

## عنوان مقاله:

Fabrication of Nickel-based Superalloy Reinforced with Nano yttrium oxide by making paste of Superalloy powder and polymer binder

## محل انتشار:

هفتمین کنفرانس بین المللی مهندسی مواد و متالورژی و دوازدهمین همایش ملی مشترک انجمن مهندسی متالورژی و مواد ایران و انجمن ریخته گری ایران (سال: 1397)

تعداد صفحات اصل مقاله: 9

## نویسندگان:

S.L Heidari - *Department of Materials Science and Engineering, shiraz university, shiraz, iran*

M.J Hadianfard - *Department of Materials Science and Engineering, shiraz university, shiraz, iran*

## خلاصه مقاله:

In this study, nickel base alloy superalloy with nano yttrium oxide as Reinforcing particles, was constructed. The construction method used here is first performed on this superalloy. In this method, polymers are used to aid in the process of deformation of superalloy powder. The weight ratio of metal topolymer is 93 to used. First, the powder of this superalloy from the primary powders was synthesized by mechanical alloying And then combined with the polymers. After the raw material is made, polymers and binder are removed from the sample by thermal method up to 450 C. The sample was then sintered in a vacuum furnace at 1250 C. Scanning electron microscopy imaging, X-ray diffraction, and Ferritometer analysis were used to evaluate the properties of sintered samples The Archimedeian Density Method was used to check relative density of components. The samples had relative density of above 90% of theoretical density. The results showed that the components made from this method have the same density and hardness as the samples produced by the conventional synthesizer method With the difference that using polymer binders, it is possible to make large parts. It is also cheaper than other methods

## کلمات کلیدی:

yttrium, superalloy, x-ray diffraction, Archimedeian density

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/841994>

