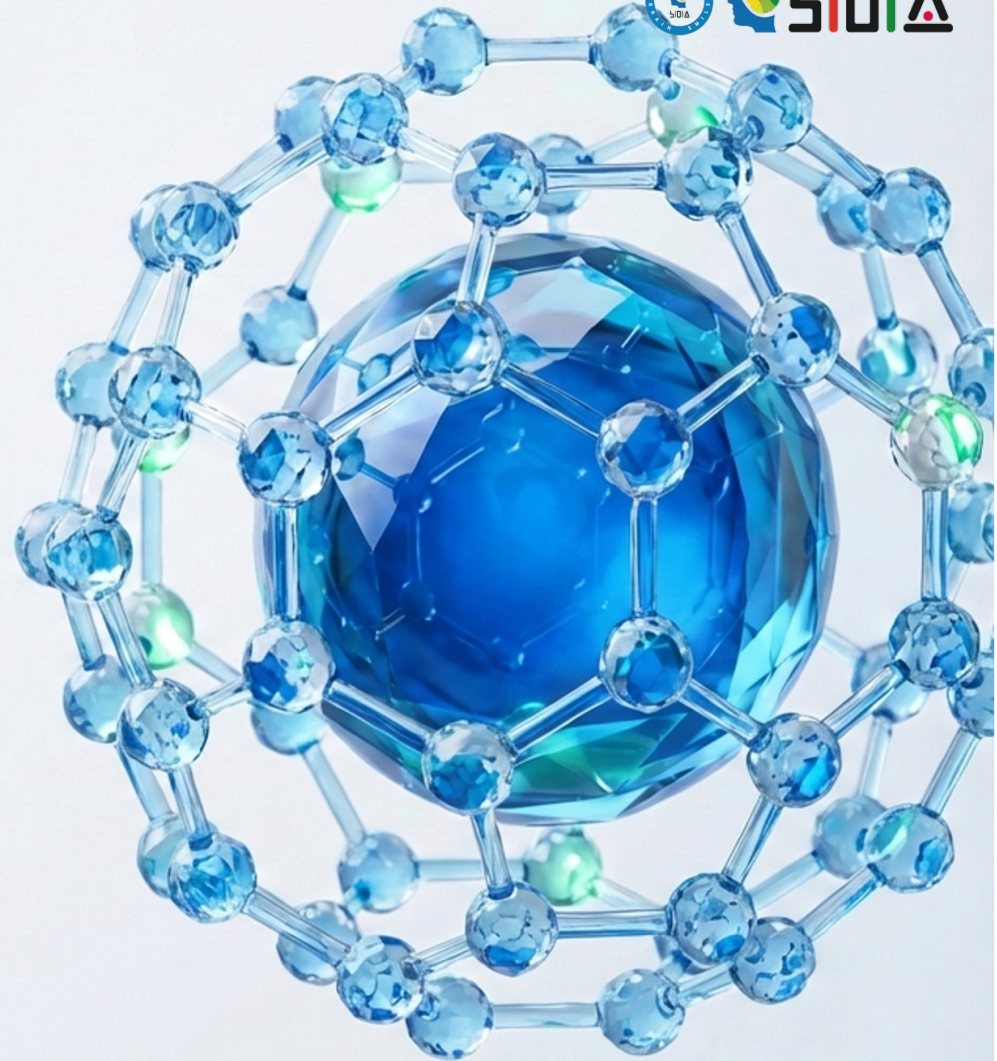


The World's Only Technology -

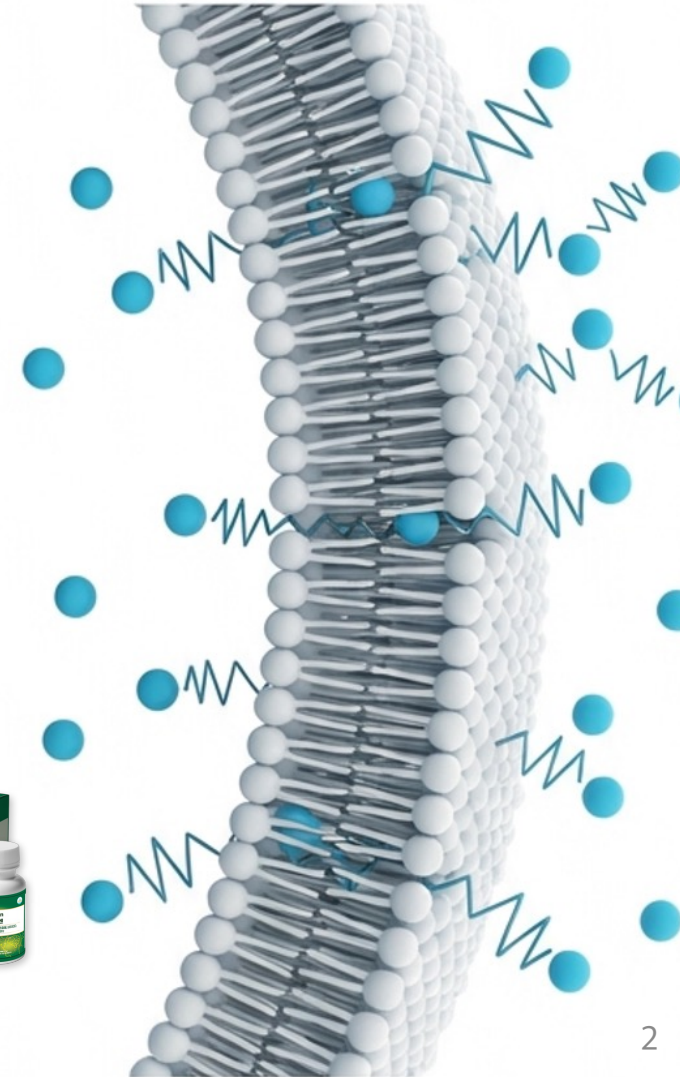
# Quantra Vector Dry Nano Products and Technology

NPG Bio Pharmaceuticals  
Professional Sales Education Course



# Contents

|                                              |    |
|----------------------------------------------|----|
| Chapter 1. Product Sales Guide               | 3  |
| Cal Q Min                                    | 7  |
| Qui No Sin                                   | 11 |
| Head n                                       | 16 |
| Chapter 2. Core Technology and Materials     | 22 |
| Chapter 3. International Credibility         | 41 |
| Chapter 4. Company Profile and Business Plan | 50 |





## CHAPTER 1.

# Product Sales Guide

NPG Biopharmaceuticals leverages advanced Quantum nano-grinding technology to create high-performance pharmaceuticals and health supplements with exceptional bioavailability.

Our products are currently undergoing evaluation by the US FDA, demonstrating their quality and innovation.



# Production Product List

| Category | Product Name & NDC Code |                                            | Patent Application in Korea | Uses                                                                             |
|----------|-------------------------|--------------------------------------------|-----------------------------|----------------------------------------------------------------------------------|
| 1        | Qui No Sin              | K-FDA NO :<br>200400150832235              | NO : 10-2025-0088033        | Blood Sugar Control<br>Supports Kidney Function                                  |
|          | Ki No Sin               | US FDA Registration Number<br>84540-322-01 |                             |                                                                                  |
| 2        | Cal Q Min               | K-FDA NO :<br>2004001150832199             | NO : 10-2025-0088034        | Supports Bone Density<br>Supports Bone Health<br>Supports Growth and Development |
|          | Na Mi Cal               | US FDA Registration Number<br>84540-422-01 |                             |                                                                                  |
| 3        | Head n                  | K-FDA NO :<br>2004001150832379             |                             | Supports Brain Health<br>Supports Memory<br>Supports Cognitive Function          |
|          | Alz L                   | US FDA Registration Number<br>84540-230-01 |                             |                                                                                  |



# New Standard of Next-Generation Nano-Medicine

## NPG Bio Pharmaceuticals

Global Pharmaceutical Company  
leading Nano Bio Technology



### Nano-Particle Technology

Maximizing bioavailability and internal absorption rate



### US FDA OTC Listed

Over-The-Counter (OTC) level safety and efficacy  
Listed in the US National Library of Medicine



# NPG Bio Product Portfolio

**Metabolic:**  
Qui No Sin  
Ki No Sin

**Growth/Bone Health:**  
Na Mi Cal, Cal Q Min



**Immune/Respiratory:** R Cos

**Brain/Cardiovascular:**  
Head n, Res B One



# Cal Q Min: Innovative Nanotechnology Premium Bone Health Solution

A calcium and vitamin D complex designed to maximize bioavailability, Cal Q Min is the same product as Na Mi Cal introduced earlier and is approved by the K-FDA.

Optimized to support height growth during adolescence and improve bone density, it also helps support bone health in adults, offering a complete solution. (Approved by the K-FDA)





# Premium Calcium Dietary Supplement, Cal Q Min



|                  |                                                             |
|------------------|-------------------------------------------------------------|
| Product Name     | Cal Q Min                                                   |
| Type             | Health functional food (tablet)                             |
| Core Ingredients | Oyster shell calcium, Vitamin D                             |
| Volume           | 700mg X 120tablets                                          |
| Dosage           | Take 2 tablets once daily, chew or take with adequate water |



# Lifelong Bone Health Management



## **Bone density and skeletal maintenance**

Required for bone/tooth formation and muscle function



## **Reduction of osteoporosis risk**

Prevents calcium depletion and fills bone density

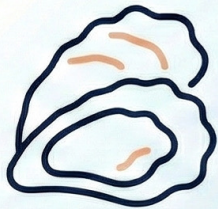


## **Growth and development support**

Maximized nutrient supply for children and adolescents



# Scientifically Formulated for Bone Health



## Oyster Shell Calcium

Contains 50% naturally derived premium calcium, providing the essential foundation for strong bones and teeth.



## Vitamin D

An essential catalyst that supports the efficient absorption of calcium and phosphorus, playing a vital role in bone formation and maintenance.



## Colostrum & Synergy Blend

Supports overall vitality and health foundations through a premium blend of selected colostrum powder, fish collagen, and hydrolyzed powder.



Innovative Nanotechnology

# Qui No Sin: Quantra Vector technology used to maximize bioavailability

Premium Formulation: Maximizes physical vitality and solidifies health foundations through a premium blend of strictly selected ingredients, including colostrum powder, fish collagen, and hydrolyzed powder.





# Qui No Sin Diabetes & Kidney Management

Normalization of body function without side effects using natural ingredients



## Clinical Benefits

- **Blood sugar control:** Normalizing blood calcium ion levels and supporting signal systems
- **Kidney function enhancement:** Improving kidney function weakened by diabetes complications
- **Key Ingredients:** Calcium, water-soluble chitosan, Vitamin B12, D3, magnesium oxide, zinc oxide
- **Target:** Individuals seeking support for blood sugar and kidney health
- **Dosage Form:** Tablet, 600mg (Qui No Sin)  
Take 2 tablets twice daily with adequate water.

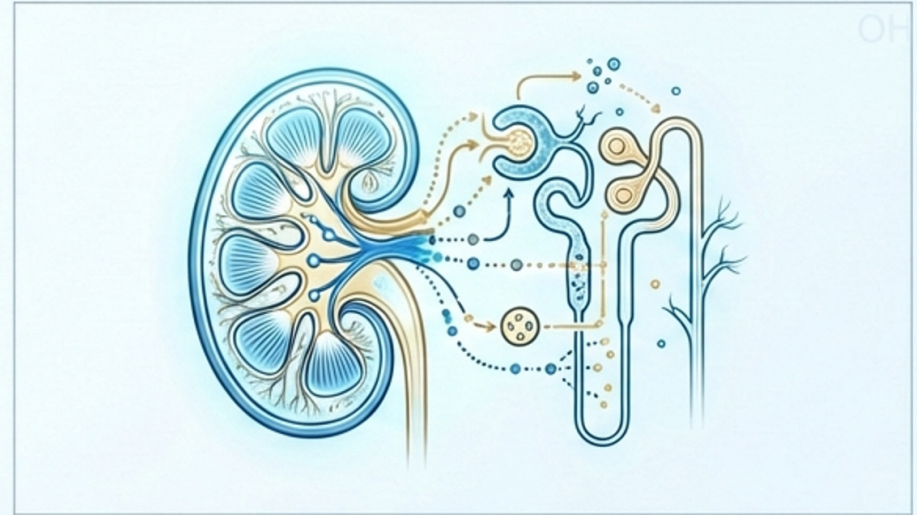


# Dual Solution for Diabetes & Kidney Health



## Diabetes Recovery

Helps improve overall health condition  
and supports internal balance.



## Kidney Signal Transduction

Supports normal blood calcium levels  
and body signaling.

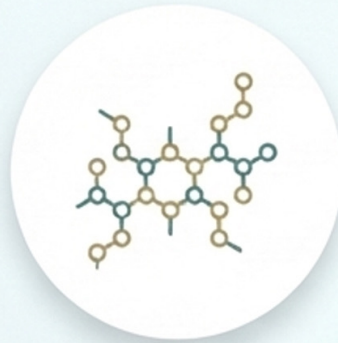


## Key Ingredients



### Calcium

Supports the maintenance of normal blood calcium levels and signaling functions.



### Chitosan

Supports the maintenance of normal blood calcium levels and signaling functions.



### Vitamin D3/B12

Provides essential nutrients and supports nerve and immune function



### Minerals

Optimally formulated with essential minerals, including magnesium oxide and zinc oxide.



# Main Features of Qui No Sin



## patent

(Patent Application No.: 10-2025-0088033)

Our innovative formulation and nano-manufacturing process have been officially recognized through patent registration(Patent for a health functional food composition containing natural substances for the prevention or improvement of diabetes or kidney conditions)



## US FDA OTC

(NDC 84540-322-01)

Registered as an over-the-counter (OTC) product, demonstrating internationally recognized safety and reliability.



## Premium Health Functional Food

Manufactured using only rigorously tested, safe ingredients that meet K-FDA standards, and covered by product liability insurance from Samsung Fire & Marine Insurance.



## Innovation Technology

# Head n: Applied Quantra Vector dry nano technology

- Powered by NPGB's proprietary Quantra Vector dry type quantum nano-particle technology
- Reduces substances to nano scale without chemical additives, supporting blood-brain barrier (BBB) penetration and maximizing bioavailability
- Head n, built on this advanced technology, delivers high absorption to support brain health and cognitive function in modern lifestyles





# Head n

is the culmination of nano technology,  
formulated with natural ingredients and  
designed for a clean, gentle profile.

- **Key Ingredients:** Phosphatidylserine, Ginkgo Biloba Extract, Vitamin D, Vitamin B12
- **Target:** Individuals seeking support for brain health, memory, and cognitive function
- **Dosage Form:** Capsule, 450 mg (Take 2 capsules once a day)





# Complete Brain Health Coverage

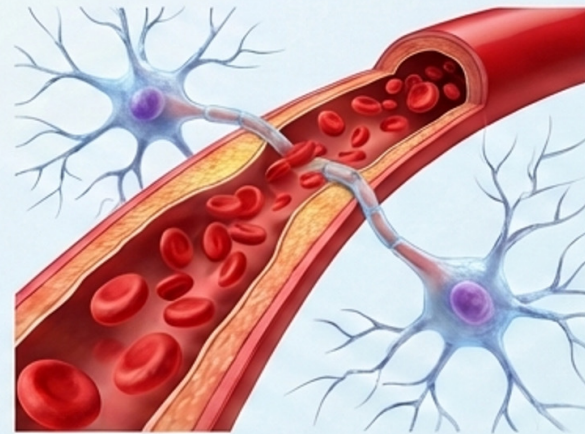
From prevention to targeted support

## Nutrition & Memory (Head n)



Provides daily nutritional support based on phosphatidylserine to help maintain brain health and support memory in modern lifestyles.

## Cognitive Enhancement (Head n)



High-potency formulation at OTC-level strength (Standardized to 70% phosphatidylserine), supporting cognitive function.



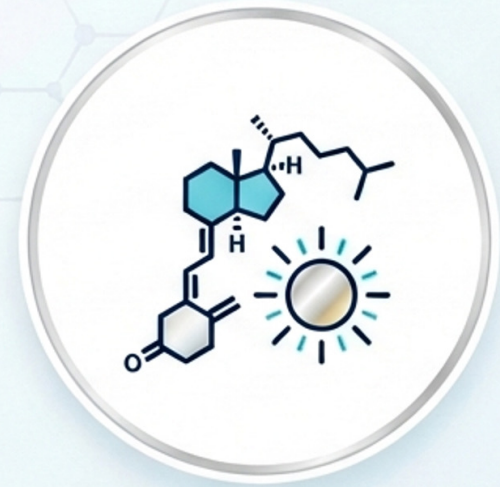
## Three scientifically proven key ingredients for cognitive support and brain protection



Phosphatidylserine



Ginkgo Biloba Extract



Vitamins D & B12



# Product reliability ensured by global certifications and proprietary nano technology



## Cognitive improvement

High-purity  
Phosphatidylserine  
protects brain cells



## US FDA OTC Registration

Proves international level safety  
(NDC 84540-230-01)

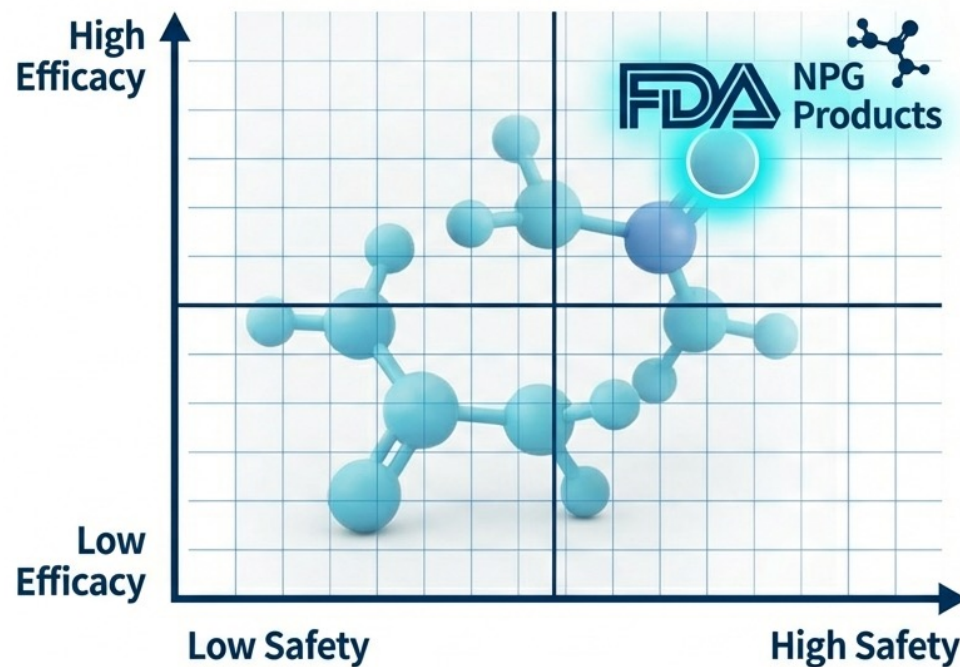


## Physical properties

No destruction of taste, scent,  
or color during processing



# Strategic Sales Positioning



## The Concept:

Breaking the boundary between food and medicine.

## The Pitch:

Natural medicine alternative for those worried about chemical side effects .

## Target:

Chronic disease patients and high-involvement consumers.

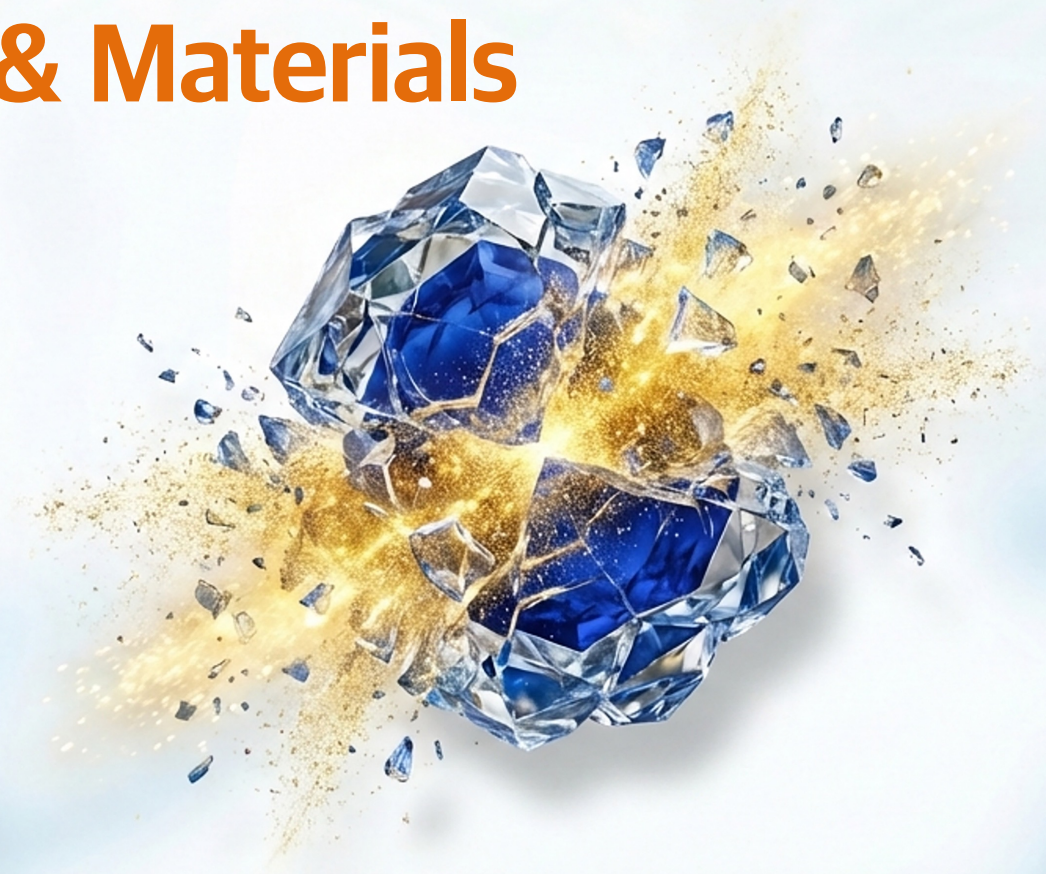


## CHAPTER 2.

# Core Technology & Materials

Quantra Vector dry natural grinding technology is a unique, quantum-based process that produces ultra-fine, high-purity ingredients.

Powered by innovative nano technology, these materials deliver superior safety and maximize bioavailability.



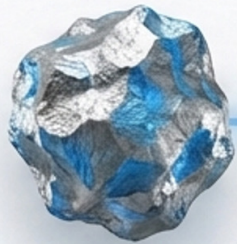


## Technology Definition: Quantra Vector Dry Natural Nano Grinding

**Concept:** Ultra-fine grinding (1nm - 1000nm) using quantum physical energy

**Stability:** Physical process without chemical transformation or side effects

**Result:** High-purity, high-stability powder overcoming the limitations of wet grinding



**Macro**

1mm



**Micro**

1 $\mu$ m



**Nano**

1nm



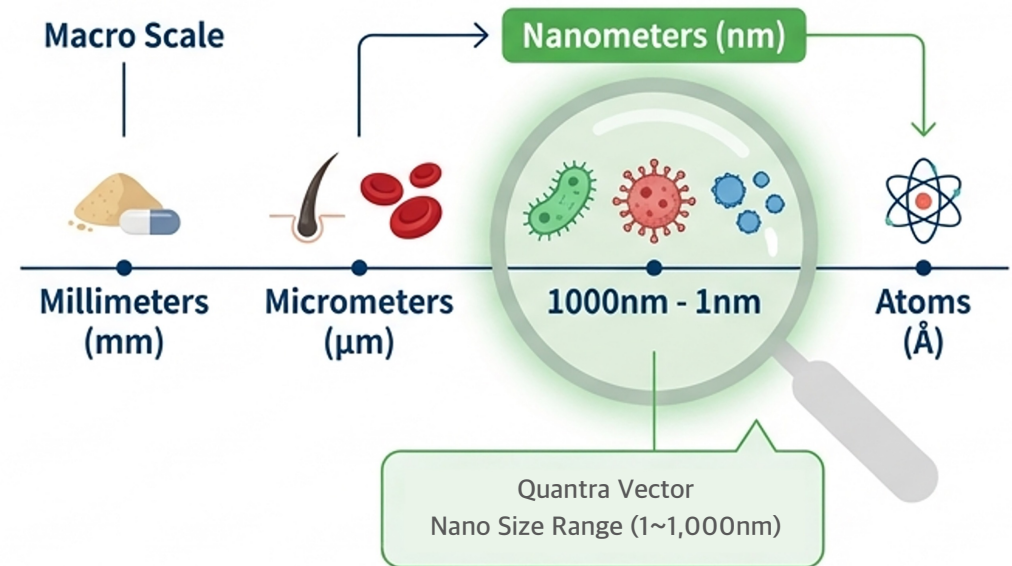
## Technical Superiority: Understanding Quantra Vector Technology

### Mechanism :

Dry process splitting particles into  
1~1,000nm scale using quantum characteristics.

### Key Takeaway

High-energy quantum technology enabling  
ultra-fine nano-sizing beyond physical limits



## Technical Superiority:

# 0% Synthetic Chemical Additives

- **Contrast:** Conventional wet nano requires toxic solvents or neutralizers
- **NPG Solution:** Pure physical grinding process ensuring high purity
- **Benefits:** High Purity, Non-Toxic, Suitable for Long-Term Use



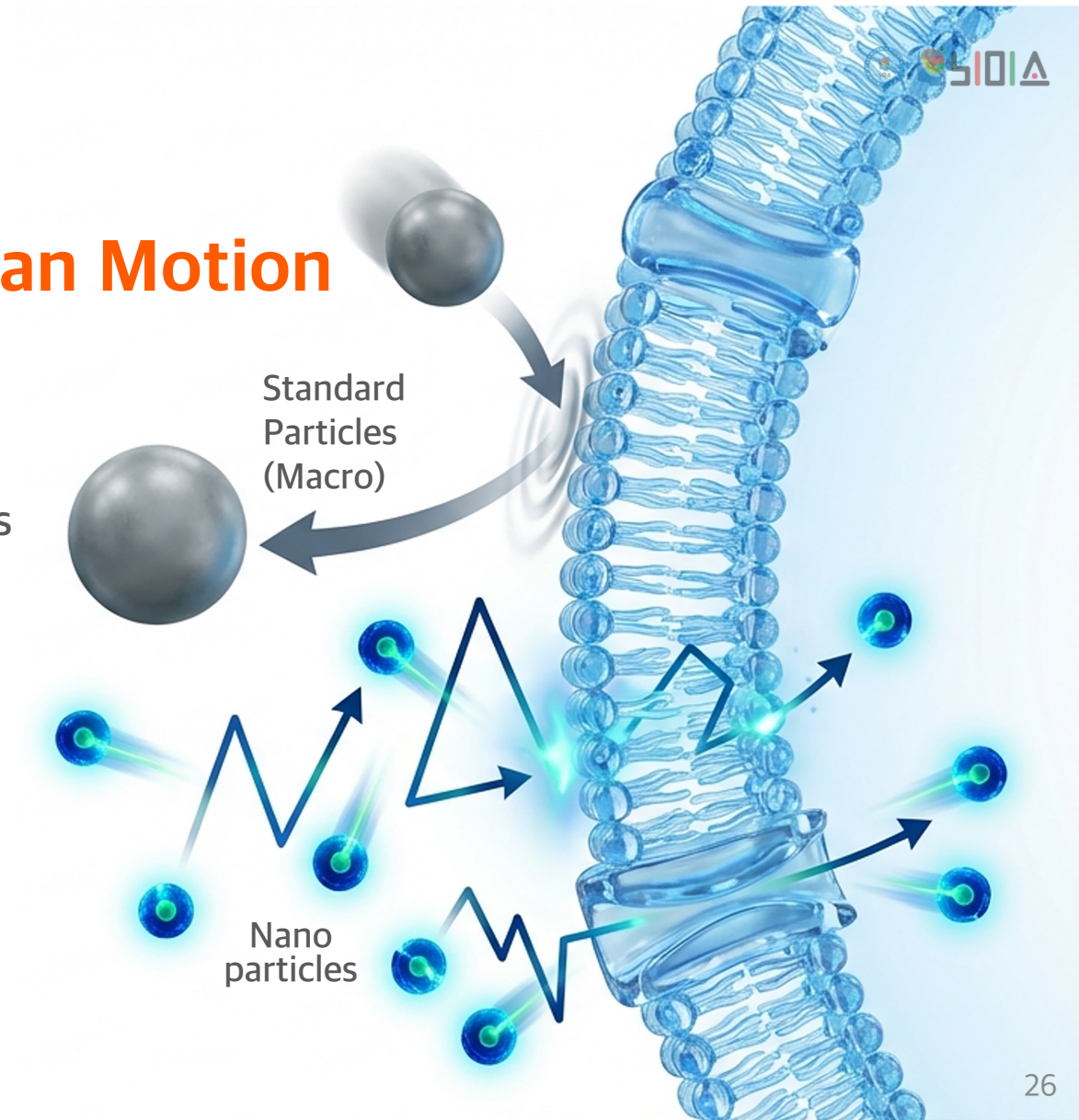
Wet Nano  
(Chemical Additives)





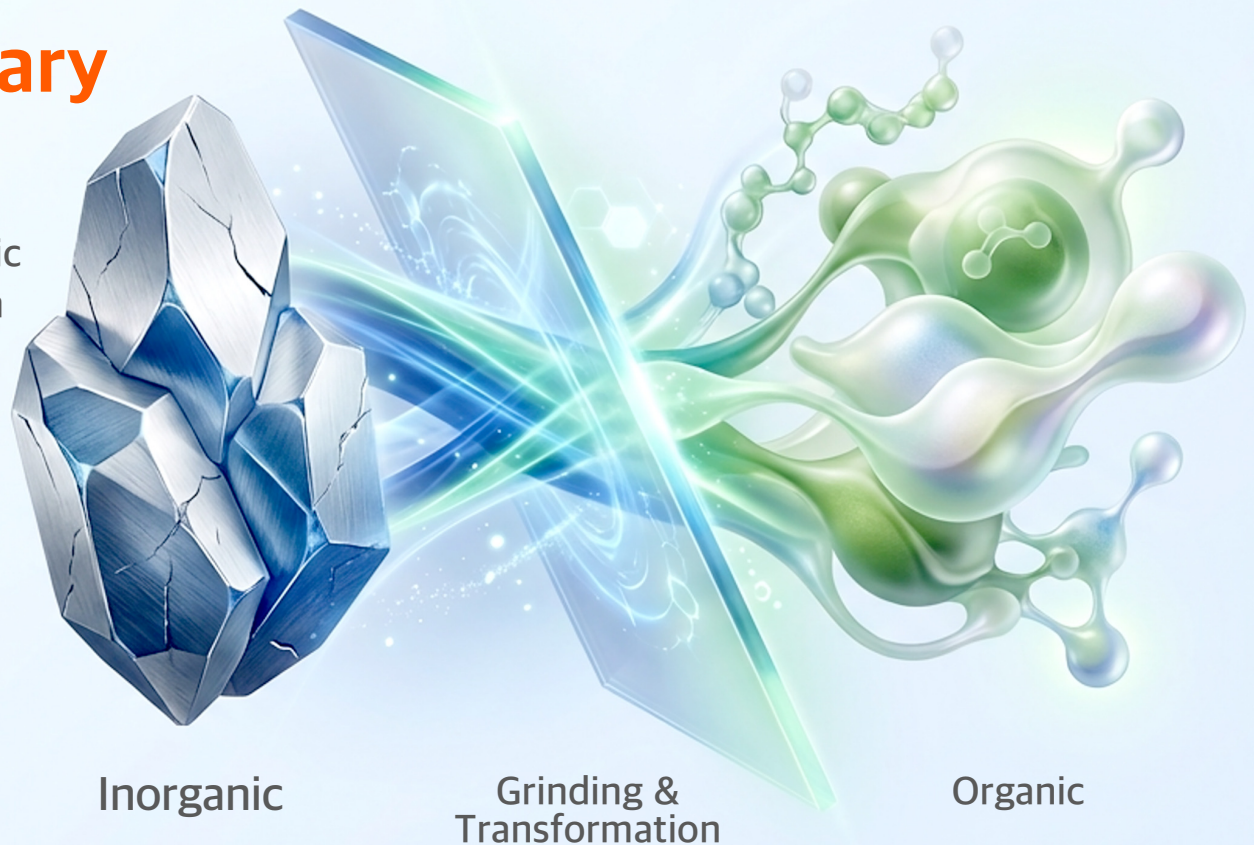
## Technical Superiority: **Bioavailability & Brownian Motion**

- **Brownian Motion:**  
Active irregular motion of nano particles
- **Maximized Bioavailability:**  
Rapid delivery to target cells
- **Fast Response:**  
Superior absorption efficiency compared to conventional particles



## Technical Superiority: Breaking the Boundary

- **Phenomenon:** Boundary of inorganic substances disappears below 1000nm
- **Digestion:** Converting minerals into bio-friendly organic states
- **Safety:** Prevents side effects like indigestion or stone formation

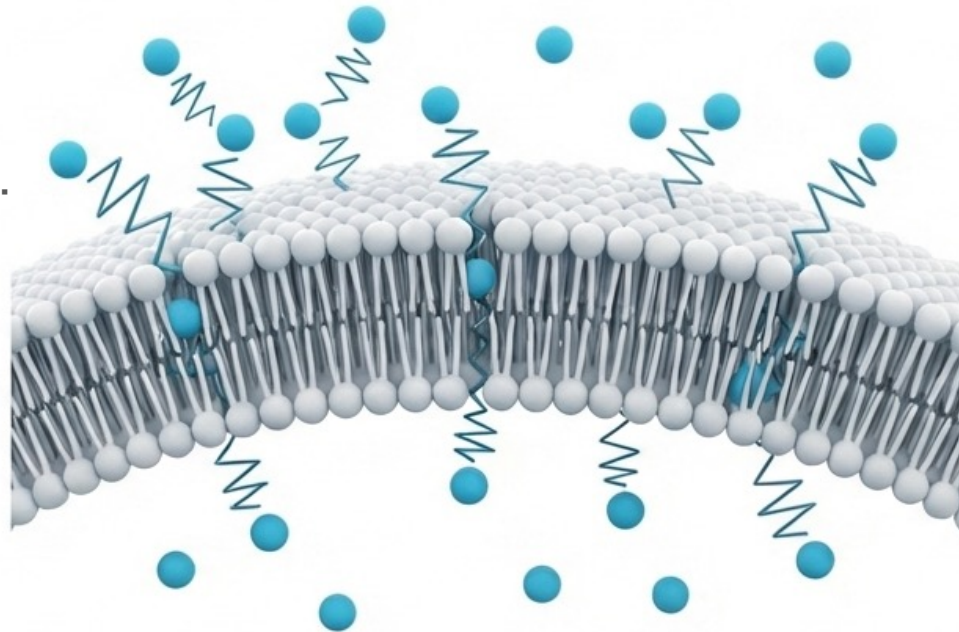




# Mechanism for Maximizing Bioavailability

## Brownian Motion

Particles actively pass through cell membranes.



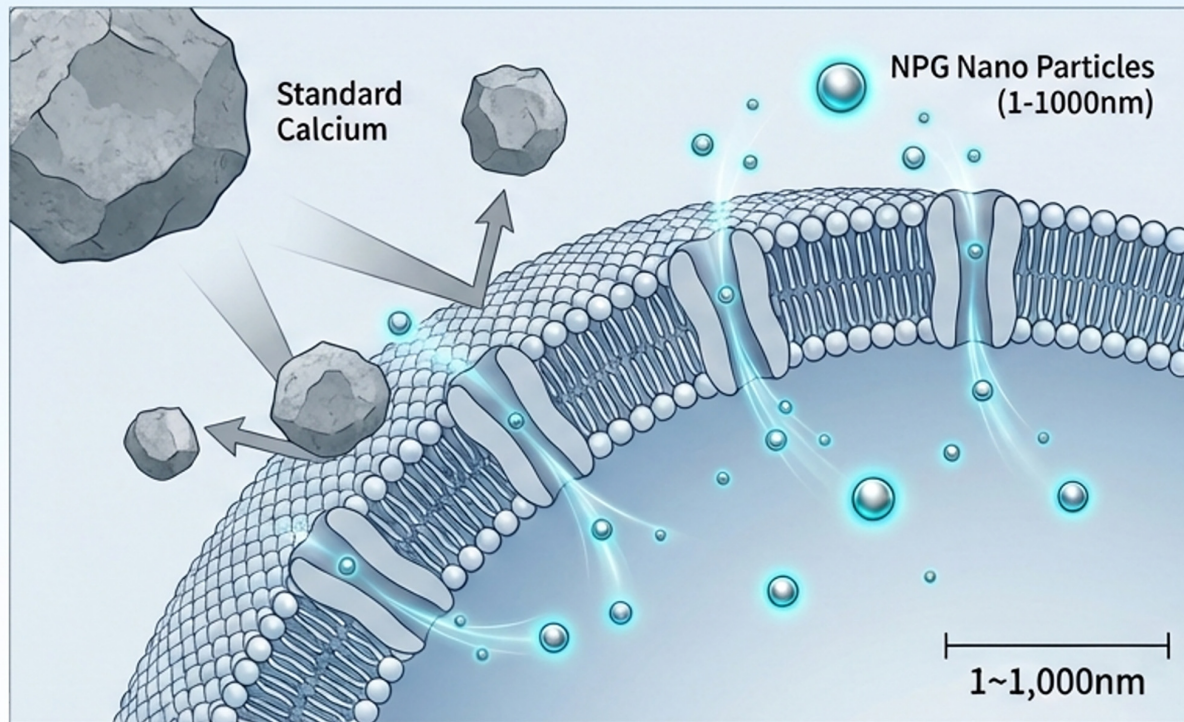
## Rapid Response

Delivers active compounds quickly and precisely to target cells with significantly higher absorption than conventional supplements.

**Result: Maximized efficacy with small amounts**

## Technical Superiority:

# Maximized Bioavailability: A size your body responds to first



### 1 1~1,000nm Optimization

Adjusted for human digestion

### 2 Organic Conversion

Converting inorganic minerals into organic forms, allowing the body to absorb them as naturally as food.

### 3 Property Preservation

No thermal or chemical reactions

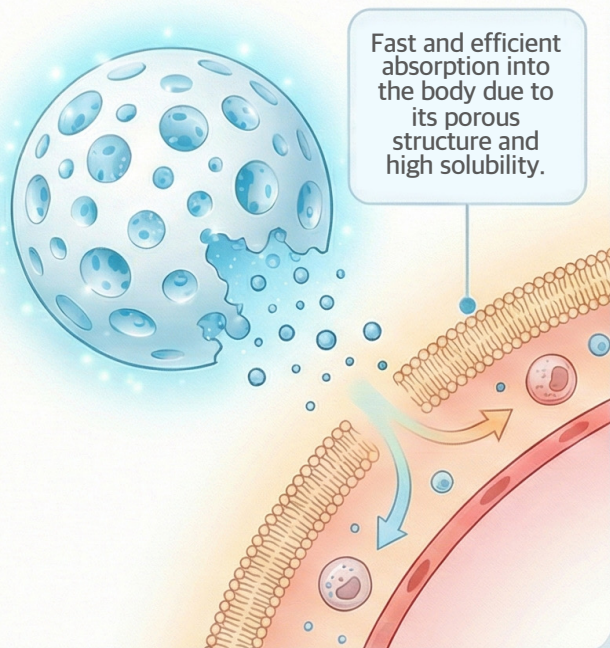
**Supports cellular regeneration with fast response and high absorption rate.**



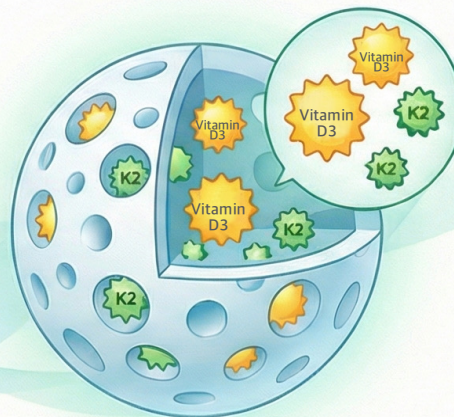
## Key Strengths of **Next-Generation Vaterite Calcium Carbonate**

Vaterite calcium carbonate has overcome the limitations of conventional calcium carbonate through its unique porous structure. It is an innovative nutritional raw material that increases absorption through high solubility, delivers other nutrients via micropores, and offers ease of consumption due to its fine particles.

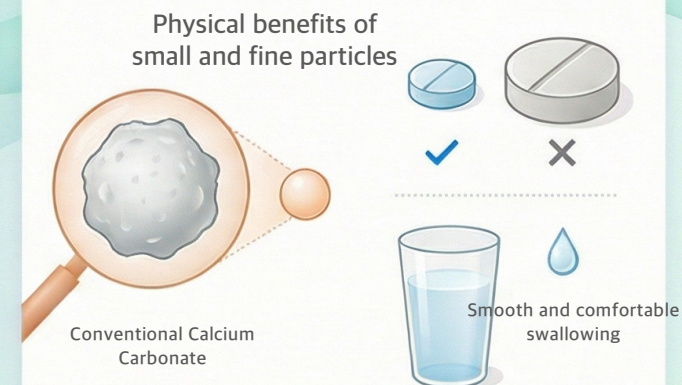
### 1. Overwhelming Absorption and Bioavailability



### 2. Role as a Smart Nutrient Delivery System



### 3. User-Centered Improvement of Intake Experience



Because the particles are fine, it is easy to reduce tablet size or create liquid formulations. Even when consumed in liquid form, it can be ingested smoothly without any gritty feeling.





# Upcycling of Nature - Derived Materials and Nano-Manufacturing **CCU Technology**



Oyster Shells:  
Nature-Derived  
Natural Material



Nano-Manufacturing  
Technology & CCU  
(Carbon Capture Utilization;  
CO<sub>2</sub> Sequestration)



Phase Transition  
Blocking &  
Stabilization  
Technology

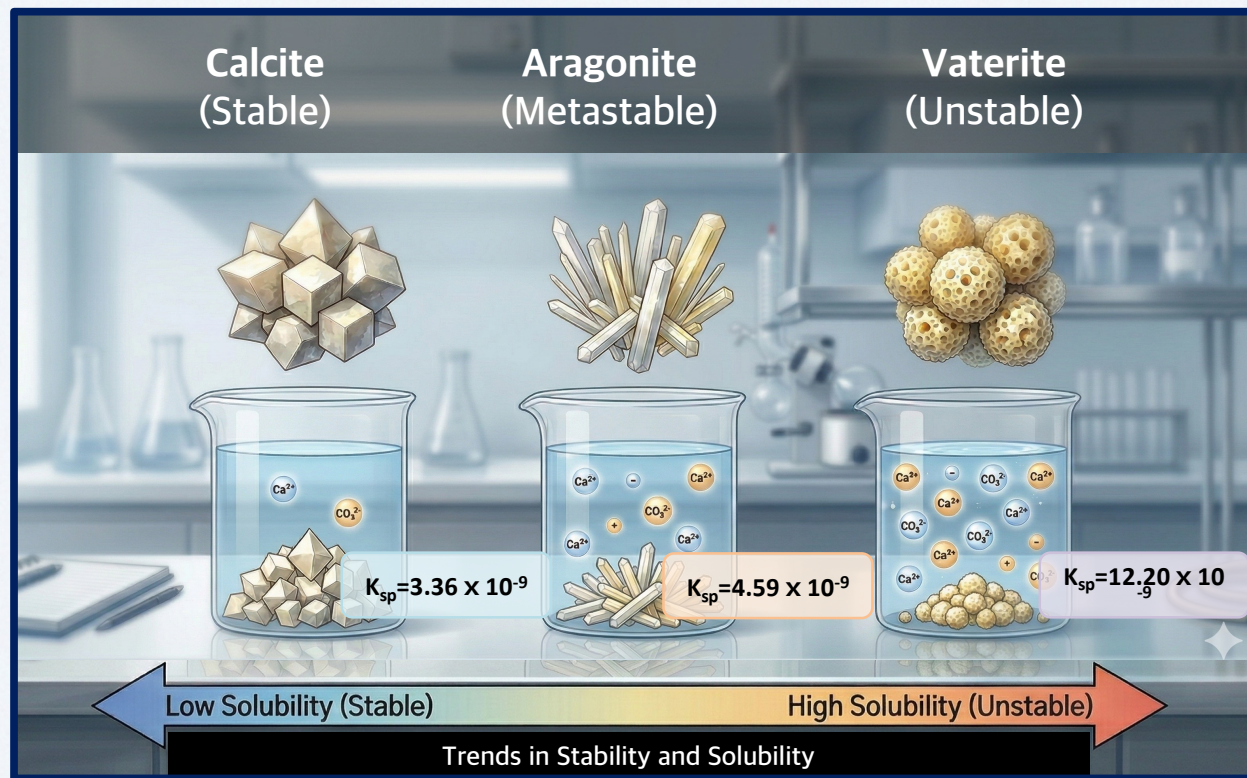


High Purity  
(Over 98.5%)  
**Vaterite**



## Scientific Consideration of Calcium Carbonate Polymorphs: **Why Vaterite?**

The physicochemical properties of Calcium Carbonate ( $\text{CaCO}_3$ ) vary drastically depending on its crystal structure.  
**Vaterite is a next-generation material with the highest solubility and a porous spherical structure.**

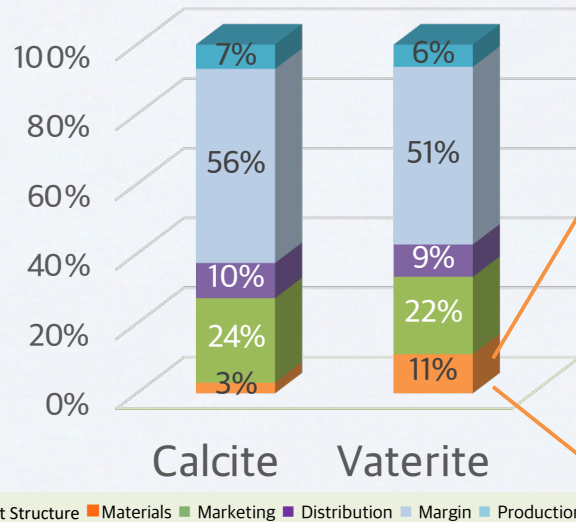




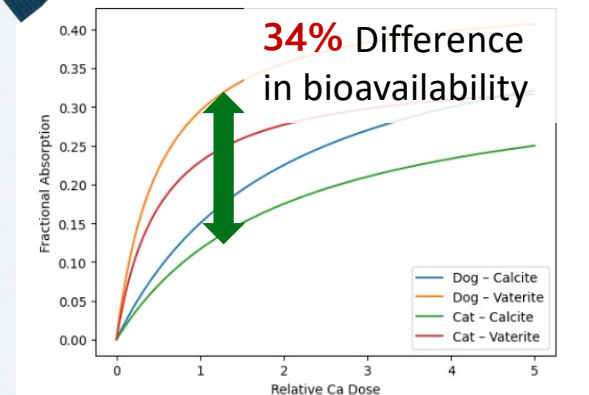
# Manufacturing Cost Analysis & Market Competitiveness

(Example based on a 2g Calcium Stick Supplement)

Cost : Calcite vs. Vaterite



| Ingredient name    | 2g Stick | Amount % |
|--------------------|----------|----------|
| Vitamin D3         | 0.001    | 0.05     |
| Calcium Carbonate  | 0.75     | 37.50    |
| Calcium Phosphate  | 0.247    | 12.35    |
| Magnesium Sulfate  | 0.026    | 1.30     |
| Anhydrous Dextrose | 0.976    | 48.80    |



Vaterite calcium may **lower dosage by 30-40%** compared to calcite calcium, based on dissolution and absorption models.



**High Efficacy,  
Reasonable Price!**



# Why Vaterite?

## Crystal Structure Determines Absorption

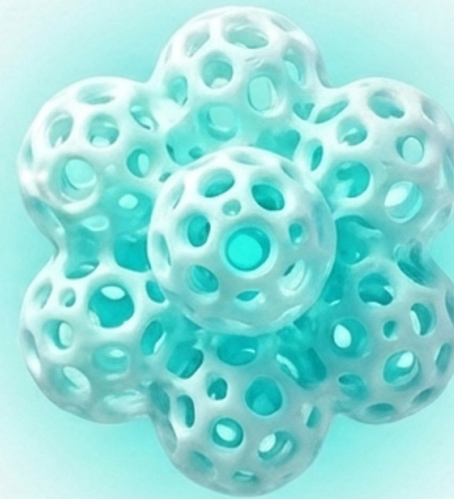
Calcite



**Calcite**

Stable - Low Solubility

Vaterite



**Vaterite**

Unstable - High Solubility

We have successfully stabilized the "Vaterite" phase, which possesses the highest energy levels among calcium carbonate polymorphs.

# Overwhelming Difference in Solubility: Solubility ratio of Vaterite calcium carbonate

**3.63** **Times**

Difference in K<sub>sp</sub>(Solubility Product Constant)  
compared to calcite

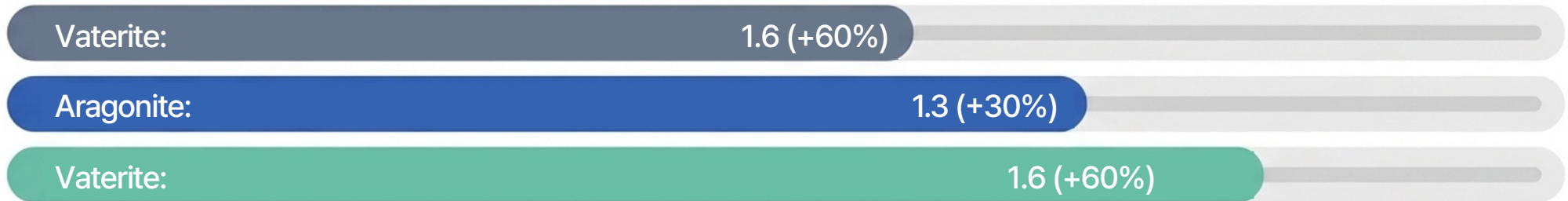
Source: Plummer & Busenberg (1982)

$$\Delta G^{\circ} = -RT \ln K_{sp}$$

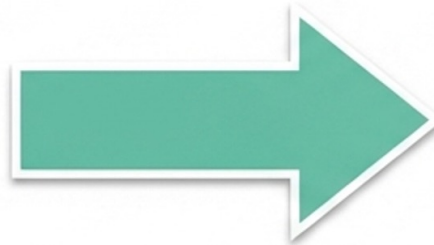
The more unstable the crystal structure, the easier the ionization, leading to a drastic increase in the body's absorption rate.



## Correlation Between Solubility and Bioavailability Solubility



**Solubility**  
**(3.63 times)**



**Bioavailability**  
**(1.6 times)**

High solubility resolves physiological bottlenecks,  
improving bioavailability by 60%

Unstable crystal structures (higher Gibbs Free Energy) ionize more easily, leading to increased absorption.

## High-Purity Solution Found in Nature: **Bio-Upcycling Technology**



**oyster shells:**  
Made with  
Naturally Derived  
Ingredients



**98.5% high-purity  
calcium carbonate  
without chemical  
processing**



**Nano-  
technology &  
CCU without  
processing  
chemicals**



**Safety: Trusted  
natural raw material  
with verified safety**



# 98.5%

## 98.5% Pure Calcium Carbonate without chemical processing.

High-purity calcium carbonate is extracted from oyster shells through an eco-friendly process that uses no processing chemicals at all.



All-Natural Raw Materials



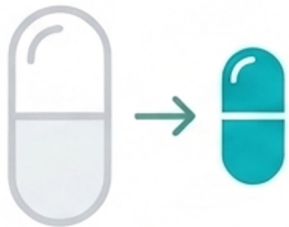
NO CHEMICAL  
AGENTS



High-Purity Calcium Carbonate

## Compliance & Formulation Flexibility

### Smaller Dosage



**Smaller Dosage:**  
Equivalent effects with lower volume due to 1.6x absorption. Ideal for patients with swallowing difficulties (dysphagia).

### Digestive Comfort



**Digestive Comfort:**  
Minimizes gastrointestinal issues (gas, bloating) through rapid dissolution.

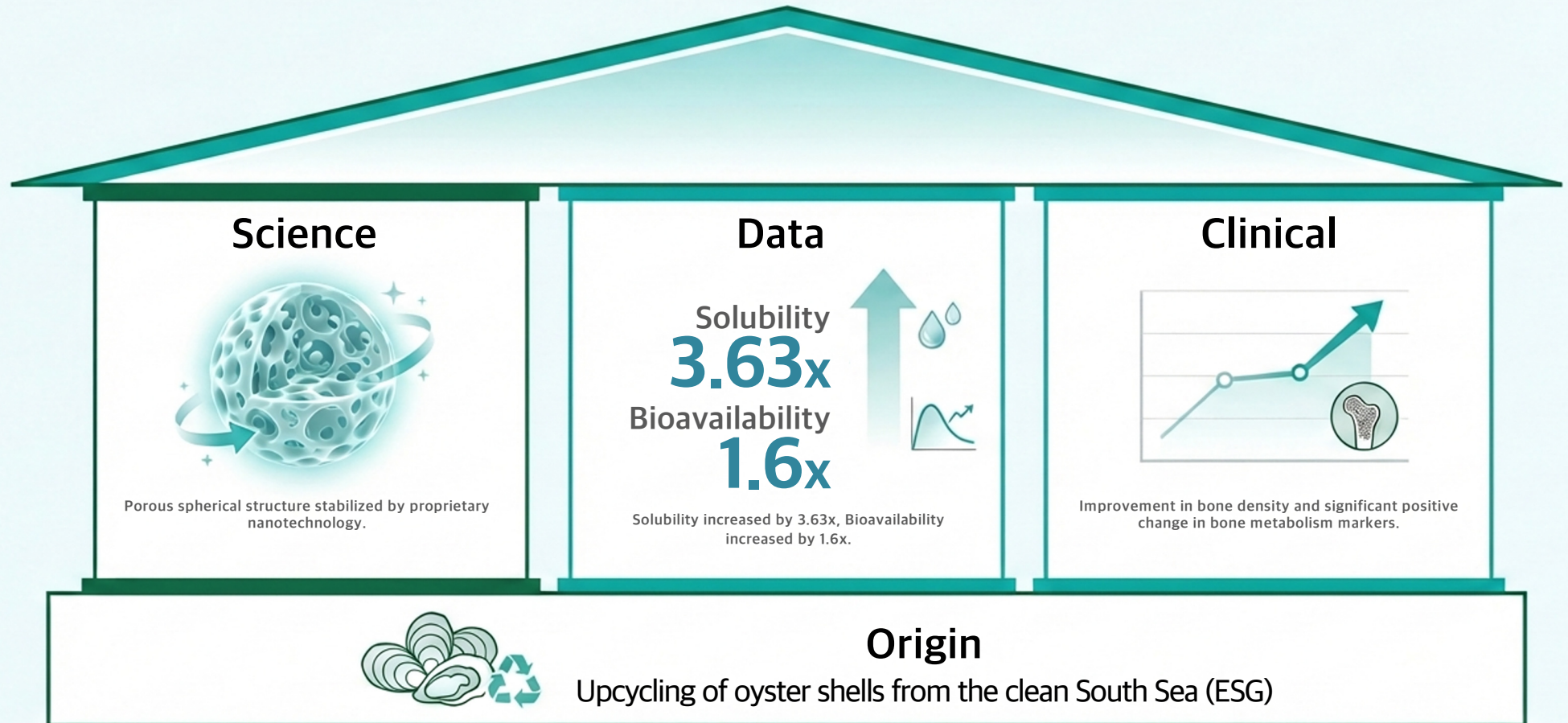
### Flexible Formulation



**Flexible Formulation:**  
Enables development of various forms like smooth-textured liquids or chewables.



# Vaterite: A Paradigm Shift in Osteoporosis Treatment

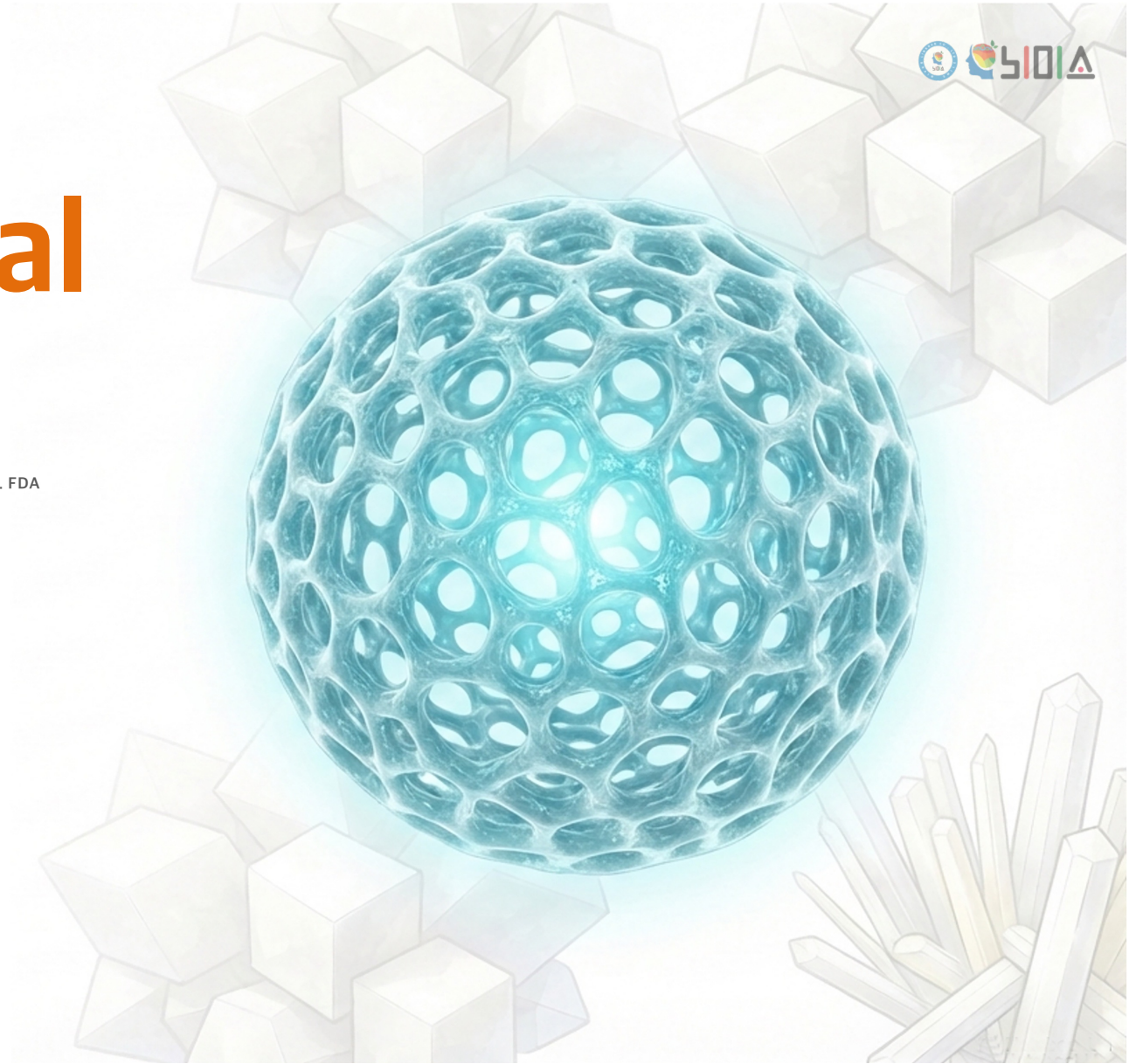


## CHAPTER 3.

# International Credibility

NPG Bio Pharmaceuticals has achieved the natural result of being listed with the U.S. FDA and the National Library of Medicine in a short period of time.

Thanks to its advanced pharmaceuticals utilizing quantum nano-grinding technology.





# Global Credibility: **FDA OTC Registration**



**Registration of OTC (Over-The-Counter) drug: Proving efficacy that goes beyond simple health functional foods.**

Registration Number: 84540-322 (Applied to major products including Ki No Sin).

Safety and efficacy recognized by the U.S. FDA.

This is the most powerful weapon that differentiates us from competitors' products.

## Verification of Global-Level Safety: **FDA OTC Registration**



**OTC (Over-The-Counter)  
Drug Registration**

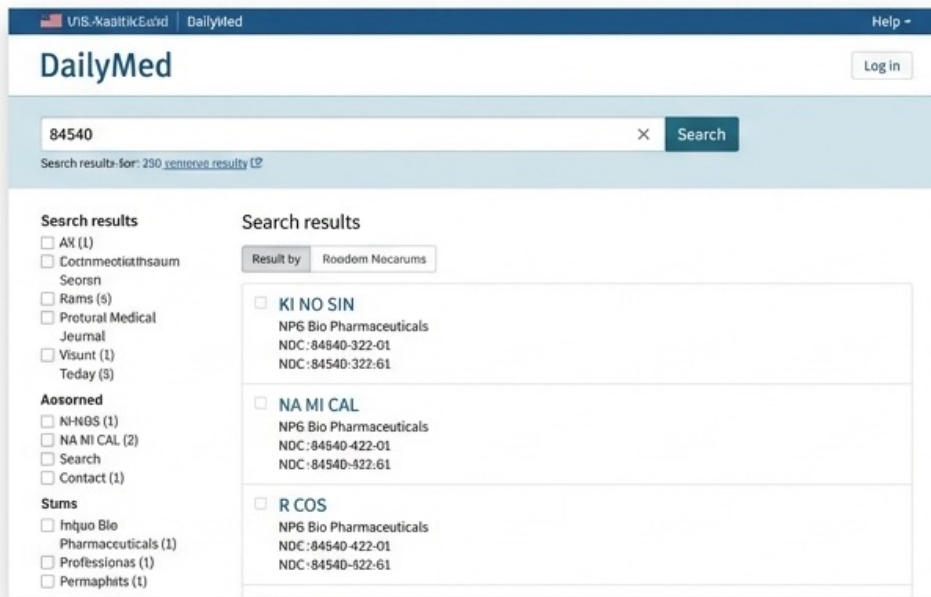
**Listed on the U.S. National  
Library of Medicine  
(DailyMed)**

**NDC Code:  
84540-422-01**



## Objective Trust with Real-Time Verification: **DailyMed & NDC Code**

Official listing in the U.S. National Library of Medicine (DailyMed)



**Show the NDC Code  
directly to the customer**

**Examples: Ki No Sin (84540-322-01)  
Na Mi Cal (84540-422-01)**

Completely resolving customer doubts through transparent disclosure of ingredients (Drug Facts) and efficacy.



# Registration & Certification by Global Regulatory Agencies



US FDA OTC (General Medicine) Registration: Proving therapeutic effects, not just simple supplements.

## K-FDA



Ministry of Food and Drug Safety (K-FDA) Health Functional Food Registration.



U.S. National Library of Medicine (NLM) NIH Database Listing.

**Safety proven by science, efficacy completed by nano technology.**



# Quality and Ingredients Proven by Science

  
Nutrivance HS  
100% Natural Plant-Based Supplement

Supplement Analytical Report

| Item No.   | Product Name | Batch No.          | Manufacturer |
|------------|--------------|--------------------|--------------|
| 1st Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |
| 2nd Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |
| 3rd Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |
| 4th Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |

| Item No.   | Product Name | Batch No.          | Manufacturer |
|------------|--------------|--------------------|--------------|
| 1st Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |
| 2nd Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |
| 3rd Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |
| 4th Sample | 2024.08.08   | Case of Nutrivance | 2024.08.08   |

- Completion of Nutrivance HS ingredient analysis (Verification of exact calcium content).
- Acquired ISO 9001 / 14001 / 22000 (Quality, Environment, and Food Safety Management Systems).
- Venture Company Certification (Innovative Growth Type).

# World-Recognized Quality, NPG Bio Pharmaceuticals

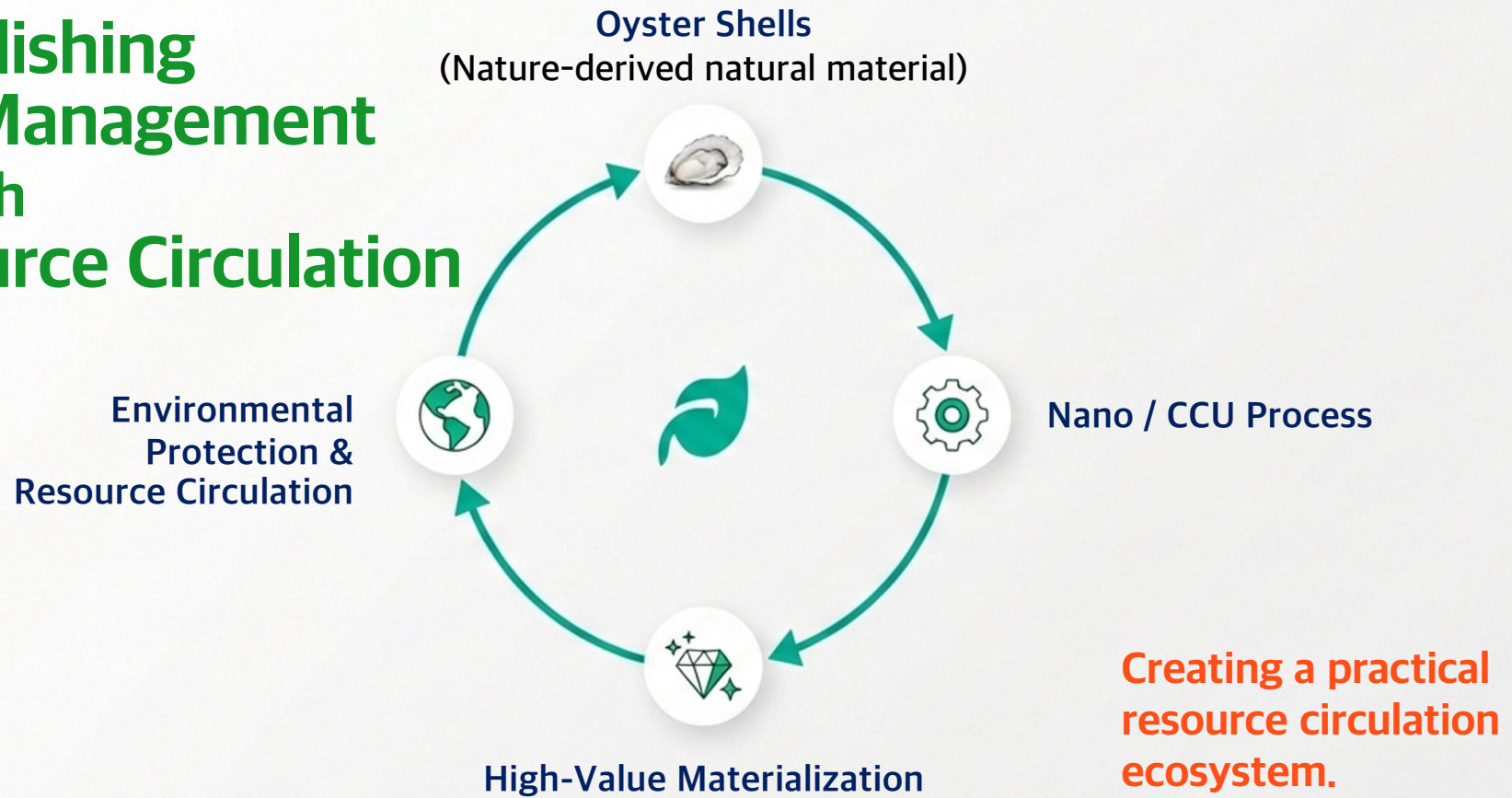


- Venture Company Certification (Innovative Growth Type)
- **ISO 9001 / 14001 / 22000** (Quality Management System Certification)

**Safe natural nano-products also recognized by the U.S. FDA.**



# Establishing ESG Management through Resource Circulation



**Thank you for your time.**