

## **A study on two plate and three plate mold of ultra thin plates in minimizing warpage issue**

### **Abstract**

The demand of ultra thin plastic parts in global industries is increasing today. Ultra thin plastic parts are widely produced using injection molding processes and it is understood that warpage issue is regularly found in producing these parts. This situation happens due to lacking of knowledge in selecting the best injection molding parameters to produce parts with minimal warpage. In addition, designers also have difficulties to control the parameters since the 0.3mm thickness of the ultra thin parts is too hard to maintain. Therefore this study is performed purposely to determine the best parameters can be selected in manufacturing ultra thin plates. Two types of gating systems which are side gate for 2-plate mold and pin point gate for 3-plate mold are tested. The results are obtained using Taguchi Method and Analysis of Variance (ANOVA) and run through simulation software. Both parameters are then compared with each other in recommending molding designers which is the best to be applied at mold design stage. Results from this research recommend using pin-point gate for 3-plate mold using the outlined parameter setting in order to obtain the minimal warpage of ultra thin wall plastic plates.

**Keywords;** ANOVA; Injection molding; Taguchi method; Thin plate; Warpage

