

FEM Investigation of Inhomogeneous Wall Thickness Backward Extrusion for Aerosol Can Manufacturing

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Abstract : The wall of the aerosol can is extruded from the backward extrusion process. Necking is another forming process stage developed on the can shoulder after the backward extrusion process. Due to the thinner thickness of the wall, buckling is the critical challenge for current pure aluminum aerosol can industries. Design and investigation of extrusion with inhomogeneous wall thickness could be the best solution for reducing and optimization of neck retraction numbers. FEM simulation of inhomogeneous wall thickness has been simulated through this investigation. From axisymmetric Deform-2D backward extrusion, an aerosol can with a thickness of 0.4 mm at the top and 0.33 mm at the bottom of the aerosol can have been developed. As the result, it can optimize the number of retractions of the necking process and manufacture defect-free aerosol can shoulder due to the necking process.

Keywords : aerosol can, backward extrusion, Deform-2D, necking

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