

A STUDY OF EXTRUSION OF FUEL CELL SEPARATOR WITH ORTHOGONAL CHANNEL

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Abstract

In recently year, global warming becomes the serious problem. Therefore, the fuel cell that is low carbon dioxide emissions are attracting attention in the world. However, it has a demerit that its product cost is high. Thus, a new production method is required for the separator that is part of the fuel cell. This study proposes a new production method of the separator “Extrusion of fuel cell separator with orthogonal channel”. [1]

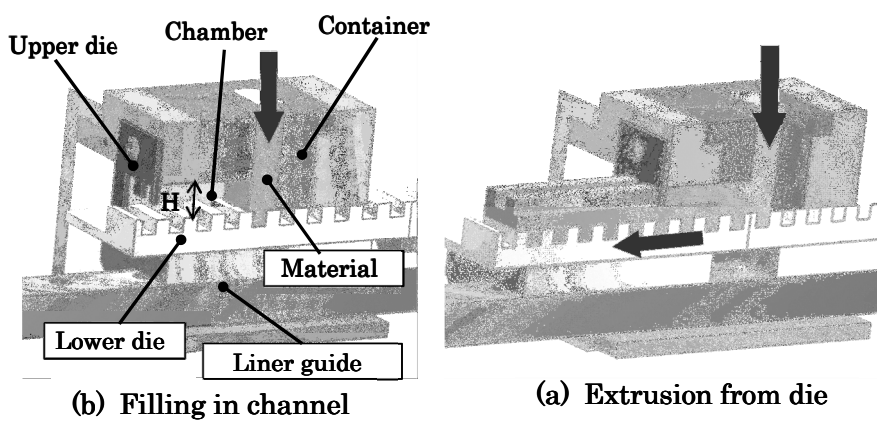


Fig.1 Extrusion tool for orthogonal channel

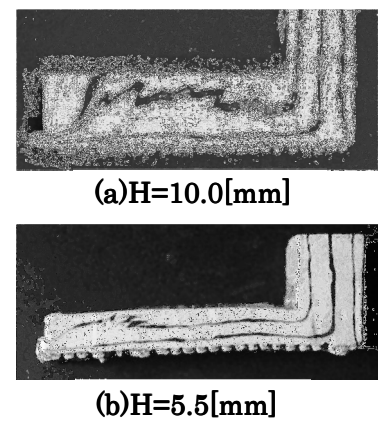


Fig.2 Flow observation

Fig.1 (a) shows the extrusion tool for manufacturing separators with orthogonal channels. First, the material is extruded from the inflow entrance in the upper part of the container (direction of the arrow) by the punch. The material is injected into the lower die and fills the chamber. This process mold material into lower channel shape. Next, the lower die is moved to the left as shown in the

In research results of the former report, the product whose size is actual size can be extruded. But, it shows that poor accuracy of dimension.

Fig.2 (a)(b) shows the flow condition at different heights chamber, $H=10.0[\text{mm}]$, $H=5.5[\text{mm}]$. Make a comparison between Fig.2 (a) and Fig.2 (b), Fig.2 (a) show the no good flow in the upper of chamber. Therefore, it shows that, chamber height is lower, it can be improved the flow.

Reference

[1]Yoshida, K, Hoshino, M. **A Study on New Extrusion of Fuel Cell Separator with Orthogonal Channel**, Proceeding of Lecture presentation for the College of Science and Technology, (2009)