

Methods of Preparation of Nanoparticles

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Abstract: *The size, shape, and material qualities of nanoparticles can be used to classify them into several categories. Some classifications distinguish between organic and inorganic nanoparticles; nevertheless, the classification of nanoparticles is often determined by their applications or may be connected to how they were formed. Nanoparticles can be found in nature and are also produced as a result of human activity. Nanoparticles have unique material properties due to their sub-microscopic size, and they may find practical uses in a range of fields. A nanoparticle is a distinct nano-object with all three Cartesian dimensions smaller than 100 nm, according to the International Organization for Standardization (ISO). Two-dimensional nano-objects and one-dimensional nano-objects are both described in the ISO standard. However, the definition is later changed. Nanoparticles can also be classed as hard, such as silica particles and fullerenes, or soft, such as nanodroplets. For millennia, nanometreshave been used to study biological systems and to develop a variety of materials such as colloidal dispersions, metallic quantum dots, and catalysts. For example, more than a thousand years ago, the Chinese used Au nanoparticles as an inorganic dye to provide red colour to their ceramic porcelains. Although a complete study on the creation and properties of colloidal gold was only published in the middle of the nineteenth century, its use has a long history. Colloidal Faraday's gold dispersion, was created in 1857. Nanotechnology is a technology for designing, fabricating, and applying nanostructures and nanomaterials in general. Fundamental knowledge of the physical properties and phenomena of nanomaterials and nanostructures is also required for nanotechnology. Nanoscience is the study of basic links between physical characteristics and events in nanoscale scale materials. Nanotechnology is described in the United States as materials and systems with nanoscale structures and components that display innovative and considerably improved physical, chemical, and biological properties, phenomena, and processes. Here are some of the techniques for making nanomaterials.*

Keywords: Nanoparticles

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