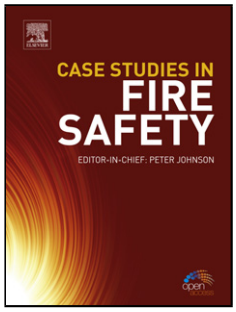


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# Combined influence of Be and Ca on improving the high-temperature oxidation resistance of the magnesium alloy Mg-9Al-1Zn

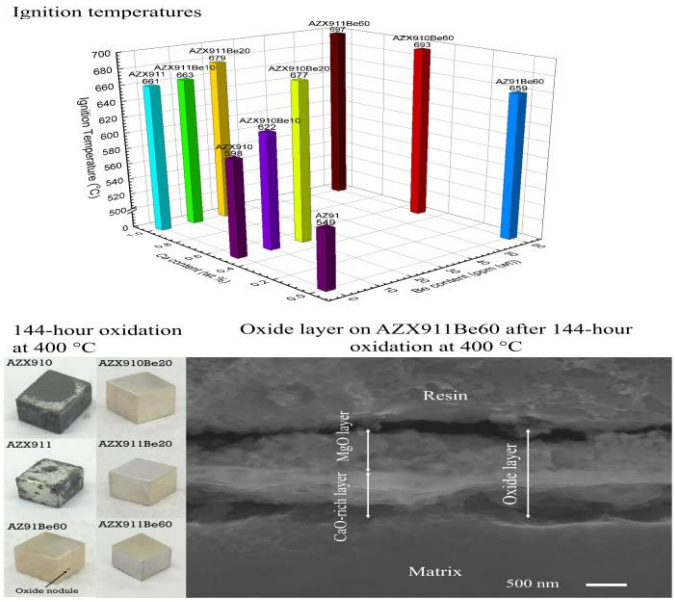
Qiyang Tan[1], Ning Mo[1], Bin Jiang[2], Fusheng Pan[2], Andrej Atrens[1] and Ming-Xing Zhang[1,*]

[1] School of Mechanical and Mining Engineering, The University of Queensland, St. Lucia, QLD 4072, Australia

[2] College of Materials Science and Engineering, Chongqing University, Chongqing, 400030, China

* Corresponding author: mingxing.zhang@uq.edu.au

## Graphical abstract

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## Highlights

- The oxidation resistance of Mg-9Al-1Zn was improved by combined alloying with Be and Ca.
- Alloying with 20 wt ppm Be plus 0.5 wt.% Ca let to higher oxidization resistance than alloying with 60 wt ppm Be.
- Combined alloying led to a more oxidation resistant alloy containing less toxic Be.
- The synergistic effect and mechanism of Be and Ca in improving the oxidation resistance of Mg alloys was discussed

## Abstract

The present work showed that the oxidation resistance of Mg-9Al-1Zn at elevated temperatures was improved by combined alloying with Be and Ca. AZ91 alloyed with 20 ppm (wt) Be and 0.5 wt.% Ca