

Equipment Name: ZnO nanoparticle synthesis with size control - Polyol mediated precipitation method

Category: A. Particle synthesis

Institute: University of Leeds

Location: Institute of Particle Science and Engineering, University of Leeds, LS2 9JT,UK

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Short technology description/Overview:

Control of ZnO nanoparticle size is carried out via the polyol-mediated preparation method. In this method, suitable metal precursors are dissolved in Diethylene Glycol. A defined amount of water is added and the mixture is heated rapidly to the pre-defined reaction temperature. At a certain temperature, a sudden precipitation of the oxide occurs. The average particle diameter can be controlled by adjusting the concentration of precursor, temperature and cooling ratio. An increase of the one or other parameter led to enlarged particles.

Options for TA:

1. Users can request UNIVLEEDS to prepare ZnO nanorods or nanoneedles along with some characterisation (e.g. DLS and TEM)
2. Users can come to UNIVLEEDS to participate in / observe the synthesis, cleaning and preliminary characterisation (e.g. DLS and TEM) of ZnO nanorods or nanoneedles.

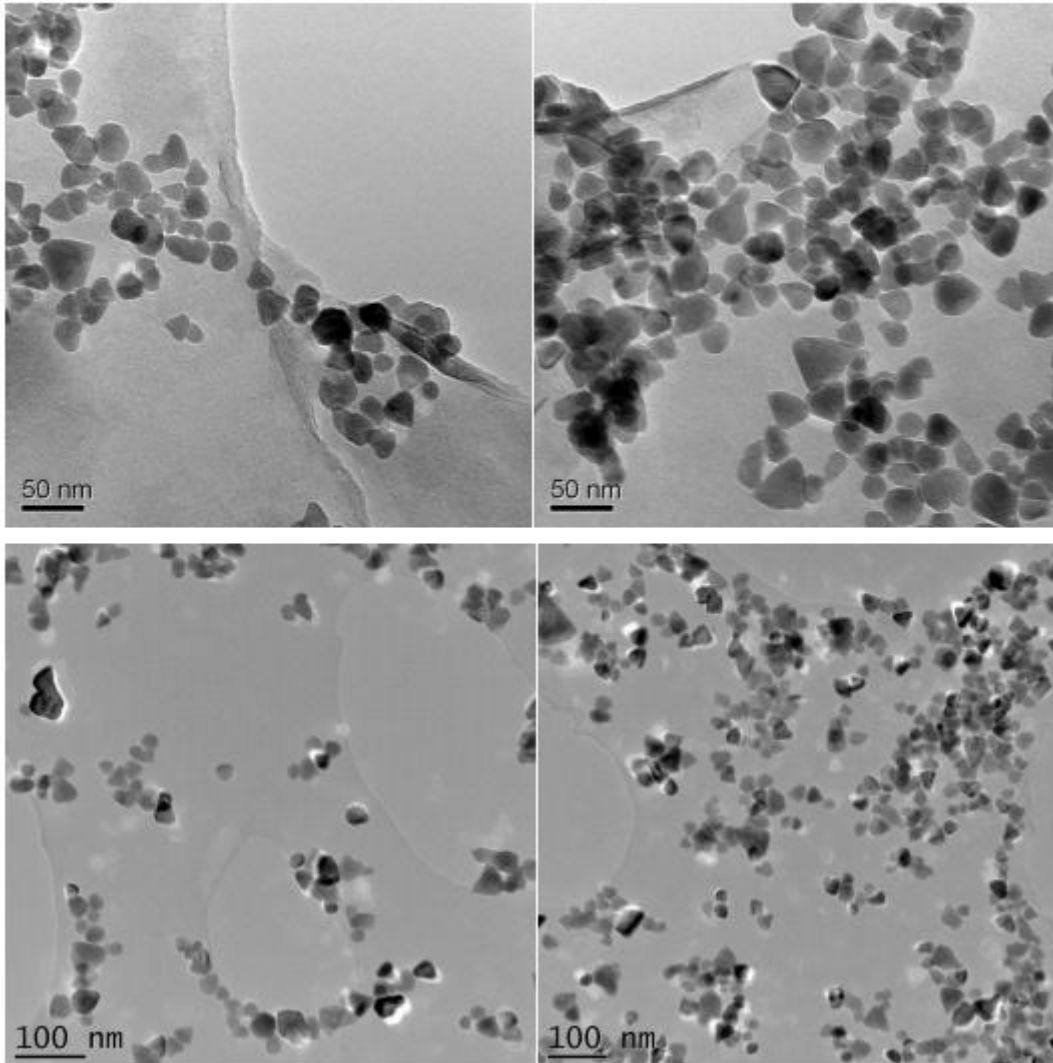
Main Features (Equipment Capabilities):

- Particle diameter range: 30 ~ 200 nm
- Particle shape: spherical and/or rod
- Purity: > 99%

Typical Samples & Images:

The image below shows some TEM images of ZnO nanoparticles synthesised by the polyol mediated precipitation method.

Av. Diam. = 34.62 nm; Standard deviation = 4.83



Any further Information: