

## عنوان مقاله:

Improving tribological and corrosion properties of Aluminum-CNT surface nano composite fabricated via Friction Stir Processing

## محل انتشار:

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## خلاصه مقاله:

Poor wear resistance and low hardness of Aluminum alloy 1200 (AA-1200) limits its industrial application. In this research, Aluminum-Carbon Nano Tube (Al/CNT) surface nano composite was fabricated via Friction Stir Processing (FSP) technique. Microstructural studies illustrated that with the increase of CNT contents from 4 to 18vol.% the grain size decreased from  $30\pm 5\mu\text{m}$  in the substrate to  $10\pm 2\mu\text{m}$  in the processed zone. Microhardness evaluations indicated that dispersed CNT in the composite layer increased the hardness up to 70% of the base metal. Potentiodynamic polarization tests revealed that with the increase of CNT contents, corrosion resistance decreased, while wear resistance improved with increasing of CNT content. SEM studies showed a relatively uniform distribution of CNT in the matrix with 10vol.% of CNT, but agglomeration of CNT occurs with higher contents of CNT.

## کلمات کلیدی:

Aluminum, CNT, FSP, grain size, corrosion, wear

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/453875>

