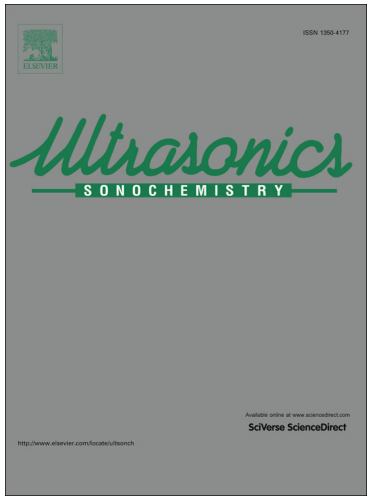

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PII: S1350-4177(16)30104-3
DOI: http://dx.doi.org/10.1016/j.ultsonch.2016.04.006
Reference: ULTSON 3180

To appear in: *Ultrasonics Sonochemistry*

Received Date: 26 February 2016
Revised Date: 4 April 2016
Accepted Date: 5 April 2016

Please cite this article as: K-G. Liu, A.R. Abbasi, A. Azadbakht, M-L. Hu, A. Morsali, Deposition of Silver Nanoparticles on Polyester Fiber Under Ultrasound Irradiation, *Ultrasonics Sonochemistry* (2016), doi: http://dx.doi.org/10.1016/j.ultsonch.2016.04.006

Deposition of Silver Nanoparticles on Polyester Fiber Under Ultrasound Irradiation

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Abstract: The polyesterfiber containing Ag nanoparticles was prepared through the chemical reduction under ultrasound irradiation. Influences of reduction reagents on the morphological properties of Ag nanoparticles@polyester fiber were studied. The sizes of metallic nanoparticles vary significantly withthe types of reduction reagents used in the synthesis.A strongreduction reaction promotes a fast reaction rate and favors the formationof smaller nanoparticle. A weak reduction reagent induces a slowreaction rate and favors relatively larger particles. The products were investigated by means of scanning electron microscopy (SEM) and X-ray powder diffraction (XRPD).

Keywords: Ultrasoundirradiation; Nanoparticle; Silver; Polyester fiber; Reduction.

INTRODUCTION

The size and size distribution of metallic nanoparticles vary significantly withthe types of reduction reagents used in the synthesis. In general, a strongreduction reaction promotes a fast reaction rate and favors the formationof smaller nanoparticle [1]. A weak reduction reagent induces a slowreaction rate and favors relatively larger particles. However, a slow