

Teerapol Kittikanjanaruk 2012: Analysis of Wall Thickness Distribution in Thermoformed Parts. Master of Engineering (Materials Engineering), Major Field: Materials Engineering, Department of Materials Engineering. Thesis Advisor: Mr. Somjate Patcharaphun, Dr.-Ing. 92 pages.

The focus of this study was to primarily determine the influence of molding parameters such as types of mold, sheet and mold temperatures on the wall thickness distribution of thermoformed parts. Furthermore, the experimental results with simple mold geometry as well as with more complicated parts were also extensively verified against the analytical results obtained from Computer Aided Engineering programs including T-SIM and MSC.Marc The experimental results of thermoformed part produced by cavity mold indicated that an increase in sheet temperature did not lead to significant changes of wall thickness, while the increase of mold temperature tended to increase the wall thickness. In the case of plug mold, it can be seen that the increasing sheet and mold temperatures decreased the wall thickness of thermoformed part. Since numerical results were in good agreement with the experimental ones, so it can be suggested that the simulation program can be used as a valuable tool for the prediction of wall thickness during thermoforming process.

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Thesis Advisor's signature