

ViCALity[®] Ultra Heavy

USP / FCC Precipitated Calcium Carbonate

ViCALity[®] PCC Products

ViCALity[™] Ultra Heavy Precipitated Calcium Carbonate (PCC) is one of a family of low lead calcium carbonates available in a wide variety of sizes and shapes to meet the needs of formulators of foods, drugs, nutritionals and personal care products. Containing less than 500 ppb lead, the ViCALity[™] PCCs are suitable for many applications that must meet the lead requirements of California Proposition 65.

ViCALity[™] PCCs meet and exceed the requirements for Calcium Carbonate of the United States Pharmacopeia 24 and of the Food Chemicals Codex, Fourth Edition. All are certified as Kosher. Calcium carbonate is Affirmed GRAS (Generally Recognized As Safe) by the US FDA (21 CFR 184.1191) with no limitations other than good manufacturing practices. This allows the use of calcium carbonate as both a direct and indirect food additive. ViCALity[™] PCC products are manufactured in the Specialty Minerals plant in Adams, MA under stringent quality assurance procedures and good manufacturing practices.

ViCALity[®] Ultra Heavy PCC:

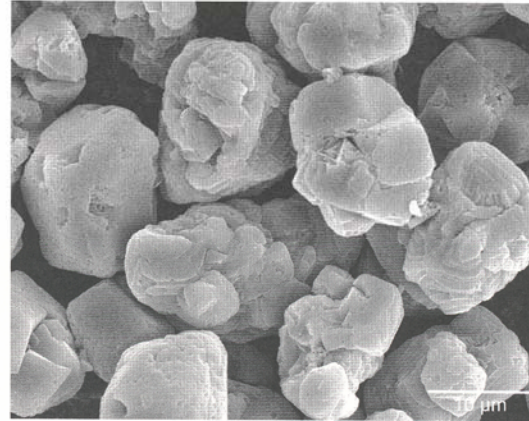
ViCALity[™] Ultra Heavy PCC is a unique calcitic Precipitated Calcium Carbonate. Its 12 micron particle size, semi-regular prismatic shape and controlled particle size distribution yield an extremely high density calcium carbonate.

CalEssence[®] 1500 PCC is the ultra-low lead equivalent of ViCALity[™] Ultra Heavy PCC. ViCALity[™] Ultra Heavy PCC formerly had the developmental designation of MD-1506.

Characteristics:

- Super Dense: 1.5 g/cc
- Very low surface area
- Very low oil absorption
- Low water and binder demand
- Less than 500 ppb lead
 - Good for most Proposition 65 uses
- High elemental calcium level
 - ~40% calcium
- High bioavailability - equal to milk calcium
- Economical in use
- No calories, carbohydrates or fats
- Non-dairy, lactose-free

Scanning Electron Micrograph:



magnification: 2,000X

Applications:

ViCALity[™] Ultra Heavy PCC was specifically developed to allow the formulation of the smallest possible dosage form for a given amount of calcium, as well as for the high loading granulations used to manufacture small tablets. Tablets made with Ultra Heavy are visibly smaller than tablets made with any of the other ViCALity[™] PCC grades. This product also allows the addition of increased levels of calcium to multi-vitamin/mineral products. For the enrichment of solid foods, the 4.5 micron ViCALity[™] Extra Heavy PCC or the 3.5 micron Heavy PCC are usually preferable, for the best taste.

Some uses for ViCALity[™] Ultra Heavy PCC are:

- Calcium supplement tablets of smallest tablet size
- Small sized antacids at lower dosages
- Multi-vitamin / mineral supplements
- Soft gel nutritionals
 - For very high dosage supplements
- High concentration granulations
- Vitamin and mineral premixes

Typical Physical Properties

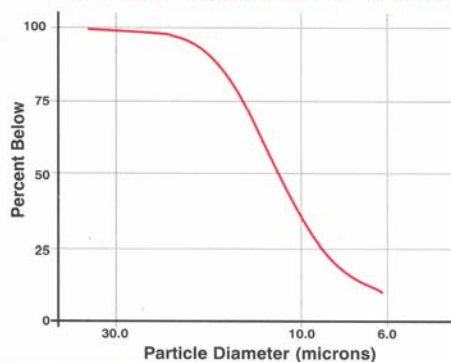
Crystal habit	Calcite
Particle Shape	Semi-regular Prismatic
Particle Size, median, microns	12.0
mode, microns	12.2
Surface Area, meters ² /gram	.07
Oil Absorption, grams oil/100 grams	22
Tapped Density, grams/cc	1.50
pounds/ft ³	93.6
Bulk Density, grams/cc	0.95
pounds/ft ³	59.3
Specific Gravity	2.71
pH	10.1
Moisture, %	0.2
Dry Brightness Hunter Y, Rd value	.92
Lead, parts per billion	< 500
Solubility, in water, pH 7	Insoluble
in acid	Soluble

Note:

These are typical values, and should not be used to set specifications.

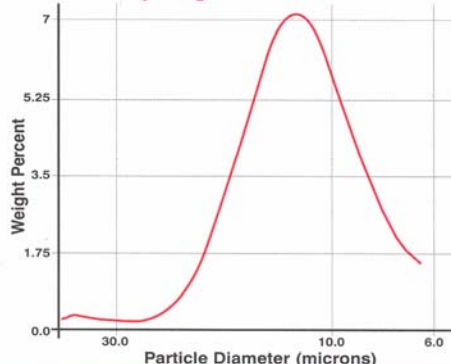
Cumulative Particle Size Distribution

Total % by weight below each micron size



Particle Size Distribution

% by weight at each micron size



Dispersion and Slurry Viscosity:

High shear should be applied to a high solids suspension in order to achieve the smallest particle size in a dispersion.

After high shear dispersion for 10 minutes, the Brookfield RVT viscosity of a slurry in water, measured at 20 rpm, is:

30% solids	.12 cps
40% solids	.15 cps
50% solids	.23 cps

If problems are encountered in preparing high solids slurries, an appropriate pigment dispersant should be used.

Product Code: 100-1070-3

Packaging:

ViCALity™ Ultra Heavy PCC is packaged in 50 pound, three-ply kraft bags. The standard shipping unit is a 48" x 40" 4-way pallet of 50 bags, a total of 2,500 pounds. Pallets include slipsheets and shrinkwrap. Semi-bulk packaging, typically in 2,000 pound sacks, is also available. Contact Inside Sales or your SMI Representative for details.

FDA Codes:

The Specialty Minerals plant in Adams, MA is registered with the US FDA as a Drug Establishment. The registration number for the plant is 1214544. The National Drug Code (NDC) for ViCALity™ Ultra Heavy PCC is 053004-1070-3 for product supplied in 50 pound bags.

Specialty Minerals Inc.

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For order placement:

Customer Service—toll free: 877-684-7627
Fax: 413-743-4527

Visit Our Website:

www.mineralstech.com

For Information and Samples:

Sales: 1-610-997-8394
Email: smi.adamscustserv@mineralstech.com

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