

Accepted Manuscript

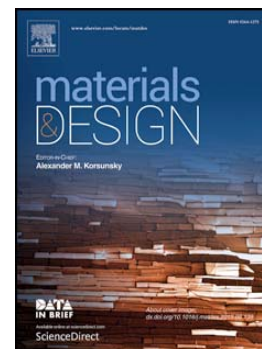
An insight into ignition factors and mechanisms of magnesium based materials: A review

Sravya Tekumalla, Manoj Gupta

PII: S0264-1275(16)31286-2
DOI: doi: [10.1016/j.matdes.2016.09.103](https://doi.org/10.1016/j.matdes.2016.09.103)
Reference: JMADE 2353

To appear in:

Received date: 22 June 2016
Revised date: 28 September 2016
Accepted date: 29 September 2016



Please cite this article as: Sravya Tekumalla, Manoj Gupta, An insight into ignition factors and mechanisms of magnesium based materials: A review, (2016), doi: [10.1016/j.matdes.2016.09.103](https://doi.org/10.1016/j.matdes.2016.09.103)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

An Insight into Ignition Factors and Mechanisms of Magnesium Based Materials: A Review

Sravya Tekumalla and Manoj Gupta *

Department of Mechanical Engineering, National University of Singapore, 9 Engineering Drive 1, Singapore, 117 576
e-mail: tvrlsravya@u.nus.edu (S.T.)

Correspondence (M.G.): mpegm@nus.edu.sg;
Tel.: +65-6516 6358

Abstract

There has been a spurt in the quest for ignition resistant Mg materials that can be employed in the aerospace sector, consequent to the recent lifting of the ban on magnesium based materials by Federal Aviation Administration (FAA). Literature studies show some advances in the field of development of ignition proof Mg materials. This article aims at capturing the currently available data on the ignition properties of Mg based materials. One of the objectives of this article is to reduce the ambiguity between ignition and flammability of Mg materials and bridge the gap in understanding by clearly demarcating the tests and standards available for the two. Further, most importantly, the factors affecting the ignition temperatures of Mg materials and their mechanisms are emphasized such that an informed approach can be undertaken while designing the Mg based alloys for the aerospace applications. This article also demonstrates and emphasizes that the studies on the ignitability can be stretched to new classes of materials like LPSO (Long Period Stacking Order) alloys and nanocomposites in order to attain a maximized benefit in the existing domain of materials of Mg base.

Keywords: magnesium; ignition; geometrical, test and metallurgical factors; mechanisms; new magnesium alloys and magnesium based nanocomposites.

Download English Version:

<https://daneshyari.com/en/article/5024103>

Download Persian Version:

<https://daneshyari.com/article/5024103>

[Daneshyari.com](https://daneshyari.com)