Evaluation of the Fracture Property of the Flame-resistant Magnesium Alloy for the Application to Car Vehicle Body Structure

Hisashi MORI Naotaka UEHIGASHI Toru MIYAUCHI
Hiromichi ISHIDUKA Taro TSUJIMURA

The flame-resistant magnesium alloy is a magnesium alloy which has had calcium added to it. Using flame-resistant magnesium alloy should make it possible to reduce the weight of car bodies. However, the fracture properties of this material, such as fracture toughness (J_{IC}) and impact value remain to be investigated before it can be applied to the construction of railway vehicle structures.This paper describes the evaluation of the fracture properties which have become clear through fracture toughness and Charpy impact tests on the flame-resistance magnesium alloy. As a result of the comparison the fracture toughness and the impact value between AZ31 alloy and AZX311 alloy, it has been clarified that the J_{IC} were influenced by the addition of Ca, the Charpy impact value were correlated with the J_{IC}, and the ductile mechanism of the fracture were shown in the flame-resistant magnesium alloy.