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**A novel bubble nucleation particle for magnesium composite foam**

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**Abstract**

A new thickening agent (hollow ceramic microsphere, CM) together with a novel bubble nucleation particle ( $Mg_2Si$ ) for magnesium composite foam (MCF) was obtained. Initial morphology and evolution process of  $Mg_2Si$  during preparation process were described. Meanwhile, initial morphology of  $Mg_2Si$  which is favorable for absorption of initial tiny bubbles was confirmed. Transition process of  $Mg_2Si$  phase and the coalescence behavior of bubbles along with the foaming process were analyzed based on the experimental results. According to the results obtained from this work, MCF (using CM as thickening agent) with homogeneous pore structures, superior mechanical properties and excellent corrosion resistance performance could be foreseeable.

**Keyword:** magnesium composite foam; nucleation particle; foaming behavior; cast; porous materials

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