

Abstract

Analyses of Process Influences on the Stress Cracking of Amorphous Thermoplastics during Hot Plate Welding

In the field of hot plate welding further practical investigations show that the stress cracks are caused by inherent stresses in the component, which are induced in the part while it is being heated on the tool. At first the interactions between the process parameters and the phenomenon of stress cracking on amorphous thermoplastics is presented.

On this basis the development of a theoretical model for the one dimensional temperature and stress calculation of simple hot plate welded geometries is described. The prescribed method allows to estimate the effects of the process parameters on the phenomenon of stress cracking. At least the results of the mathematically – physical model are compared with the results of further practical investigations.

At the end the understanding of the phenomena of stress cracking as well as the process understanding can be increased with the help of the presented physical model.