

## New Type of Slip Casting Process for Fine Ceramics

Shoji UCHIMURA

(Research Institute Div.Sintokogio,LTD,3-1 Honohara Toyokawa-shi)

Although fine ceramics has excellent features, its practical application, especially as structural material, made less progress than expected because of its cost blockage in forming technology. Machining cost shares more than half of production cost at present, therefore in order to make cost down, forming process suitable for the near-net-shape and the just-in-time production system has been a long time in coming. Meanwhile, the basic direction of the ceramics forming seems to depend on how accurately the shape, size, and defects of the product are controlled, and on how good the yield is in making the desired product.

Under the circumstances, new type of slip casting process for fine ceramics (permeable V process), which can control to inject the pressured slurry into the cavity, was developed. The cavity consists of a pair of the vacuum sealed replicating molds made by the special permeable polymer film of tens of micrometer thick and granular ceramics material.

This process is different from gypsum mold using of capillary phenomena in dehydration principle because this uses pervaporation in dehydration, which can make dehydration rate constant and can get homogeneous density even if the product has uneven thickness body or large and thick body. Also, this process uses collapsible replicating mold, which can make drop-out of formed body easier and can be suitable for the just-in-time production system.