

عنوان مقاله:

Effect of Aluminide Coatings and Wheat Handling Parameters on Erosion in Wheat Storage Bins

محل انتشار:

مجله علوم و فناوری کشاورزی، دوره 9، شماره 3 (سال: 1386)

تعداد صفحات اصل مقاله: 11

نویسندگان:

H. Ahmadi - *Department of Agricultural Machinery Engineering, Faculty of Bio-system Engineering, University of Tehran, Islamic Republic of Iran*

A. M. Borgheei - *Department of Agricultural Machinery Engineering, Faculty of Bio-system Engineering, University of Tehran, Islamic Republic of Iran*

A. R. Alimardani - *Department of Agricultural Machinery Engineering, Faculty of Bio-system Engineering, University of Tehran, Islamic Republic of Iran*

A. Rajabeepour - *Department of Agricultural Machinery Engineering, Faculty of Bio-system Engineering, University of Tehran, Islamic Republic of Iran*

.D. Y. Lee - *Department of Chemical and Materials Engineering, University of Alberta, Canada*

خلاصه مقاله:

Recent studies demonstrate that aluminide coatings are beneficial to wear and erosion resistance and also that oxygen-active elements such as yttrium can remarkably improve this resistance. In this research, the micro-hardness of the aluminide coatings with and without yttrium on ۱۰۴۵ steel was investigated using a micro-mechanical probe. Wear of the samples was measured using a pin-on-disk tribometer. The erosion loss of specimens against soft and hard wheat was also evaluated using a slurry erosion test machine. The data was analyzed statistically using a ۳-factor completely randomized design to study the effect of wheat varieties (soft and hard wheat), moisture content at three levels (10 ± 0.5 , 15 ± 1.5 , and 20 ± 2 % (wet basis)), and rotary velocity of the slurry erosion machine at three levels (۲۰۰, ۴۰۰, and ۶۰۰ rpm) on erosion resistance. The results showed that the aluminide coatings improved the wear and erosion resistance of substrate steel ۱۰۴۵; yt-trium markedly improved the hardness of the aluminide coating and its wear and erosion resistance. The erosion loss of materials was significantly ($p < 0.01$) influenced by the type of wheat, moisture content and rotary velocity. Both aluminide coatings showed higher wear and erosion resistance than ۱۰۴۵ steel substrate.

کلمات کلیدی:

Erosion, Wheat, Aluminide coating, Storage bins, wear, Yttrium

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1817015>



