



Contribution ID: 121

Type: **Oral Presentation**

On the influence of EAF based steelmaking on AHSS

Wednesday 8 October 2025 15:00 (20 minutes)

Nowadays the use of scrap-based Electric Arc Furnace (EAF) steels is a reasonable solution to reduce CO₂ emissions, as the availability of steel scrap is expected to increase in the next 10-20 years. However, CO₂ reduced steel produced with an EAF contains a higher amount of tramp elements such as copper and nickel compared to material from primary steel making. As one task in the material evaluation process it is necessary to assess the influence of these tramp elements on formability and to evaluate if these materials behave differently in classical sheet metal forming processes.

This contribution is based on the comparison of a hot-dip galvanized dual-phase steel DP800 and electrogalvanized martensitic steel MS1500 from primary steel making and secondary steel making with 100 % scrap content. Specially, a dual-phase steel with increased copper content and a martensitic steel with increased nickel content are evaluated. This study aims to identify significant differences in the microstructural and mechanical behaviour of these two steel grades depending on the production route and tramp element content.

Primary author: BERNHARDT, Jonny (Mercedes-Benz AG)

Co-authors: Dr HEIBEL, Sebastian (Mercedes-Benz AG); Mr SCHWEIKER, Thomas (Mercedes-Benz AG); Mr DETTINGER, Thomas (Mercedes-Benz AG); Mr BOLD, Jochen (Mercedes-Benz AG); Dr OTTO, Manuel (SSAB Swedish Steel GmbH); Mr WOLF, Uwe (SSAB Swedish Steel GmbH); MÜNSTERMANN, Sebastian (RWTH Aachen University)

Presenter: BERNHARDT, Jonny (Mercedes-Benz AG)

Session Classification: Advanced High-Strength Steels (AHSS) & High-Strength Steels (HSS) Development

Track Classification: Steel materials and their application