

Optimization of Processing Parameters of Acrylonitrile-Butadiene-Styrene Sheets Integrated by Taguchi Method

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Abstract : The present research is concerned with the optimization of extrusion parameters of ABS sheets by the Taguchi experimental design method. In this design method, three parameters of % recycling ABS, processing temperature and degassing time on mechanical properties, hardness, HDT, and color matching of ABS sheets were investigated. The variations of this research are the dosage of recycling ABS, processing temperature, and degassing time. According to experimental test data, the highest level of tensile strength and HDT belongs to the sample with 5% recycling ABS, processing temperature of 230°C, and degassing time of 3 hours. Additionally, the minimum level of MFI and color matching belongs to this sample, too. The present results are in good agreement with the Taguchi method. Based on the outcomes of the Taguchi design method, degassing time has the most effect on the mechanical properties of ABS sheets.

Keywords : ABS, process optimization, Taguchi, mechanical properties

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