

Author's Accepted Manuscript

Ultra-high tensile strength nanocrystalline CoCrNi equi-atomic medium entropy alloy processed by high-pressure torsion

S. Praveen, Jae Wung Bae, Peyman Asghari-Rad, Jeong Min Park, Hyoung Seop Kim



PII: S0921-5093(18)31156-0
DOI: <https://doi.org/10.1016/j.msea.2018.08.079>
Reference: MSA36850

To appear in: *Materials Science & Engineering A*

Received date: 5 June 2018
Revised date: 22 August 2018
Accepted date: 23 August 2018

Cite this article as: S. Praveen, Jae Wung Bae, Peyman Asghari-Rad, Jeong Min Park and Hyoung Seop Kim, Ultra-high tensile strength nanocrystalline CoCrNi equi-atomic medium entropy alloy processed by high-pressure torsion, *Materials Science & Engineering A*, <https://doi.org/10.1016/j.msea.2018.08.079>

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.

Ultra-high tensile strength nanocrystalline CoCrNi equi-atomic medium entropy alloy processed by high-pressure torsion

S. Praveen^{1,2}, Jae Wung Bae^{1,2}, Peyman Asghari-Rad^{1,2}, Jeong Min Park^{1,2}, Hyoung Seop Kim^{1,2*}

¹Department of Material Science and Engineering, Pohang University of Science and Technology (POSTECH), Pohang 37673, Republic of Korea

²Center for High Entropy Alloys, Pohang University of Science and Technology (POSTECH), Pohang 37673, Republic of Korea

*Corresponding author. Tel.: +82 54 279 2150. hskim@postech.ac.kr

Abstract

A nanocrystalline CoCrNi alloy of ~50 nm grain size with the ultra-high ultimate tensile strength of ~2.2 GPa and fracture strain of ~9% was fabricated using high-pressure torsion. The presence of high density of nano-twins, stacking faults, dislocations, and nano-grains is attributed to the superior mechanical properties.

Keywords: high entropy alloys; nano-grains; nano-twins; high-pressure torsion; ultra-high tensile strength

1. Introduction

Download English Version:

<https://daneshyari.com/en/article/11007037>

Download Persian Version:

<https://daneshyari.com/article/11007037>

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