

عنوان مقاله:

The investigation of the microstructure behavior of the spray distances and argon gas flow rates effects on the aluminum coating using self-generated atmospheric plasma spray system

محل انتشار:

فصلنامه فیزیک تئوری و کاربردی، دوره 11، شماره 3 (سال: 1396)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Sh Khandanjou - *Plasma Physics Research Centre, Science and Research Branch, Islamic Azad University, Tehran, Iran*

M Ghorammeviss - *Plasma Physics Research Centre, Science and Research Branch, Islamic Azad University, Tehran, Iran*

Sh Saviz - *Plasma Physics Research Centre, Science and Research Branch, Islamic Azad University, Tehran, Iran*

خلاصه مقاله:

In the present paper, our aims are the investigation of the effects of the spray parameters of the aluminum-coated layer on the microstructure and mechanical properties. For this purpose, we use the self-generated atmospheric plasma spray system for coating of aluminum on the carbon steel substrate to protect it against corrosion degradation. This system allows us to achieve the best choice for parameters. In this paper, the effects of spray distance and argon flow rate on the characteristics of aluminum coating are investigated. To obtain the results, the analyses are used such as X-ray diffraction, scanning electron microscope, micro hardness of the coating by Vickers method, and adhesion strength behaviors by pulloff test. The results show that the porosity increases with increasing distance. This phenomenon reduces the hardness and adhesion, which is clearly evident in our results. The other important conclusion is that, if the gas flow rate increases, the porosity decreases. It is shown that the best adhesion strength is obtained at the special value of the spraying distance.

کلمات کلیدی:

Thermal plasma spray Porosity Micro hardness Adhesion strength

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/763684>

