Journal of Powder Metallurgy & Mining
ISSN: 2168-9806
Kaya, J Powder Metall Min 2022, 11:3
Short communication
Open Access

A Short Note on Magnesium Alloys

Arslan Kaya*

Department of Metallurgy and Materials Science and Engineering, Faculty of Engineering, Mugla Sitki Kocman University, Muğla, Turkey

Introduction

This article initially describes the anomalous/problematic properties of magnesium before presenting the latest strategy of stacking fault energy –based alloying element selection to decrease or remove this problem. Understanding the free electron density distribution around atoms in a solid solution is required for stacking fault energy estimations using initial approaches[1]. As a result, the function of atoms has been reconsidered by taking into account the potential of short range order generation rather than a random solid solution. There are two sorts of SROs that have been suggested. In a previously unknown model, the necessary electrical interactions between the host Mg and the alloying element atoms are more fully integrated.

Description

This more successful strategy has also been discussed. An assessment based on these premises has been offered in terms of their successes in mending the problematic aspects of Mg alloys, introducing the comparatively more current Mg alloy systems [2]. The variety of alloy systems studied includes Mg doping, dilute alloy systems, and some rich alloy systems with exceptional features. An unusual addition, doping with oxygen, and its repercussions, has been given in the first category. The potentials of dilute alloy systems and their compositional design based on SRO and SFE have been examined. An unusual addition, doping with oxygen, and its repercussions, has been given in the first category. The potentials of dilute alloy systems and their compositional design based on SRO and SFE have been examined [3]. The most fascinating precipitate systems, involving order and intermetallic formations, long-period stacking order phases, and quasi-crystals, have been studied among the rich alloy compositions. Among all the alloying elements, calcium, with its implications such as cost-effectiveness, environmentally friendly Mg metallurgy, and remedial effects on engineering property deficiencies, as well as a closely connected issue of calcium oxide addition, has been investigated. Whenever possible, this article attempts to hint out future paths throughout the material. There are several more reviews in the literature that are similar to the one offered here. Witte has offered a very extensive and intriguing history of magnesium manufacturing and usage [4]. The thought-provoking strong criticism)on the conventional interpretation of solid solutions of Mg as random solutions, as well as the elegant reviews, encompassing the spectrum of Mg alloys up to the beginning of this decade, are strongly recommended to the readers.

Conclusion

Mg was first used for purposes such as ignition and photographic flashes, according to Witte. Its use as a biomaterial dates back to 1878, which is rather remarkable. Then, before to and during World War II, we find a large-scale employment of magnesium alloys in aircraft for solely military objectives [5]. Only the United States' manufacturing capacity would account for nearly a fourth of today's global production capacity of 950,000 tonnes throughout those years. The word "electron" was once associated with magnesium alloys, maybe because of its dazzling white light when burned or as a homage to the old alchemical term electrum. Although the Lydians of the Aegean coast of Anatolia utilised geologically occurring gold and silver alloys for coinage, this word comes from the geologically occurring gold and silver alloys. The overview that follows does not purport to address all elements of Mg alloy development activities. For example, in order to keep the text within the allowed limitations, we will not attempt to incorporate the effects of alloying additives that are connected to various processing procedures.

Acknowledgement

I would like to thank my Professor for his support and encouragement.

Conflict Of Interest

The authors declare that they are no conflict of interest.

References

1. Abaspour S (2014) Thermodynamics-based design of creep resistant mg solid solutions using the miedema scheme. Queensland: The University of Queensland, Australia 46 (12):5972-5988.
2. Abaspour S, Caceres CH (2013) Creep beha viour of Mg binary solid solutions in Magnesium Technology. eds 17-20.
3. Hort N, Mathaudhu N, Neelameggham X The Minerals, Metals & Materials Society (TMS)]. eds 17-20.
4. Abe E, Kawamura, Hayashi YK (2002) Long-period ordered structure in a high-strength nanocrystalline Mg-1 at% Zn-2 at% Y alloy studied by atomic-resolution Z-contrast STEM. Acta Mater 50: 3845-3857.
5. Barnett MR, Keshavarz Z, Ma X (2006) A semianalytical Sachs model for the flow stress of a magnesium alloy. Metall Mater Trans A Phys. Metall. Mater Sci 37 2283-2293.

***Corresponding author:** Arslan Kaya, Department of Metallurgy and Materials Science and Engineering, Faculty of Engineering, Mugla Sitki Kocman University, Muğla, Turkey, E-mail: akaya@mu.edu.tr

Received: 30-Mar-2022 Manuscript No. jpmm-22-58967, **Editor assigned:** 2-Apr-2022, Pre QC No. jpmm-22-55885 (PQ); **Reviewed:** 18-Apr-2022, QC No. jpmm-22-55885; **Revised:** 22-Apr-2022, Manuscript No jpmm-22-58967 (R); **Published:** 26-Apr-2022, DOI: 10.4172/2168-9806.1000206

Citation: Kaya A (2022) A Short Note on Magnesium Alloys. J Powder Metall Min 6: 206.

Citation: Kaya A (2022) A Short Note on Magnesium Alloys. J Powder Metall Min 6: 206.