Creation and Validation of Material Cards for Aluminum Sheet Metal Materials

Dr.-Ing. Roland Hennig,

Aleris Rolled Products Germany GmbH - Innovation Center Aachen

While many simulation programs contain sufficient material cards for most of the steel materials, the aluminum cards often aren't available yet. Therefore many of the aluminum processing suppliers have to create their own cards but aren't willing to change them with other suppliers or customers because of the necessary high effort to get them. This leads to a higher uncertainty of the ability to process aluminum sheet metal materials in the automotive industry especially for small and medium-sized enterprises which aren't able to create their own cards and simulate their forming processes with sufficient reliability and prevents a higher distribution of aluminum sheets in the market in general. Therefore Aleris - one of the leading Aluminum Suppliers in the world - has decided to create their own material cards for all of their sheet materials to help their customers to simulate their forming processes with the Aleris aluminum sheets with ease and reliability. To do so the cards will not only be created but also tested and validated with different known sheet metal testing methods from deep drawing to stretch forming. In this way Aleris will not only improve its serve to their customers in their daily business but also increase the security to process aluminum sheets in general by more reliable forming simulations to meet the demands of an increasing use of aluminum sheets in the automotive industry in future.

