



THE SIMPLE FIX FOR FRAGILE PVC: BOOSTING IMPACT STRENGTH WITH CaCO₃ POWDER

Problem: When Brittle Pipes Threaten a Manufacturer's Reputation

A large PVC pipe manufacturer in Ecuador faced a critical technical failure. Their products were brittle, cracking under pressure, and showing signs of "chalking."

THE CORE PROBLEM: The pipes failed to meet essential mechanical standards for crucial water supply projects. Despite using standard CaCO₃ Powder from various suppliers, their formulation was consistently failing.

Situation: The Hidden Costs of Technical Failure

This was not just a quality issue; it was an escalating crisis of cost and confidence.



Financial Waste

The scrap rate for failed products was high. Every meter of failed pipe was wasted material, labor, and machine time, directly attacking their goal of Lower production costs.



Market Trust

Contractors and civil engineers were losing confidence. Their brand reputation was damaged, and they risked losing major contracts to competitors.



Technical Frustration

Their R&D team was stuck. The root cause was the old CaCO₃ Powder filler: its particle size was too fine (D₉₇ > 13µm), which damaged the polymer structure and destroyed the product's toughness.

They were producing a product they could not trust.

Our Solution:

A Solution-Oriented Approach to Formulation

The Global Minerals technical team diagnosed the problem rather than just selling a product. The solution was not any powder; it was the right powder.

We proposed our Coated Calcium Carbonate Powder - NHA1, a grade specifically engineered for rigid PVC Pipes and pressure applications.

1 The Technical Fix:

- Particle Size Precision: D50: 2 ± 0.3 microns
- D97: 8 ± 2 microns
- High Purity CaCO_3 Powder > 98.5
- Visual Quality: Whiteness $\geq 98\%$
- Moisture: $\leq 0.2\%$

The difference was the precisely controlled particle size (D97: 8 ± 2 microns). This was the key - not too fine (which causes brittleness) and not too coarse (which affects the surface). It was perfectly balanced to maintain polymer toughness.

2 The Application Support:

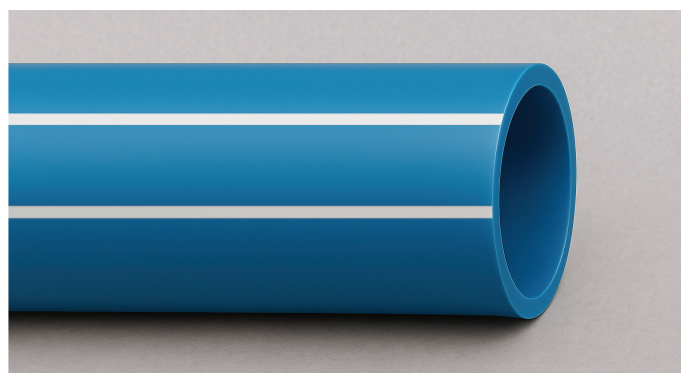
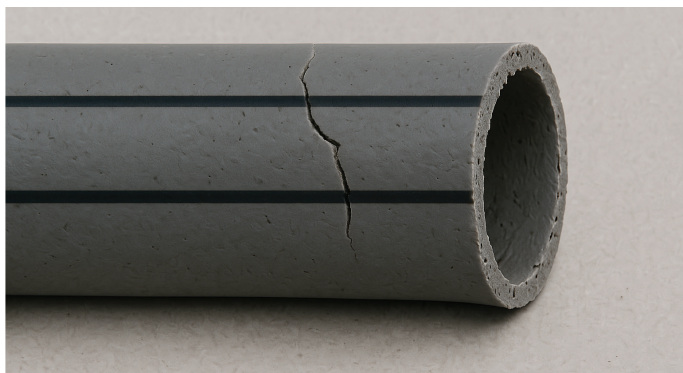
We did not just send a sample. We provided technical guidance to their R&D team via video call, helping them find the optimal mixing ratio (25-30% CaCO_3 + CPE additive) to guarantee impact durability.



Turning Point:

From Raw Data to Conclusive Proof

The decision point was clear during the 0°C impact test



The old pipes shattered while the pipes made with NHA1 did not crack or break. This technical validation confirmed the difference in material quality.

Result Category	Key Improvement	Financial/Efficiency Gain
Product Strength	Pipe durability increased by 15%	Increased product reliability and helped secure project contracts
Profit & Efficiency	CaCO_3 provided a stable base, allowing the client to save 10-12% on total production costs.	Estimated \$100,000–\$120,000 annual savings and 20% reduction in waste
Market Growth	Client saw a 10% increase in sales and gained new civil engineering projects.	Proof that technical quality drives financial strength.

"Our pipes used to be brittle and crack easily. With your CaCO₃ powder, they've become stronger, more flexible, and glossier — all while reducing costs."

— Production Director, PVC Pipe Factory, Ecuador

Download

The Detailed Case Study



Request a technical consultation to optimize your PVC formula.

Contact us now

The true strength of your PVC pipe starts with the right CaCO₃ Powder solution. Achieve "Sustainability" in the PVC industry is not just about price. It is about passing the impact test, every single time.

Nhat Huy Group is a pioneering manufacturer and exporter of plastic products in Vietnam, established in 2004. We offer a range of high-quality products including mineral powder, filler masterbatch, and PVC compound, serving global markets. Committed to innovation and improvement, Nhat Huy Group is dedicated to providing sustainable, efficient, and environmentally friendly plastic solutions, contributing to community and societal development. Our team of experts is always ready to deliver products and services that meet international standards, ensuring maximum satisfaction for our customers.

