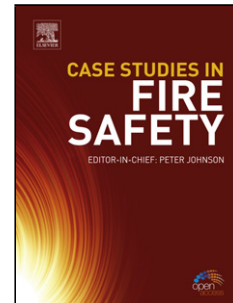


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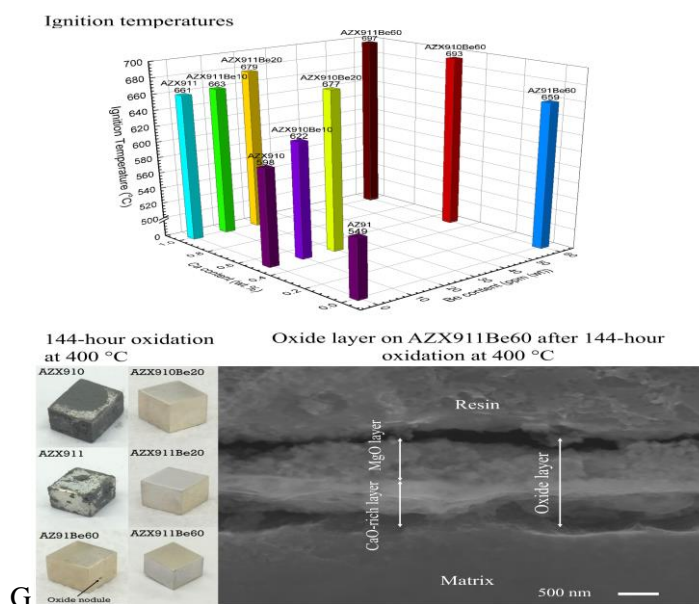
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Graphical abstract



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 led to higher oxidation 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

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