

论文

杂质及Ce对8090Al-Li合金内、外韧化水平的影响

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摘要: 本文研究了杂质及Ce对8090Al-Li合金内、外韧化水平的影响。结果表明, Fe, Si和Na, K杂质有一定外韧化效果, 但严重降低内韧化水平, 在含较多杂质的材料中添加微量Ce, 能够提高内韧化水平, 但却降低外韧化水平。增加Ce含量, 则使内、外韧化水平同时提高而明显地改善断裂韧性。

关键词: Al-Li合金 杂质 稀土元素 韧化

EFFECT OF IMPURITIES AND Ce ADDITION ON INTRINSIC AND EXTRINSIC TOUGHENING LEVELS OF 8090 Al-Li ALLOY

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Abstract: The variability of intrinsic and extrinsic toughening levels has been derived for 8090 Al-Li alloy. The tensile properties and plane stress fracture toughness have been determined for alloy 8090 sheets with various contents of impurities and Ce addition. Impurities Fe, Si and Na, K show an evident behavior to decrease the intrinsic toughening level and the fracture toughness even though the impurities could produce the extrinsic toughening efficiency to a certain degree. The intrinsic toughening level could be enhanced but the extrinsic toughening level is reduced by adding minor Ce element into alloy 8090 containing higher concentration of impurities. The intrinsic and extrinsic toughening levels are increased and the fracture toughness improved when the alloy containing higher concentration of impurities is modified by a fixed Ce content.

Keywords: Al-Li based alloy impurity rare earth addition toughening

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