The mechanical properties of a glass–fiber filled polypropylene were investigated with respect to injection speed and the effect of weld-line. It was found in this work that injection speed had no significant effect on the tensile properties of the glass fiber/PP composite. The processability of the composite was improved with increasing residence time of mixing of the glass fiber and the polymer. In the case of weld-line effect, the sample with no weldline seemed to give greater mechanical properties than that with presence of weldline, this being related to the orientations of the glass–fiber and the polymer in the composite system.