

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India



Extrusion processing of complex shaped ceramic tubes and honeycombs

Overview

Extrusion processing which involves the shaping of a visco-plastic formable paste through a specially designed die is the most commonly used technique used for the manufacture of honeycombs and tubes. The honeycomb extrusion is a complex process involving lateral flow of the dough followed by the knitting with adjacent cross section within the die the rheological properties of the dough play a major role. Because of the flexibility in tailoring, honeycombs can be engineered to exhibit a unique combination of mechanical and thermal properties for diversified thermo structural applications Rheological properties depends on a variety of factors such as the choice of the binder, the extent of solids loading in the dough, the particle characteristics of the ceramic powder used, etc.

Key Features

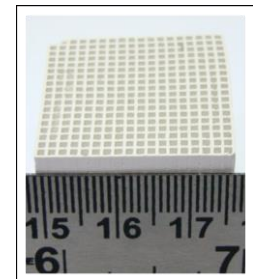
- Extrusion process for wide range of ceramic formulations
- Low expanding honeycomb cellular ceramics
- Thin walled porous and dense tubes
- Ram and Screw type extrusion processes
- Capability to design and fabricate in-house dies including for honeycombs
- Optimized heat treatment schedules based on the ceramic formulation
- Engineered structural, thermal and mechanical properties



Screw type extrusion press

Potential Applications

- Kiln Furniture and furnace fixtures
- Honeycomb substrates for catalysis
- Energy absorption, conservation and generation
- Environmental protection



Extruded honeycomb with 324 CPSI

Intellectual Property Development Indices (IPDI)

- Patented In-house honeycomb die fabrication technology in collaboration with Samara State University, Samara
- Ready to demonstrate extrusion process
- Extrusion technology for porous and dense tubes

Status	1	2	3	4	5	6	7	8	9	10
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