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KEY WORD: POROUS SILICON CARBIDE / CERAMIC FOAM FILTER / POLYMERIC SPONGE /
MOLTEN METAL FILTRATION

NUTTHITA CHUANKRERKKUL : FABRICATION AND PROPERTIES OF POROUS SILICON CARBIDE
FOR FILTER APPLICATIONS. THESIS ADVISOR : ASSOC. PROF. SUPATRA JINAWATH, Ph.D. THESIS
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Silicon carbide ceramic foam filter was fabricated by polymeric sponge method, using aluminium phosphate as a high temperature binder, 2.9 parts to silicon carbide 100 parts by weight, with clay and talcum as additives to improve strength. It was observed that the strength of materials increased with increasing clay and talcum contents. The highest value of compressive strength was 3.2 kilograms per square centimeter. The sample was made from a slurry which was composed of 72.9 wt% silicon carbide, 2.1 wt% aluminium phosphate, 15 wt% clay, 10 wt% talcum and fired at 1250 °C for 3 hours. The silicon carbide slurry had a solid content of 70 wt% and a viscosity about 18 poises. The samples contained 88 – 90% porosity. It was noticed that the compressive strength of the samples was also increased with increasing sintering temperature and soaking time. These silicon carbide foam filters retain their shapes after dipping in molten metal (~ 1400 °C).

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