

## Accepted Manuscript

Title: Behavior of  $M_{23}C_6$  phase in Inconel 617B superalloy during welding

Authors: Shanlin LI, Kejian LI, Zhipeng CAI, Jiluan PAN

PII: S0924-0136(18)30114-6  
DOI: <https://doi.org/10.1016/j.jmatprotec.2018.03.009>  
Reference: PROTEC 15679

To appear in: *Journal of Materials Processing Technology*

Received date: 15-9-2017  
Revised date: 14-3-2018  
Accepted date: 15-3-2018

Please cite this article as: LI S, LI K, CAI Z, PAN J, Behavior of  $M_{23}C_6$  phase in Inconel 617B superalloy during welding, *Journal of Materials Processing Technology* (2018), <https://doi.org/10.1016/j.jmatprotec.2018.03.009>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Behavior of  $M_{23}C_6$  phase in Inconel 617B superalloy during welding

*Shanlin LI<sup>a</sup>, Kejian LI<sup>a</sup>, Zhipeng CAI<sup>a,b,c</sup>, Jiluan PAN<sup>a</sup>*

<sup>a</sup> Department of Mechanical Engineering, Tsinghua University, Beijing, 10084, China

<sup>b</sup> State Key Laboratory of Tribology, Tsinghua University, Beijing, 10084, China

<sup>c</sup> Collaborative Innovation Center of Advanced Nuclear Energy Technology, Tsinghua University, Beijing, 10084, China

**Corresponding author:** Zhipeng CAI, associate professor, Department of Mechanical Engineering, Tsinghua University, Beijing, 10084, China, TEL: +86-010-62789568, Email: caizhipeng92@outlook.com

## ABSTRACT

The room/high temperature mechanical property of the Inconel 617B joined by multi-layer narrow gap tungsten arc welding technology (NG-TIG) is investigated, and thermal simulation is utilized to reveal the behavior of  $M_{23}C_6$  phase in Inconel 617B superalloy during welding. Eutectic microstructures and micro fissures resulting from constitutional liquation due to thermal exposure in welding occur in the heat affected zone (HAZ), which leads to slight softening in the HAZ after welding. Room/high temperature tensile tests show that little adverse effects on the mechanical strength of joint has been caused by the welding process. It is shown by the thermal simulation that

Download English Version:

<https://daneshyari.com/en/article/7176322>

Download Persian Version:

<https://daneshyari.com/article/7176322>

[Daneshyari.com](https://daneshyari.com)