

## عنوان مقاله:

The influence of Nd: YAG laser welding parameters and surface modification on hot cracking behavior of 5456 Alalloy

## محل انتشار:

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## خلاصه مقاله:

Samples of 5456 Al alloy were welded using a 80 W Nd:YAG pulsed laser. The influence of laser power and surface preparation on hot cracking behavior of 5456 Al alloy were investigated. In order to determine the microstructure and hot crack growth paths, scanning electron microscopy (SEM) and optical microscopy (OM) were used. It has been found that the penetration of welds and hot cracks increased with laser power enhancement. Also, results show that weld width does not increase significantly with laser power increment. The penetration of welds and welding quality of 5456 Al alloy sheets were improved when the surface modification was performed before laser welding. It was demonstrated that the penetration of the welds can be remarkably increased when the heat input of the laser is increased. The modification of surface lead to more penetration and decrease in the total number of the cracks. The microstructural investigations revealed that the solidification cracking would occur due to microsegregation of Mg into the interdendritic regions.

## کلمات کلیدی:

Nd:YAG pulsed laser ; 5456 Al alloy ; hot cracking ; surface modification

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/690252>

