

Master Thesis

High Temperature Plasticity of New AZ31-Ca/Y Magnesium Alloys for Lightweight Structures

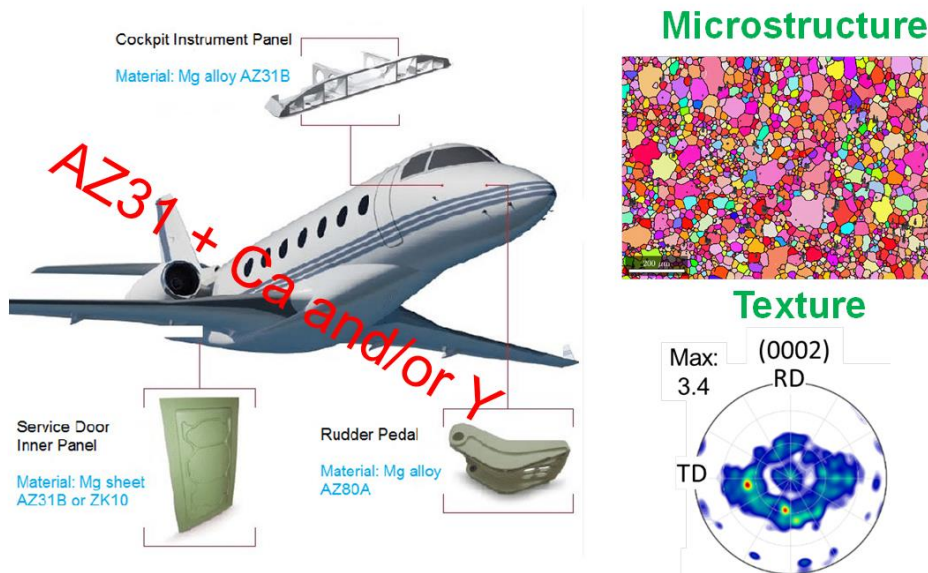


Institut für
Metallkunde und
Metallphysik

RWTH Aachen University

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Motivation:



Wrought magnesium alloys, particularly those of the AZ (Al-Zn) system, have been frequently used in sheet structural applications because of their high specific strength and stiffness. However, owing to their sharp basal textures after rolling, these alloys exhibit anisotropic mechanical properties and relatively low room temperature ductility, which limit their wide industrial usage in lightweight structures. In this respect, very recent results have shown that a new class of AZ31 alloy containing dilute additions of Ca and/or Y demonstrate possess improved properties, if rolled and annealed properly. The aim of the current work is to extend the previous research to study the deformation behavior of these alloys at elevated temperatures, under the influence of dynamic recrystallization, and analyze the resulting textures and microstructures.

Your responsibilities:

- Uniaxial compression experiments at different temperatures
- Metallographic sample preparation
- Microstructure and texture characterization by optical microscopy, orientation imaging microscopy and X-ray diffraction

We offer:

- Young team of motivated scientists and state-of-the-art equipment
- Challenging topical subject in the field of materials science & engineering
- Flexible working hours

We are looking for:

- Enthusiastic candidate with good background in materials science, ideally with some experience in metallography
- Good communication skills and the ability to work in a team

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