

## عنوان مقاله:

Deposition of an Al/SiC Composite Coating on Steel by Friction Surfacing: Corrosion and Wear Properties

## محل انتشار:

مجله مکانیک سازه های پیشرفته کامپوزیت، دوره 9، شماره 2 (سال: 1401)

تعداد صفحات اصل مقاله: 10

## نویسندگان:

Armi Tabaghi - Faculty of Mechanical Engineering, Semnan University, Semnan, Iran

Hossein Tavakoli - Faculty of Materials and Metallurgical Engineering, Semnan University, Semnan, Iran

Abdolvahed Kami - Mechanical Engineering Department, Semnan University, Semnan, Iran

## خلاصه مقاله:

Friction Surfacing (FS) is a method to create coatings on surfaces, a commonly used approach for improving the surface properties of materials. This study investigated the deposition of an Al/SiC composite coating of AA2030 aluminum alloy and 250  $\mu\text{m}$  SiC particles on a plain carbon steel substrate by FS. Holes of a 3.5 mm diameter were made in the AA2030 rod and filled with SiC powder. This consumable rod was then pressed on the surface of an St37 plate with an axial force of 450 N. The rod was rotated and moved around to coat the surface of the St37 substrate with a layer of Al/SiC composite. The results showed that SiC particles break down and get evenly dispersed over the surface. The deposited composite coating offered 41.6% better wear resistance and up to 70% better corrosion resistance than the non-composite coating. The electrochemical impedance analysis showed two time constants in the Nyquist plots.

## کلمات کلیدی:

Friction Surfacing, Wear Resistance, Corrosion Properties, Al/Sic Composite Coating, EIS

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1643594>

