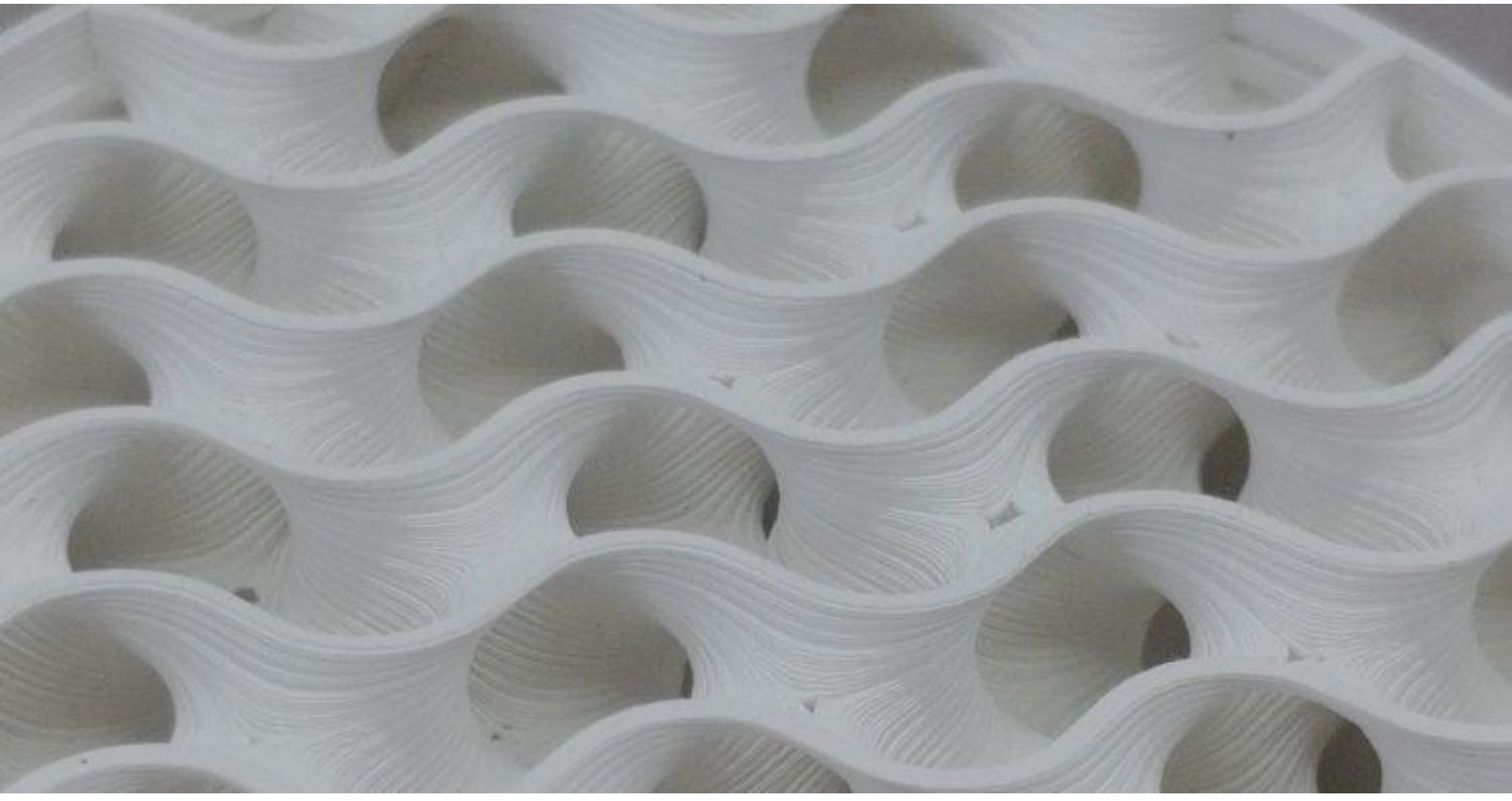
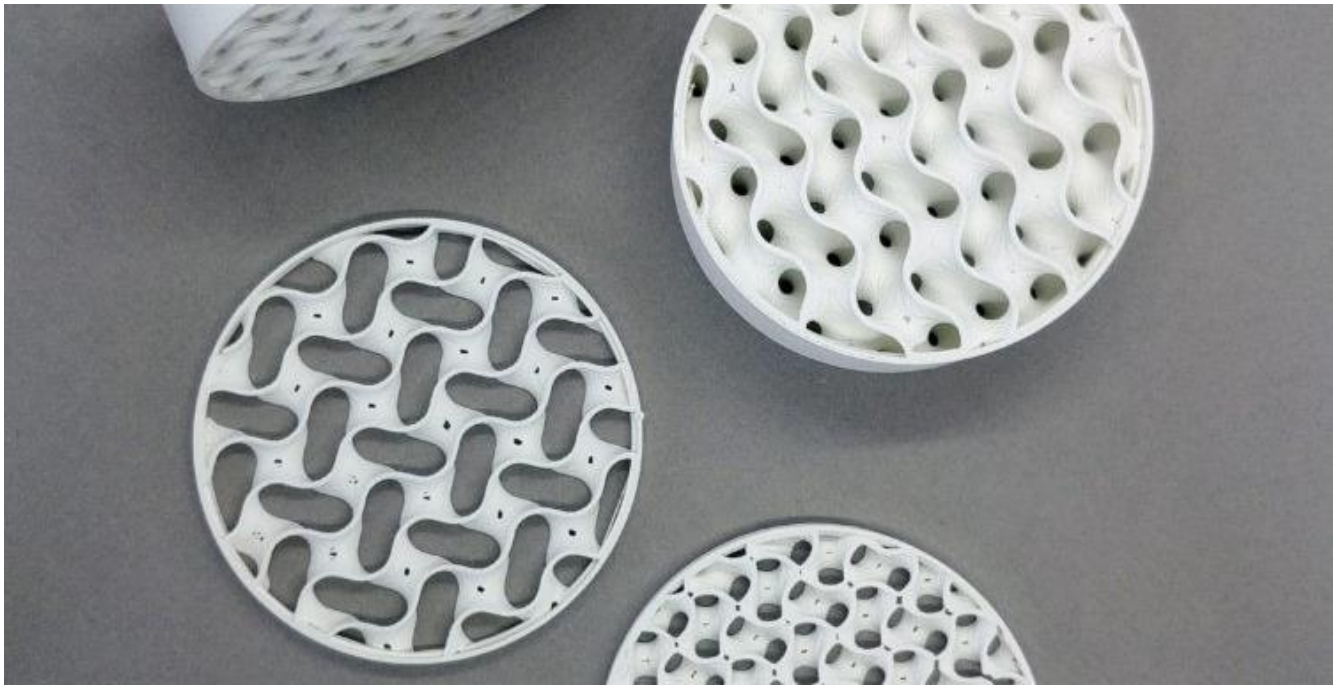
Zetamix 3D Printed Foundry Filters for Energy and Aerospace



Raise3D Case Study
Oct. 2020

Avignon Ceramic produces ceramic parts for foundry, aerospace, and energy industries. The company is historically an expert in ceramic injection molding and produces cutting edge parts such as aerospace cores. **For 3 years, Avignon Ceramic prints its own parts thanks to ceramic additive manufacturing.**



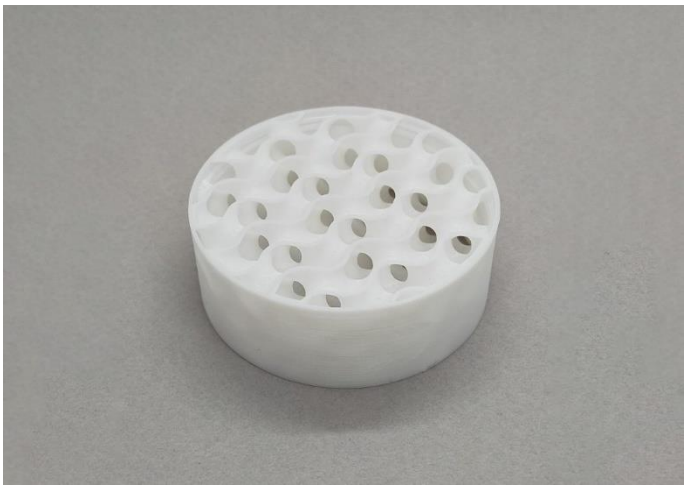
In the field of foundry, ceramics is an excellent choice to produce consumable tools, including ceramic filters. Ceramics is the only material that is high temperature resistant and chemically stable.

Ceramic Foam Filters

For years, molten metal was filtered by ceramic foam. Ceramic foam filters have a hollowed-out structure. However, hollowed-out parts are impossible to create with regular industrial shaping processes such as molding or injection.

How Ceramic Foam is Traditionally Created

The ceramic foam was made by inseminating an open-cell polymer foam with ceramic slurries. Then, by sintering the ceramic the polymer structure disappears, leaving behind the ceramic foam. However, the ceramic foam production process can result in a thin and brittle structure. This weak structure is likely to break down due to the pressure of the molten metal and pollute the final product.

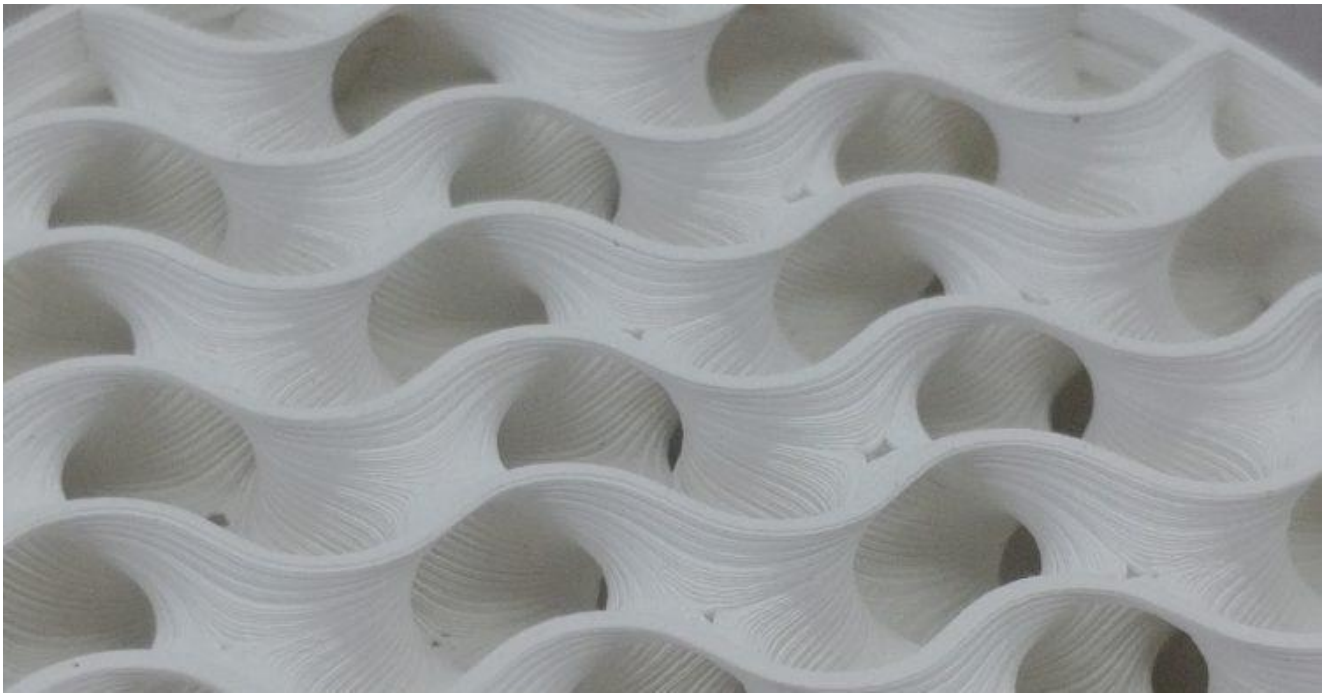


Avignon Ceramics Used 3D Printing to Improve Ceramic Foam Production

While the structure of the foam is randomly obtained in the traditional process, **3D printing allows engineers to design a tailor-made hollow part.**

Avignon Ceramic uses Zetamix Alumina filaments and Raise3D's Pro2 dual extruder 3D printer to produce more efficient filters. Zetamix can produce a wide range of designs and sizes, such as gyroid or geometric designs. Therefore, Zetamix technology can control the flow of casting and the filtration accuracy by varying the design, strut size, and pore size of the filter. **Zetamix filaments make it possible to create ceramic parts with a 99% density by using almost any FDM 3D printer.**

"***Avignon ceramic has worked in the foundry industry for years. To perfectly meet our clients' needs and to fully exploit the advantages of 3D printing, we propose only tailor-made filters. Because we know that customization is the future of the industry and because the production of standard filters is less efficient than a personalized one, we early have moved in that direction***." Said Olivier Greck, Innovation and Research Business Manager.



Zetamix technology is the only FDM 3D printing solution that enables engineers and technicians to create tailor-made ceramic parts. By providing ceramic filament, Nanoe teams aim at making ceramic 3D printing easy and accessible to every company, whether it be SME or large international groups.

Connect with Raise3D

Do you have a great 3D printing success story and think it would be cool to be featured on www.raise3d.com, we would love to learn more! Write to us at inquiry@raise3d.com
For more information about Raise3D printers and services, browse our website, or schedule a demo with one of our 3D printing experts.