

## **Thermal Cleaned Reusable Ceramic Fiber Depth Filter**

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### **Abstract**

Ceramic fibers and a ceramic binder system capable of operating to 1,000°C have been developed into a cost effective filter media for gas and liquid filtration. This filter concept represents a technical breakthrough in high-temperature filtration. It also offers a filter capable of trapping organic or carbonaceous particulate to be cleaned in situ, without generating disposal of hazardous waste products. The cartridge is, therefore, reusable for a large number of filtration cycles. The ceramic media can be easily pleated to form any shape or size filter that an application might require. The filter media porosity can be adjusted from 100 micron pore sizes down to 0.1 micron pores. This work shows test apparatus and data on both high temperature fluid streams and low temperature streams where captured organic or carbonaceous particulate can be cleaned by applying heat or microwave energy to the filter. Application tests and results for diesel exhaust and for restaurant hood grease emissions are shown. Prospective applications for future testing in coal-fired steam plants and food processing are discussed.