

HUBERCAL[®]

Pure and Natural Calcium Carbonate



CALCIUM CARBONATE

Distributed by:
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HUBERCAL[®] Purity and Versatility

Market Leadership

A passion for serving our customers with the highest quality calcium products backed by superior technical and customer service has driven Huber Carbonates, LLC to create a market leading food grade (FG) and USP calcium carbonate business. As a producer of both calcium carbonate powders and granulations, we have control over the quality and reliability of our supply chain.

Pure and natural HuberCal[®] calcium carbonate is available in powder or granule form – in both food and USP grades. HuberCal offers a combination of outstanding performance, high purity and exceptional value vs. precipitated calcium carbonate (PCC).

The HuberCal[®] Pure and Natural Calcium Carbonate Advantage

To be confident in your calcium carbonate, you must be satisfied with its quality. Whether you're fortifying food products, producing other calcium salts or manufacturing pharmaceutical or dietary supplement dosage forms, your formulation begins with a calcium carbonate product that offers extremely high purity. Every time. That's HuberCal pure and natural calcium carbonate.

HuberCal gives you a higher calcium carbonate assay – typically greater than 99%. This degree of purity is why food companies, calcium salts producers and pharmaceutical and dietary supplement manufacturers have come to rely on HuberCal pure and natural calcium carbonate.

Independently Verified Quality

Historically, formulators have had to choose between ground calcium carbonate (GCC) for its cost advantage and PCC for its purity. Now with HuberCal pure and natural calcium carbonate, formulators can choose a cost-effective product without compromising quality. Independent analysis has validated the HuberCal quality advantage.

For the granulator, HuberCal provides an overall better value as a source of calcium for supplements and pharmaceuticals. For manufacturers of calcium salts other than calcium carbonate, HuberCal products offer a high purity, high performance raw material.



At Huber's state-of-the-art Quincy, Illinois, operation, HuberCal[®] pure and natural calcium carbonate is granulated to exacting specifications (photo above left). HuberCal products are bagged and prepared for shipment (photo above right).

HUBERCAL[®] Benefits

Texture That Makes Great Chewables. Purity That Makes You Confident.

When it comes to choosing a calcium carbonate source for antacids, two factors matter most – texture and purity. HuberCal[®] Elite gives you both.

HuberCal Elite pure and natural calcium carbonate powders and granulations have been shown to outperform other leading calcium carbonates in sensory perception (mouthfeel). Superior texture and high purity are two great reasons why formulators of antacids have come to rely on HuberCal Elite as their trusted source of natural calcium carbonate. Makers of antacids have also come to praise HuberCal for its low abrasivity, which means less wear on processing equipment and tablet tooling, translating into lower production costs and higher throughput.

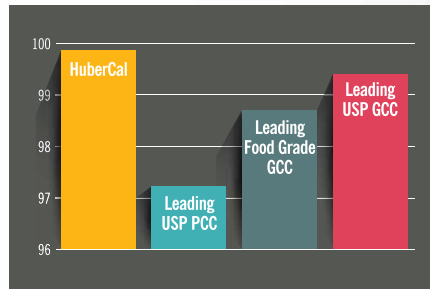
Compendial Compliance

HuberCal[®] FG grades comply with the Food Chemicals Codex requirements. HuberCal[®] USP grades comply with the U.S. Pharmacopeia (USP) requirements, and HuberCal Elite grades comply with the U.S. Pharmacopeia and European and Japanese† Pharmacopoeia requirements.

†HuberCal Elite meeting Japanese Pharmacopoeia available upon special request

High Purity (Higher is better)

Calcium Carbonate Sample - % Calcium Carbonate



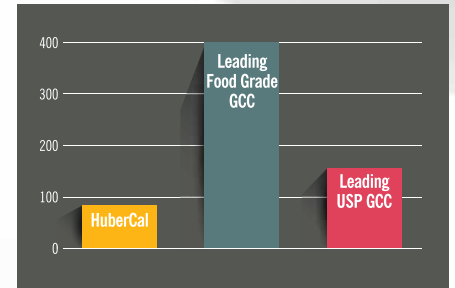
Source: West Coast Analytical Laboratory

Demonstrated Low-Lead and Low-Arsenic Impurities

Consumers and regulators alike are increasingly concerned with lead and heavy metals ingestion. The HuberCal product family helps formulators to address this concern. Independent analysis has shown HuberCal to offer lower lead and arsenic versus leading competitive natural calcium carbonates. The data below confirms typical lead in HuberCal to be below 100 parts per billion – significantly lower than competitive products. Typical results for arsenic are below 0.1 ppm.

Low Lead Impurities (Lower is better)

Calcium Carbonate Sample - ppb Lead (ICP-MS)



Source: West Coast Analytical Laboratory



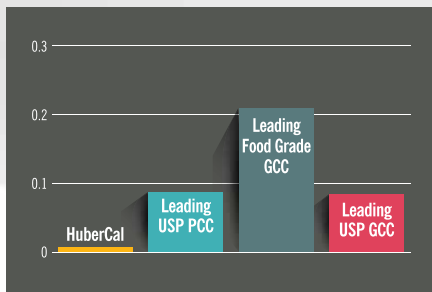
HUBERCAL[®] Quality Verified

Low Acid Insolubles

Another measure of the purity of calcium carbonate is the amount of acid insoluble material contained in the product. When pure calcium carbonate reacts with acid, there should be no residue. Depending on the grade, HuberCal[®] pure and natural calcium carbonate complies with the Food Chemicals Codex and U.S. Pharmacopeia and European and Japanese[†] Pharmacopoeia requirements for acid insolubles.

[†]HuberCal Elite meeting Japanese Pharmacopoeia available upon special request

Low Acid Insolubles (Lower is better) Calcium Carbonate Sample - % Acid Insolubles (USP method)



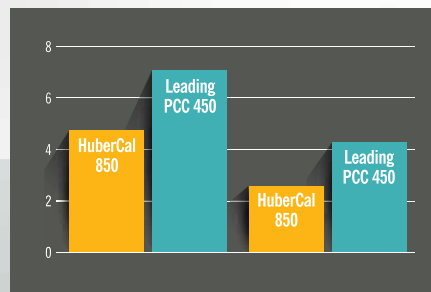
Source: West Coast Analytical Laboratory

Superior Sensory Perception

Nine out of 10 new food products fail for one reason – failure to integrate sensory data in product testing.¹ Huber Carbonates, LLC is aware of the importance of texture. That's why we commissioned an independent lab to perform a comparative sensory analysis of the texture of competing calcium carbonate products in a generic chewable tablet formulation. The results demonstrate our superior sensory performance.

¹Source: Nutrition Business Journal, Volume VII, May/June 2002

Superior Texture (Lower is better) Sensory Texture Test

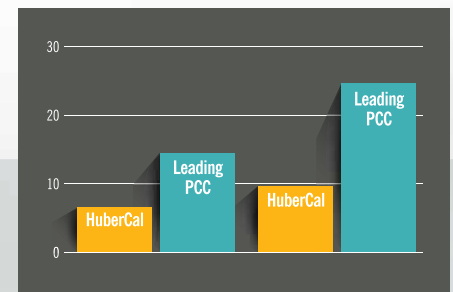


Source: 21st Sensory, Inc.

Lower Abrasivity

Abrasion of equipment is an important concern for those who process calcium carbonate. A comparative test of samples of PCC products from the leading supplier shows that the HuberCal pure and natural calcium carbonate family of products is much less abrasive. Moreover, our customers have confirmed that the lower abrasivity of HuberCal leads to longer tooling life in their tablet equipment.

Low Abrasivity (Lower is better) Einleher Abrasion (mg loss/100,000 revolutions)



Source: 21st Sensory, Inc.

HuberCal[®] Ground Calcium Carbonate – Typical Properties

HuberCal [®] Product Grade	Median Particle Size (microns)	Surface Area BET (m ² /g)	Bulk Density Loose (g/cc)	Bulk Density Tamped (g/cc)	Screen Residue 325 Mesh (%)	Physical Form
950	3.6*	1.7	0.75	1.1	0.005	Powder
850	4*	1.7	0.72	1.2	0.005	Powder
500	6*	1.2	0.85	1.3	0.10	Powder
250	12**	1.1	1.07	1.5	30	Powder
150	20**	0.9	1.15	1.6	35	Powder

*SediGraph[®] Particle Size Analyzer

**CILAS[®] Laser Light Scattering

Note: The comparative data in this brochure was generated in side-by-side testing of one sample of each product.

Analysis of HUBERCAL® Products

HuberCal® Pure and Natural Calcium Carbonate Advantages:

- Calcium carbonate assay > 99%
- Low lead (HuberCal® Elite < 0.12 ppm)
- Chewable tablets made with HuberCal® pure and natural calcium carbonate are significantly less gritty
- Prolonged tooling life in tablet equipment
- Increased productivity



Typical Analysis – Ground Calcium Carbonate Products

	HuberCal® FG*	HuberCal® USP**	HuberCal® Elite***†
Calcium Carbonate	> 99%	> 99%	> 99%
Magnesium and Alkali Salts	< 1.0%	< 1.0%	< 1.0%
Acid Insolubles	< 0.2%	0.04%	0.04%
Loss on Drying	< 2.0%	< 2.0%	< 1.0%
Lead	< 0.50 ppm	< 0.30 ppm	< 0.12 ppm
Arsenic	0.1 ppm	0.1 ppm	0.1 ppm
Fluoride	0.002%	0.002%	0.002%
Barium	–	Pass	Pass
Iron	–	0.02%	≤ 0.02%
Mercury	–	≤ 0.5 ppm	≤ 0.5 ppm
Heavy Metals (as Lead)	≤ 0.002%	≤ 0.002%	≤ 0.002%
Chlorides	–	–	41 ppm
Sulfates	–	–	< 0.25%
Crystalline Quartz	–	–	0.02%

*Meets Food Chemicals Codex **Meets U.S. Pharmacopeia ***Meets U.S. Pharmacopeia and European Pharmacopoeia

†Meets Japanese Pharmacopoeia available upon special request



HUBERCAL[®] Properties

HuberCal[®] pure and natural calcium carbonate grades are engineered to precise specifications and great care is taken to ensure you get a product you can count on for superior performance. Take a look at the HuberCal grades below along with their typical physical properties. Please contact us for product samples, we look forward to working with you.

HuberCal[®] Calcium Carbonate Granulation Products – Typical Properties

HuberCal [®] Product Grade	Screen Analysis (U.S. mesh sizes)	Bulk Density Loose (g/cc)	Physical Form	Calcium Carbonate	Elemental Calcium (%)	Binder System
CCG 4000 USP	100% thru 16 ≤ 75% on 60 ≤ 15% thru 200	0.8 - 1.0	Granule	Calcium Carbonate USP	≥ 37%	50/50 Maltodextrin/ Acacia
CCG 4100 USP	100% thru 16 ≤ 75% on 60 ≤ 15% thru 200	0.8 - 1.0	Granule	Calcium Carbonate USP	≥ 37%	Maltodextrin
CCG 4300 USP	100% thru 16 ≤ 75% on 60 ≤ 15% thru 200	0.8 - 1.0	Granule	Calcium Carbonate USP	≥ 37%	Acacia
CCG 4000 FG	100% thru 16 ≤ 75% on 60 ≤ 15% thru 200	0.8 - 1.0	Granule	Calcium Carbonate FG	≥ 37%	50/50 Maltodextrin/ Acacia
CCG 4100 FG	100% thru 16 ≤ 75% on 60 ≤ 15% thru 200	0.8 - 1.0	Granule	Calcium Carbonate FG	≥ 37%	Maltodextrin
CCG 4300 FG	100% thru 16 ≤ 75% on 60 ≤ 15% thru 200	0.8 - 1.0	Granule	Calcium Carbonate FG	≥ 37%	Acacia

These typical properties cannot be considered as specifications.

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Contact Huber today for more information and to order samples of our high-performing HuberCal[®] pure and natural calcium carbonate.

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Email: hubermaterials@huber.com



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