

CalEssence® 1500 Enhanced Purity

USP / FCC Precipitated Calcium Carbonate

CalEssence® PCC Products:

CalEssence® 1500 Precipitated Calcium Carbonate (PCC) is one of a family of enhanced purity, ultra-low lead calcium carbonates developed for those needing to meet the lead requirements of California Proposition 65. CalEssence® PCC products contain less than 125 parts per billion lead.

CalEssence® 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 makes calcium carbonate suitable for both direct and indirect food applications. CalEssence® PCC products are manufactured in the Specialty Minerals plant in Adams, MA under stringent quality assurance procedures and good manufacturing practices.

CalEssence® 1500 PCC:

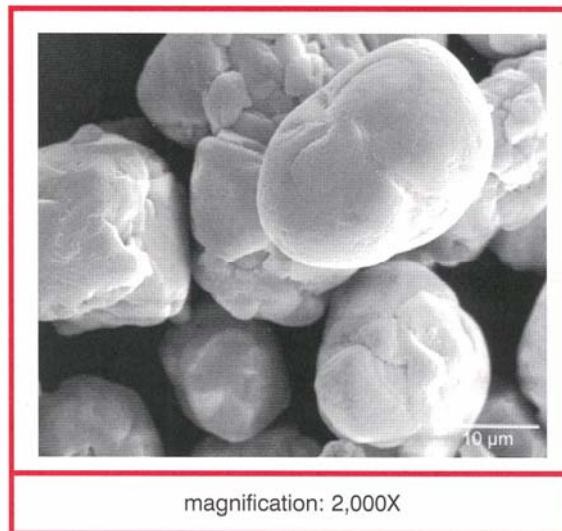
CalEssence® 1500 PCC is a unique calcitic Precipitated Calcium Carbonate. Its 12 micron particle size, semi-regular prismatic shape and controlled particle size distribution yield an extremely high density calcium carbonate.

CalEssence® 1500 PCC is the ultra-low lead equivalent of ViCALity™ Ultra Heavy PCC. It formerly had the developmental designation MD-1503.

Characteristics:

- Super Dense: 1.5 g/cc
- Very low surface area
- Very low oil absorption
- Low water and binder demand
- Less than 125 ppb lead
 - Good for all 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:



Applications:

CalEssence® 1500 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 CalEssence® 1500 PCC are visibly smaller than tablets made with any of the other CalEssence® PCC grades. This product also allows the addition of increased levels of calcium to multi-vitamin/mineral products. For solid foods, the 4.5 micron CalEssence® 450 PCC is usually the better choice, to reduce the possibility that the presence of the calcium is detected.

Some of the uses for CalEssence® 1500 PCC are:

- Antacid tablets of smallest tablet size
- Calcium supplement tablets of smallest tablet size
- Multi-vitamin / mineral supplements
- Soft gel nutritionals
 - Can make 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	13.0
Surface Area, meters ² /gram	0.8
Oil Absorption, grams oil/100 grams	23
Tapped Density, grams/cc	1.50
pounds/ft ³	93.6
Bulk Density, grams/cc	0.80
pounds/ft ³	49.9
Specific Gravity	2.71
pH	10.0
Moisture, %	0.2
Dry Brightness Hunter Y, Rd value	93
Lead, parts per billion	< 125
Solubility, in water, pH 7	Insoluble
in acid	Soluble

Note:

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

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	18 cps
50% solids	30 cps

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

Product Code: 100-0600-3

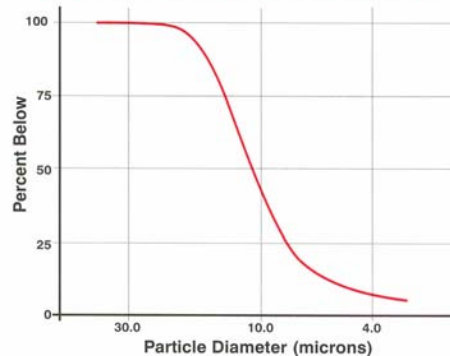
Specialty Minerals Inc.
35 Highland Avenue
Bethlehem, PA 18017

For order placement:

Customer Service – toll free: 877-684-7627

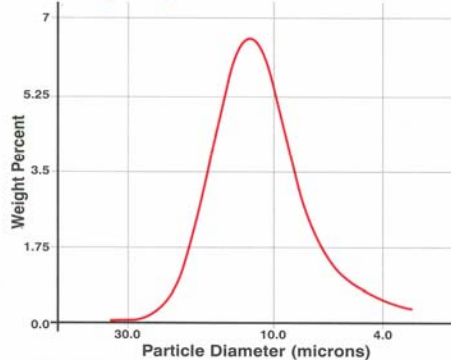
Cumulative Particle Size Distribution

Total % by weight below each micron size



Particle Size Distribution

% by weight at each micron size



Packaging:

CalEssence[®] 1500 PCC is packaged in 50 pound, three-ply kraft bags. The standard shipping unit is a 48" x 40" 4-way GMA 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 CalEssence[®] 1500 PCC is 053004-0600-3 for product supplied in 50 pound bags.

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