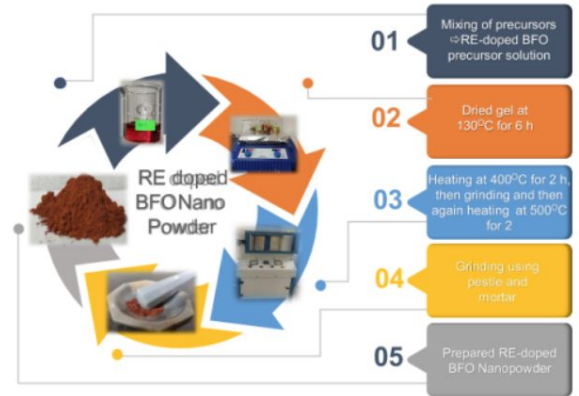


PENDING

(IN202311057504)

A composition of BiFeO₃ and a method of making thereof



NEED

Desalination processes often face inefficiencies in evaporation rates, leading to high energy consumption and slow water purification. Faster, more energy-efficient methods are needed to improve global access to clean water.

TECHNOLOGY OVERVIEW

The invention proposes BiFeO₃ nanoparticles doped with rare earth elements, enhancing their photo-thermal efficiency for desalination. By optimizing the doping concentration, this technology significantly increases evaporation rates, improving desalination efficiency and enabling applications in biomedical fields.

TECHNOLOGY KEY FEATURES

BiFeO₃ nanoparticles doped with rare earth ions (ytterbium, erbium), optimized doping concentration (2-15%), enhanced NIR absorption, tailored optical response for efficient photo-thermal conversion, increased evaporation rates, and versatile applications.

[Read more here](#)

MARKET ANALYSIS

The global desalination market is expected to grow at a CAGR of 7.9%, reaching \$29.2 billion by 2033, driven by increasing freshwater demand and technological advancements in desalination processes (source: Research and Markets, 2024).

Target Industries

Water desalination, renewable energy, biomedical applications. , Desalination system manufacturers, energy efficiency technology developers, biomedical R&D organizations, and material science enterprises.

AT A GLANCE

- SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation, and Infrastructure)

Technology is available for licensing/ co-development.

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