

Abstract. The influence of strain paths (loading history) on material formability is well known in sheet forming processes. Sophisticated experimental methods are used to determine the entire shape of strain paths of forming limits for aluminum AA6016-T4 alloy. Forming limits for sheet metal in as-received condition as well as for different pre-deformation are presented. A theoretical approach based on Arrieux's intrinsic Forming Limit Stress Curve (FLSC) concept is employed to numerically predict the influence of loading history on forming severity. The detailed experimental strain paths are used in the theoretical study instead of any linear or bilinear simplified loading histories to demonstrate the predictive quality of forming limits in the state of stress.