

CalciteX™ Process

Process to produce precipitated single phase Crystalline 1-D Nano-scaled Calcite manufacture

“Green Chemistry. Pure Results.”

Technology

This technology provides a new, eco-friendly way to produce tiny, one-dimensional (1D) crystals of calcium carbonate (CaCO_3), a common material found in substances like chalk and limestone. Unlike traditional methods, this process operates at room temperature and pressure, using only water and a natural extract from the Doum palm fruit as essential ingredients. The approach is not only simpler and cheaper but also more sustainable, offering a cleaner alternative to existing methods. It also allows better control over the shape and size of the crystals, which can be useful for various applications. This invention presents a cleaner, greener way to produce useful materials without harming the environment.

Market need

Traditional methods for making nanoparticles can be harmful to the environment, using toxic chemicals or high energy. The market need for this technology is driven by the demand for more sustainable, less harmful to the environment, and cost-effective ways to produce materials that are used in many industries, like construction, medicine, and environmental protection.



Features

- Ambient Production Conditions
- Biogenic Additive from Doum Palm Extract
- Single-Phase, High-Purity Calcite Crystals
- Environmentally Sustainable Process
- Morphological Control
- Scalable and Low-Cost Manufacturing



Benefits

- Eco-friendly and non-toxic synthesis using renewable plant-based resources.
- Energy-efficient production at ambient temperature and pressure.
- Reduced manufacturing costs compared to high-temperature or chemical-intensive methods.
- Customisable nanostructure with precise control over crystal shape and size.
- High-purity product suitable for sensitive industrial and biomedical applications.



Industry

Manufacturing

Potential Applications

- Biomedical Materials: Drug delivery systems, tissue scaffolds, and bone substitutes.
- Industrial Fillers and Coatings: Reinforcement and surface modification in plastics, paints, and polymers.
- Catalysis and Photocatalysis: Nano-structured supports for chemical and environmental catalysts.
- Environmental Remediation: Absorption and neutralisation of pollutants and CO₂ sequestration.
- Paper, Paint, and Cosmetics Industries: Functional additive offering improved brightness, texture, and performance.

Creators

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Stage of development

Early stage

Intellectual property

Patent protection

Desired relationship

Co-development, Investors