The Study of Deformation Behaviour of DC06 Deep Drawing Steel

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The occurrence of any cracks or defects in car body parts processed by deep drawing technology is not allowed by high quality standards. This kind of defect is considered as the most dangerous for the process quality and stability because it cannot be easily detected during the manufacturing in the steel plant and also in final inspection after pressing, that's why the occurrence of these defects has always to be studied in detail. For the prevention of defects, it is necessary to study the deformation behaviour of the material in the immediate vicinity the crack tip in detail. For the study the controlled scratched samples were tensile deformed and then were studied using UHR-SEM equipped witd EBSD detector. The EBSD technique allowed detailed inspection of the effect of deformation on the grain structure as changes in grain orientation or local crystal lattice missorientation and thus directly observe and evaluate both, elastic and plastic strain. Obtained results showed that the scratch does not affect deformability of the DC06 deep drawing sheet negatively due to too large tip radius with respect to low sheet thickness.

Keywords: EBSD, Deformation, Stress, Strain, Structure

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