**Nanoparticles of Tin and Titanium**

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**ABSTRACT**

Research on Tin and Titanium nanoparticles is rapidly growing due to the fact that these nanoparticles possess substantial surface territories, homogeneity and profoundly receptive surfaces and are corrosion resistant. Since both of these types of nanoparticles is not easily oxidized in air therefore used for casing other metals to prevent oxidation. Numerous chemical methods have been employed for the fabrication of Tin and Titanium nanoparticles such as chemical vapor deposition, chemical precipitation, wet-synthetic blend etc. However these are expensive therefore an alternative eco-friendly method was required to produce these nanosized particles using living systems as nanofactories.

**Keywords:** Corrosion; Warm disintegration; Chemical vapor deposition; Composites; Nanofibres.

**INTRODUCTION**

Tin and Titanium nanoparticles are pliable post transition metals that is not easily oxidized in air therefore used for casing other metals to prevent corrosion [1, 2]. Tin nanoparticles have high surface action, vast explicit surface region, great scattering execution and uniform molecule estimate [3, 4]. On the other hand Titanium nanoparticles show unique morphologies and surface chemistry [5]. In addition extremely resistant against corrosion and possess high transparency to light and high ultraviolet absorption [6, 7].

**SYNTHESIS OF TIN NANO PARTICLES**

To acquire Tin nanoparticles numerous strategies have been utilized such as sol-gel [8], mechano-chemical [9], concoction fluid statement compound [10, 11], electrochemical [12], warm disintegration [13], microwave illumination [14] etc. But the most widely used method for the fabrication of Tin nanoparticle synthesis is the compound decrease strategy [15]. This technique is progressively appropriate for the amalgamation of Tin nanoparticles, in light of the fact that the synthetic decrease can utilize a low temperature, bringing about a superior control of warm oxidation of Tin nanoparticles [16, 17].

Properties of Tin nanoparticles is given in Table 1.

**SYNTHESIS OF TITANIUM NANO PARTICLES**

Mostly Titanium nanoparticles are made via chemical methods including chemical vapor deposition [21], chemical precipitation [22], hydrothermal crystallization [23] etc. Although all these methods requires high temperature, pressure and toxic chemicals which restricts their use [24].Therefore an alternative eco-friendly and cost-efficient approach was needed to synthesize these nanosized materials on larger scale using living systems as nanofactories [25].

Properties of Titanium nanoparticles is given in Table 2.

**PO TENTIAL APPLICATIONS OF TIN NANO PARTICLES**

Following are some applications of Tin nanoparticles:
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- Tin nanoparticles based greasing oil is useful for vehicle motors because it can possibly lessen friction [29].
- Tin nanoparticles are viewed as non-poisonous and are subsequently utilized for nourishment bundling, for example, tin jars [30].
- Tin nanoparticles has a low dissolving point and is used to frame composites with other metal, for example, lead and bismuth [31].
- Tin nanoparticles are for the most part utilized in coatings, plastics, nanofibres and wraps etc [32].
- Lithium particle battery execution can be improved by fusing Tin nanoparticles in the anode terminal [33].

**Potential Applications of Titanium Nanoparticles**

Following are some applications of Titanium nanoparticles:

- Effective antimicrobial and anti-parasitic potential [34].
- Used in the synthesis of aerospace materials [35].
- Possess photocatalytic activity [36].
- It is employed in the production of papers, plastics, cosmetics, microsensors, textiles, nanofibres and foodstuffs etc [37, 38, 39].
- Colloidal Titanium nanoparticles were used in contaminated water treatment[40].
- In aseptic treatment of surgical tools etc [41].

**Conclusion**

Nanoparticles and nanotechnology on the whole is creating a major impact in the scientific society today. Future of Titanium and Tin nanoparticle is bright because of its high demand in the pharmaceutical and electronic industry.

**References**


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