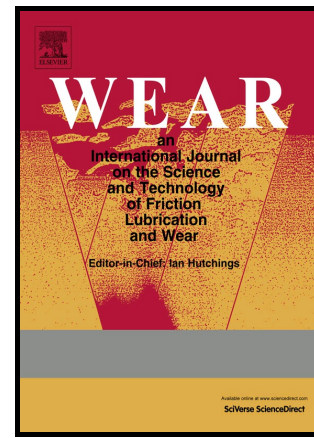


Author's Accepted Manuscript

Reciprocating sliding wear behavior of high-strength nanocrystalline $\text{Al}_{84}\text{Ni}_7\text{Gd}_6\text{Co}_3$ alloys

Z. Wang, K. Georgarakis, W.W. Zhang, K.G. Prashanth, J. Eckert, S. Scudino



PII: S0043-1648(16)30799-2
DOI: <http://dx.doi.org/10.1016/j.wear.2017.04.013>
Reference: WEA102142

To appear in: *Wear*

Received date: 16 December 2016

Revised date: 29 March 2017

Accepted date: 21 April 2017

Cite this article as: Z. Wang, K. Georgarakis, W.W. Zhang, K.G. Prashanth, J. Eckert and S. Scudino, Reciprocating sliding wear behavior of high-strength nanocrystalline $\text{Al}_{84}\text{Ni}_7\text{Gd}_6\text{Co}_3$ alloys, *Wear* <http://dx.doi.org/10.1016/j.wear.2017.04.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Reciprocating sliding wear behavior of high-strength nanocrystalline Al₈₄Ni₇Gd₆Co₃ alloys

Z. Wang ^{a*}, K. Georgarakis ^b, W.W. Zhang ^a, K.G. Prashanth ^{c,d}, J. Eckert ^{c,e}, S. Scudino ^f

^aSchool of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou 510640, China

^bSchool of Aerospace, Transport and Manufacturing, Cranfield University, MK430AL Cranfield, United Kingdom

^cErich Schmid Institute of Materials Science, Austrian Academy of Sciences, Jahnstraße 12, A-8700, Leoben, Austria

^dDepartment of Manufacturing and Civil Engineering, Norwegian University of Science and Technology, Teknologivegen 22, 2815, Gjøvik, Norway

^eDepartment Materials Physics, Montanuniversität Leoben, Jahnstraße 12, A-8700 Leoben, Austria

^fSolidification Processes and Complex Structures, Institute for Complex Materials, IFW Dresden, Helmholtzstraße 20, D-01069 Dresden, Germany

*Corresponding author: Dr. Z Wang, School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou 510640, China. wangzhi@scut.edu.cn

Abstract

Nanocrystalline Al-Ni-Gd-Co alloys with exceptionally high hardness have been recently developed from amorphous precursors. In the present work, the reciprocating sliding wear in the gross slip regime of these novel nanocrystalline Al-based alloys has been investigated under small amplitude oscillatory sliding motion using a martensitic chrome steel as the counter material. When compared to pure Al or Al-12Si alloy, these nanocrystalline alloys exhibit excellent wear resistance and a lower coefficient of friction when sliding against steel. The

Download English Version:

<https://daneshyari.com/en/article/4986521>

Download Persian Version:

<https://daneshyari.com/article/4986521>

[Daneshyari.com](https://daneshyari.com)