Modelling of fluid flow in tape casting of thin ceramics: Analytical approaches and numerical investigations

Tape casting has been used to produce thin layers of ceramics that can be used as single layers or can be stacked and laminated into multilayered structures. Many startup products such as multilayered inductors, multilayered varistors, piezoelectrics, ceramic fuel cells and lithium ion battery components are dependent upon tape casting technology. One of the growing sciences in the processing of ceramics by tape casting is the use of fluid flow analysis to control and enhance the final tapes. The fluid dynamics analysis of the ceramic slurries during tape casting is an efficient mean to elucidate the physical parameters crucial to the process. A review of the development of the tape casting process with particular focus on modelling the material flow is presented and in this context the current status is examined and future potential discussed.

General information
State: Published
Organisations: Department of Mechanical Engineering, Manufacturing Engineering
Contributors: Jabbaribehnam, M., Hattel, J. H.
Pages: 291-305
Publication date: 2016

Host publication information
Title of host publication: Developments in Strategic Ceramic Materials: A Collection of Papers Presented at the 39th International Conference on Advanced Ceramics and Composites
Volume: 36
Publisher: Wiley
Editors: Kriven, W. M., Wang, J., Fischer, T.
ISBN (Print): 9781119211730
ISBN (Electronic): 9781119211747
(D)OI:s:
10.1002/9781119211747.ch24
Source: FindIt
Source-ID: 2302798429
Research output: Research - peer-review › Article in proceedings – Annual report year: 2016