

Phase Transformation of Cu_2O from CuO in Presence of PEG

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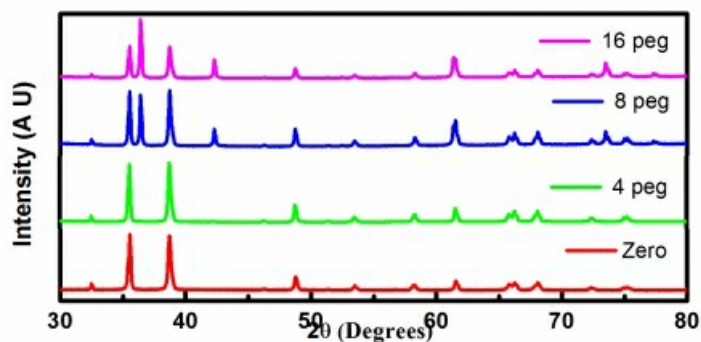
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This work proposes a simple method for the copper oxide nanostructures based on simple heating method under ambient conditions. Polyethylene glycol (PEG) is employed as a structure directing agent in driving the morphology and phase transformation. Typically, Copper oxide nanoparticles of size below 100 nm were synthesized at temperature around 600°C. The morphology and mechanism were studied by scanning electron microscopy and energy dispersive X-ray spectroscopy. Interestingly this work demonstrates the structural phase transformation of tenorite (CuO) to cuprite (Cu_2O) upon addition of different amount of PEG (say 4 g, 8 g, 12 g) and then heat treating at 600°C.

[1] Nadia Nasihat Sheno, Ali Morsali, Sang Woo Joo, (2014). Materials Letters, 117, 31-33.

[2] Sawsan Dagher, Yousef Haik, Ahmad I. Ayes, Nacir Tit, (2014). Journal of Luminescence, 151, 149-154.

[3] A. El-Trass, H. ElShamy, I. El-Mehasseb, M. El-Kemary, (2012). Applied Surface Science, 258, 2997-3001.



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