

# CAE Virtual Prototyping for Injection Moulding of a Long Plastic Flat Plate Component

G. Chen, J. Zhao and Raymond Ong  
*Singapore Institute of Manufacturing Technology*  
*71 Nanyang Drive, Singapore 638075*

## ABSTRACT

The moulding industry is facing great challenges to increase productivity and produce more with less in a shorter time. The traditional product development process based on the trial-and-error method is time-consuming and is often very costly as it involves several rounds of product design, prototype and product testing. Computer added engineering (CAE) methods developed in recent years in engineering disciplines have greatly shortened product development cycles. In the polymer injection moulding industry, product CAE design tools and mould flow analysis software have enabled faster and better product and mould designs. In this paper the mould flow analysis CAE tool is used to study the do-it-right at the first time method for the moulding of a plastic long flat plate component without conducting physical prototyping. The product and mould design is virtually reviewed and verified through CAE analysis by comparing all the gate design possibilities to minimize part warpage and weld-line. Through this method all the possible moulding defects are fully addressed before proceed to the expensive tooling process.