfer, radiation propagation, pressure drop and fluid dispersion.

Our Direct Write 3D Printing technologies can deposit materials much faster than “small-lot” 3D printing methods. Direct Write 3D Printing is not only the ideal choice for manufacturing rapid prototypes, but also cost effective for large-scale production.

C12 Advanced Technologies can provide a complete range of technical ceramics with engineered micro- and macro-porosity including alumina, zirconia, cordierite, mullite, ZTA, MgO, silicon carbide, and customer supplied materials.