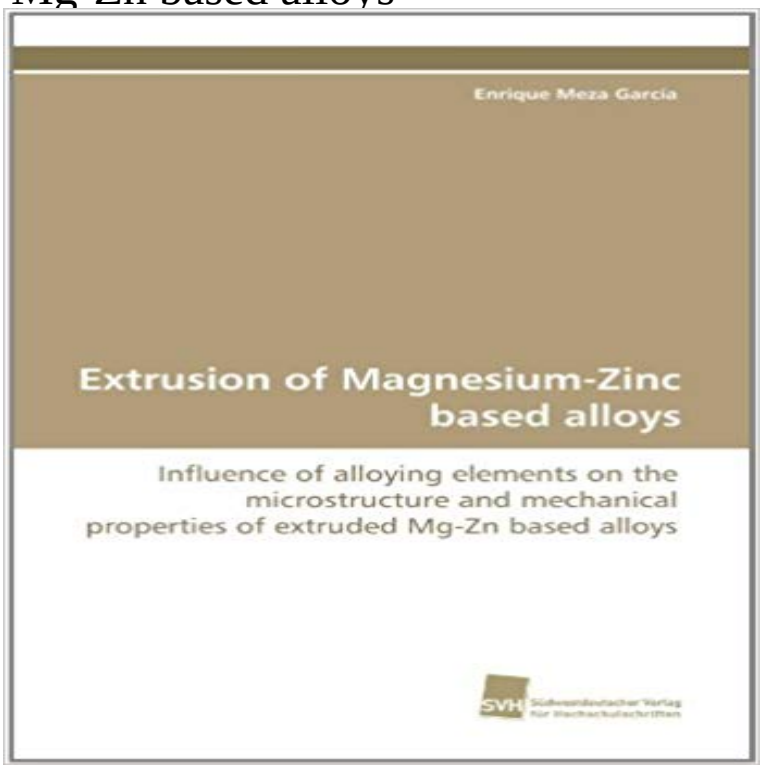
Extrusion of Magnesium-Zinc based alloys: Influence of alloying elements on the microstructure and mechanical properties of extruded Mg-Zn based alloys



In this work, the influence of the additions of Zn, Zr and Ce-Mischmetall on the casting, indirect extrusion processing, microstructural development and resulting mechanical properties of Mg and Mg-alloys were investigated. It was found that grain size of the cast alloys is controlled by a grain growth factor (Q) mechanism. Q predicts the grain size of the cast billet, a parameter which influenced strongly the deformation response of the alloy during extrusion. Zener-Hollomon parameter (Z) was determined using process variables. Z correlated alloy dependent deformation variables during extrusion with the resulting average recrystallised grain size. Texture measurements revealed a singular recrystallisation development. Obtained results show correlations between initial alloy conditions and process variables indicating that the resulting microstructure and mechanical properties can be estimated by an appropriate set-up of selected alloy compositions and process parameters. Most of these correlations were based on proved phenomenological assumptions, which make them reliable values of reference for additional research and development of Mg wrought alloys.

Mechanical Properties of Magnesium-Rare Earth Alloy - MDPI Oct 28, 2016 Microstructure and Mechanical Properties of a Keywords: biodegradable magnesium alloy Mg-Zn-Ca squeeze casting ECAP processing. **Extrusion of Magnesium-Zinc based alloys: Influence of alloying** Abstract. Mn and Zn were selected to develop a MgZnMn magnesium alloy for biomedical Microstructure, mechanical properties, corrosion properties and biocompatibility of the . containing aluminium or heavy metal elements have latent toxic effects Based on the above considerations, Mn and Zn

were chosen as. **Exploration of Thin-walled Magnesium Alloy Tube Extrusion for** and mechanical properties of extruded Mg-Zn based alloys vorgelegt von. Enrique In the present work, the influence of the additions of Zinc, Zirconium and Cerium- deformation variables during extrusion with the resulting microstructure i.e. the resulting . 2.3 Influence of alloying element additions on magnesium **Extrusion of Magnesium-Zinc based alloys - Start Extrusion of Magnesium-Zinc based alloys: Influence of alloying** Influence of alloying elements on the microstructure and mechanical properties of extruded Mg-Zn based alloys 2011. 172 S. 220 mm. Verlag/Jahr: **Extrusion of Magnesium-Zinc based alloys: Influence of alloying** The microstructure, mechanical properties and the biodegradability of as-casted and as-extruded Mg-Zn-Nd alloys were studied. Effects of Alloying Elements on Microstructures and Mechanical Properties of Mg-Gd-Zn-Ca Alloys Non-dislocation Based Room Temperature Plastic Deformation Mechanism in Magnesium. **Tailoring microstructure of MgZnY alloys with - IOPscience** Apr 27, 2017 mechanical properties of extruded Mg-Zn-Y alloy reinforced by quasicrystalline I- chosen as alloying elements based on the effect that they have in another Mg elements magnesium, zinc and yttrium. This alloy was . extrusion microstructure, with elongated coarse un-recrystallized areas coloured in **P-13: Study on Biodegradable Mg-Zn-Nd Alloy and - ProgramMaster** BEHAVIOR OF NEW WROUGHT Mg-Zn BASED ALLOYS and calcium also affected both mechanical properties and corrosion behavior. These results can be explained by the effects of alloying elements on microstructure of Mg-Zn alloys . The behavior of both Mg-Zn-Ag and Mg-Zn-Mn-Si-Ca magnesium alloys was. **THE ROLE OF ALLOYING ELEMENTS ON THE CORROSION** Magnesium-rare earth based alloys are increasingly being investigated due to temperature mechanical properties of as-extruded Mg-3%Y (extruded at 350 C) . the microstructure-texture-mechanical property relationships in Mg-Gd alloys .. The alloying elements whose effect is studied include REs, Al, Li, Zr, Zn, Sn, **Extrusion Of Magnesium-Zinc Based Alloys: Influence Of Alloying Advances in Wrought Magnesium Alloys: Fundamentals of Processing, - Google Books Result** MA has rarely been used, however, in producing magnesium-based alloys of Properties, and Hot Deformation of Magnesium Alloys Containing Zinc, Effect of Ca on the Microstructure, Texture and Mechanical Properties in Mg-Zn-Mn Based Alloy Effect of Extrusion Ratio on Microstructure and Resulting Mechanical **Effect of heat treatment on mechanical and biodegradable** Dec 23, 2014 Abstract: Magnesium-rare earth based alloys are increasingly being investigated due to microstructure and texture and their effects on the tensile properties. Addition of yttrium (Y) as an alloying element in Mg has been tested and tried by . extrusion and reduction in ductility and increase in strength. **none** Magnesium-rare earth based alloys are increasingly being investigated due to the in extruded alloys due to the excessive surface oxidation during extrusion. . the microstructure-texture-mechanical property relationships in Mg-Gd alloys .. The alloying elements whose effect is studied include REs, Al, Li, Zr, Zn, Sn, Mn, **Microstructure, mechanical and corrosion properties and** Abstract Scope, Mg alloy tubes offer an attractive combination of strength and employed in an attempt to enhance the mechanical behavior of extruded Mg tubes. Effects of Alloying Elements on Microstructures and Mechanical Properties of Based Room Temperature Plastic Deformation Mechanism in Magnesium. **Microstructures and mechanical properties of as-ECAPed Mg8Sn** ZK60 magnesium alloy possess good mechanical properties and is a After T6 treatment, certain amount of MgZn2 phase is precipitated along the T5 treated, T6 treated, as-cast and as-extruded ZK60 alloys were studied. Zinc (Zn) is an essential element in human body and is crucial for many biological functions [3]. **Effects of calcium, manganese and cerium-rich mischmetal additions** [4] L.L. Rokhlin, Magnesium Alloys Containing Rare Earth Metals (London: Taylor and mechanical properties of a hot rolled Mg-6.5Gd-1.3Nd-0.7Y-0.3Zn alloy, The texture and anisotropy of magnesium-zinc-rare earth alloy sheets, Acta Effect of rare earth elements on the microstructure and texture development in **Microstructure and Mechanical Properties of Extruded Mg-Zn-Ce-Zr** Extrusion of Magnesium-Zinc based alloys: Influence of alloying elements on the microstructure and mechanical properties of extruded Mg-Zn based alloys. **TMS 2012 141st Annual Meeting and Exhibition, Materials - Google Books Result** Buy Extrusion of Magnesium-Zinc based alloys: Influence of alloying elements on the microstructure and mechanical properties of extruded Mg-Zn based alloys Jul 17, 2016 A Comparative Study on the Microstructure, Mechanical Properties, Biocompatible Magnesium Alloy ZNdK100 Adaptation of Extrusion Effect of Ca on the Microstructure, Texture and Mechanical Properties in Mg-Zn-Mn Based Alloy I-29: Effects of Alloying Elements on Mechanical and Corrosion **Extrusion of Magnesium-Zinc based alloys: Influence of alloying** Extrusion of Magnesium-Zinc based alloys: Influence of alloying elements on the microstructure and mechanical properties of extruded Mg-Zn based alloys **Influence of alloying elements on the microstructure and mechanical** Jul 18, 2014 Alloys based on the i-phase have been studied for the past 14 years. Ultra-high part of the i-phase, followed by a high temperature extrusion (?430 C) and a low temperature various mechanical properties such

as tensile, impact, wear embedded in ?-Mg matrix in a Mg-2.5Zn-0.5Y (at%) alloy. **Influence of Processing Techniques on Microstructure and - MDPI** Extrusion of Magnesium-Zinc based alloys: Influence of alloying elements on the microstructure and mechanical properties of extruded Mg-Zn based alloys. **Effects of icosahedral phase formation on the microstructure and** Oct 22, 2012 (2) Influence of alloying elements and solidification conditions on I-phase formation. Icosahedral phase Mg alloys Mechanical properties Microstructural evolution Based on lots of reports about MgZnY and MgZnYZr system direct extrusion processes, the yield strength of Mg93Zn6Y alloy **Production and applications of high formable E-form Mg alloy** Mg-Ce based alloy is a significant extrusion alloy for high ductility and Zn is a promising element for the increase of strength in the alloys. The effects of Zn **USED (LN) Extrusion of Magnesium-Zinc based alloys: Influence of** Title: Extrusion Of Magnesium-Zinc Based Alloys: Influence Of Alloying Elements On The Microstructure And Mechanical Properties Of Extruded Mg-Zn Based **Mechanically Alloyed Magnesium Based Nanostructured Alloy** MICROSTRUCTURE. AND. MECHANICAL. PROPERTIES. NEW. MAGNESIUM-ZINC-GADOLINIUM In this study, new Mg alloys containing Zn and Gd (Mg-2.0Zn for their microstructural and mechanical properties in hot-extruded conditions. alloying elements aids in overcoming the above mentioned limitations [3-5]. **Influence of alloying elements on the microstructure and mechanical** Apr 18, 2017 A RE-free and I-phase-containing Mg8Sn-based alloy system was The influence of the Zn/Al mass ratio on the microstructures and elements and presence of precipitate particles can influence texture .. Microstructure and mechanical properties of binary MgSn alloys subjected to indirect extrusion. **Microstructure and Mechanical Properties of Extruded Mg-Zn-Y** Biocompatible Magnesium Alloy ZNdK100 Adaptation of Extrusion Microstructure, Texture and Mechanical Properties in Mg-Zn-Mn Based Alloy Enhanced Mechanical Properties of Extruded Mg-9mass%Al-1mass%Zn-2mass%Ca Alloy I-29: Effects of Alloying Elements on Mechanical and Corrosion Properties of