

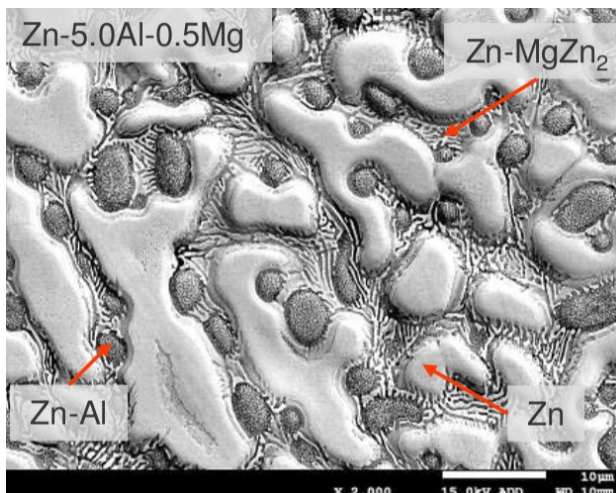
MULTISCALE APPROACH OF THE MECHANICAL BEHAVIOUR OF HOT-DIP ZN-AL-MG COATINGS ON A STEEL SHEET

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- Selection of materials
- Identification of deformation and damage mechanisms in the various phases
- Strain and damage fields measurement at the macroscopic scale
- Strain and damage fields at the mesoscale
- Modeling and simulation
- Guidelines for microstructure optimization

Abstract:

Arcelor-Mittal is carrying out a research program aiming at determining the forming and mechanical properties of Zn-Al-Mg coatings on hot-dip galvanized steel sheets, depending on the solidification microstructures. The research strategy is developed along 5 lines: material selection, advanced characterization techniques, macroscopic mechanical properties of coatings, mesoscale modelling of microstructures and identification of deformation and inter- and transgranular damage mechanisms.

The proposed PhD project aims at applying advanced characterization and modeling techniques for a better understanding of the mechanical properties of Zn-Al-Mg coating along the previous lines. The objective is to draw from these observations new guidelines for the microstructure optimization.