

Thursday Evening Poster Sessions

Manufacturing Science and Technology Group

Room: Central Hall - Session MS-ThP

Topics in Manufacturing Science and Technology

MS-ThP1 Influence of Strain Rate on Deformation Behaviour of an AX52 Alloy Prepared by ECAP, *Kristyna Halmesova*, Comtes Fht, Czech Republic, *Z. Trojanova*, Charles University, Prague, Czech Republic, *J. Dzugan*, Comtes Fht, Czech Republic, *P. Minarik*, Charles University, Prague, Czech Republic

Cast magnesium alloy AX52 (nominal composition Mg-5Al-2Ca in wt.%) was processed by equal channel angular pressing (ECAP) using A route and 1-8 passes. The microstructure and texture of samples have been assessed using electron backscatter diffraction and X-ray diffraction. The differences in grain size measured by these techniques allow for an understanding of microstructural evolution. Samples were tested in tension at room temperature initial strain rates in the interval from 1×10^{-3} to $1 \times 10^2 \text{ s}^{-1}$. The results reveal a significant strain rate sensitivity, which is affected by the ECAP processing. Deformation at higher strain rates became to be unstable. Deformation mechanisms operating at various strain rates are discussed in connection with microstructure and texture.

MS-ThP4 Material Characterization of Tungsten Dispenser Cathodes, *Briana Fees*, San Jose State University and Coherent Inc

Barium impregnated tungsten dispenser cathodes are a critical component in the production of ion plasma lasers. As the emission source for the generation of plasma, the final processing, i.e. activation, of the cathode plays a crucial role in the emission of electrons as well as the lifetime of the laser. This activation process serves two primary purposes; the first being outgassing of impurities, adsorbed and absorbed during cathode processing and atmospheric exposure; the second being conversion of the impregnated barium oxide into free barium on the surface of the cathode, as the barium is the actual ion source. The objective of this work is to perform a full characterization of key process indicators which most influence activation. Preliminary results show a large variance in the resistance of cathode lots indicating a need for unique processing.

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