

Cobalt Nanowires: Advancing into Future Nanomaterial

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Abstract:

Nanotechnology, the framework of next industrial revolution has changed our vision, expectations and abilities to control the material world. The furtherance of Nanoengineering and Nanoscience lately has attracted the researchers to focus their attention for magnetic nanowires, such as Ferum, Cobalt, and Nickel. The distinctive characteristics of magnetic nanowires such as good conductivity, optical transparency, electrical and chemical inertness as compared to bulk materials have opened avenues for the evolution of novel devices like acoustic sensors, biomedicines, ultrahigh density data storage devices and recording media. To achieve this, nanomagnetic materials should be tailored to match the requirements for each kind of application. Among the variety of manufacturing processes that exist, electrodeposition is the most promising alternative method for enabling passage from laboratory to industry and is currently one of the most active lines of work in nanoscience. Within this framework, this paper summarizes the latest researches and progress of Cobalt nanowire technologies and their applications in diversified industries, different synthesis conditions, methodologies and various characterization techniques used to study and characterize the Cobalt nanowires produced to understand its attributes and behaviours.