Nanoparticles (Silica) Have Novel Properties, Kinetics and Unusual Biological Activity

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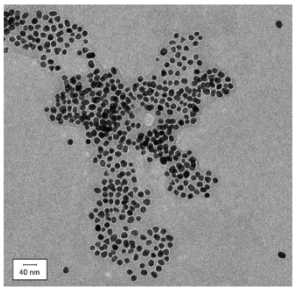
- **Abstract:**

- Silica particles below 300 nanometers are called nano-silica. Silica particles above this size are called sub-micron. Nano-silica has been considered because of its increased mechanical strength in composite resins.

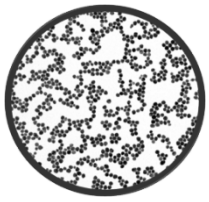
- **Keywords:** Nano-Silica , energy intensity , industrial nano lasers , Nano Particle

Introduction •

Nanosilica has great potential for a variety of diagnostic and general industrial applications. In contrast to crystalline micron - sized silicate itself, relatively little information is available on the toxicity of amorphous and nano-sized forms. Because nanoparticles have novel properties, kinetics, and unusual biological activity, their potential biological effects may be very different from those of bulk micron-sized materials. Particle size affects surface strength and smoothness, and most studies use the range of 5 to 200 nm. The amount of surface transparency is also directly related to particle size. Particle sizes greater than 100 nm cause scattering of visible light and reduce transparency. The high specific surface area of nanoparticles also provides high surface energy and effective suspension of silica nanoparticles in aqueous and non-aqueous solutions.



It should be noted that silica particles, by their chemical nature, are insoluble in aqueous solvents and many conventional non-aqueous solvents, and this property of stable suspension of nano-silica particles is of interest in many industrial applications. Silicon dioxide (SiO_2) nanoparticles have been widely used in the field of electronic nano-devices and biomedical nano-biochips such as drug delivery and gene therapy. Nano-silica particles have found their place in many areas including drug delivery systems, catalysts, biotherapeutics, imaging of living organisms, colorimetry, sensors, liquid armor, and as fillers in composite materials.



Nanosilica has great potential for a variety of diagnostic and general, industrial applications. Unlike crystalline micron-sized silicate itself, relatively little information is available on the toxicity of its amorphous and nano-sized forms.

References : •

Review of: \Block nanolithography Oriented copolymer is a combination of top-down lithography and the bottom-up self-organization of two polymers to produce high-resolution nanopatterns over large areas.". (2024). Qeios. https:// HYPERLINK "https://doi.org/10.32388/uov3woReview"doi. HYPERLINK "https://doi.org/10.32388/uov3woReview"org/ HYPERLINK

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Review of: \This eld becomes Especially, nanoelectronic lithography has great potential to set new stan- dards for making miniature, low-cost, and light-weight optics that can be used in many elds of applications.". (2024). Qeios. https:// HYPERLINK "https://doi.org/10.32388/ww5toy"doi. HYPERLINK "https://doi.org/10.32388/ww5toy"org/ HYPERLINK "https://doi.org/10.32388/ww5toy"10.32388 HYPERLINK "https://doi.org/10.32388/ww5toy"/ HYPERLINK "https://doi.org/10.32388/ww5toy"ww HYPERLINK "https://doi.org/10.32388/ww5toy"5 HYPERLINK "https://doi.org/10.32388/ww5toy"toy

Review of: \nanolithography technique , deposits can be grown with high lateral resolution , but with much less damage caused to the substrate due to the low linear motion of electrons compared to ions". (2024). Qeios. https:// HYPERLINK "https://doi.org/10.32388/bn8g1aReview"doi. HYPERLINK "https://doi.org/10.32388/bn8g1aReview"org/ HYPERLINK "https://doi.org/10.32388/bn8g1aReview"10.32388 HYPERLINK "https://doi.org/10.32388/bn8g1aReview"/ HYPERLINK "https://doi.org/10.32388/bn8g1aReview"bn HYPERLINK "https://doi.org/10.32388/bn8g1aReview"8 HYPERLINK "https://doi.org/10.32388/bn8g1aReview"g HYPERLINK "https://doi.org/10.32388/bn8g1aReview"1 HYPERLINK "https://doi.org/10.32388/bn8g1aReview"aReview

Review of: \We have a very small machine that knows how to produce similar to itself , which is interpreted as a `nano assembler' in nano science.". (2024). Qeios. https:// HYPERLINK "https://doi.org/10.32388/tuglrzReview"doi. HYPERLINK "https://doi.org/10.32388/tuglrzReview"org/ HYPERLINK "https://doi.org/10.32388/tuglrzReview"10.32388 HYPERLINK "https://doi.org/10.32388/tuglrzReview"/ HYPERLINK "https://doi.org/10.32388/tuglrzReview"tuglrzReview

Review of: \multi-layered nanographene is made by placing individual carbon atoms together, which is also called the bottom-up method.". (2024). Qeios. https:// HYPERLINK "https://doi.org/10.32388/jki775"doi. HYPERLINK "https://doi.org/10.32388/jki775"org/ HYPERLINK "https://doi.org/10.32388/jki775"10.32388 HYPERLINK "https://doi.org/10.32388/jki775"/ HYPERLINK

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