

CalEssence® 70 Enhanced Purity

USP / FCC Precipitated Calcium Carbonate

CalEssence® PCC Products:

CalEssence® 70 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® 70 PCC:

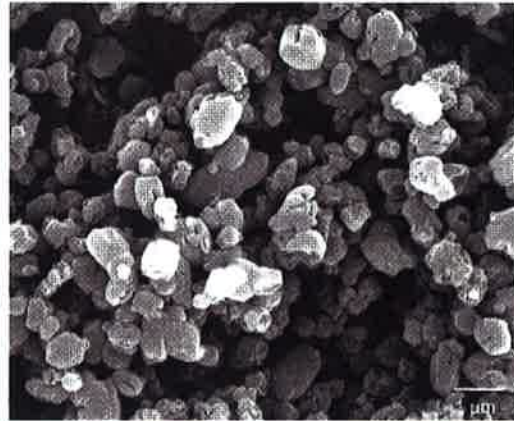
CalEssence® 70 PCC is an ultra-low lead prismatic calcite, 0.7 microns in size. It has the smallest particle size in the CalEssence® PCC family, which results in low density.

CalEssence® 70 PCC is the ultra-low lead equivalent of VICALity ALBAFIL™ PCC.

Characteristics:

- Smallest particle size
- High surface area
- Moderately high oil absorption
- Low density
- Good suspendability
- Less than 125 ppb lead
 - Good for all Proposition 65 uses
- High elemental calcium level
 - ~40% calcium
- Low loadings to achieve desired calcium fortification level
- High bioavailability - equal to milk calcium
- Economical in use
- No calories, carbohydrates or fats
- Non-dairy, lactose-free

Scanning Electron Micrograph:



magnification: 10,000X

Applications:

CalEssence® 70 PCC is one of the best choices where the smoothest texture is desired. In most solid products and chewable tablets, the larger sized 300, 450 or 1500 grades are small enough to be under the taste's size-detection limit. These larger grades are usually preferred in solids because they occupy the least volume, and often yield better taste. But in a few products, especially liquids, ice creams and some soft textured forms, the presence of these larger particles may be detectable. In those instances, a smaller grade like CalEssence® 70 is needed.

Some of the uses for CalEssence® 70 PCC are:

- Frozen dairy products
- Liquid meals and infant formulas
- Soy or milk beverages
- Soft chew antacids or supplements
- Liquid antacids and supplements
- Solid confectionery dosage forms
- Antacid and calcium supplement tablets, but only when a large tablet is wanted
- Effervescent antacids and nutritionals
- Calcium salt manufacturing

The use of CalEssence® 80 PCC may be preferred instead of CalEssence® 70 PCC in some high solids liquid systems where there are flow problems. A portion of a larger sized PCC particle is added to CalEssence® 80 PCC to improve its flow properties.

Typical Physical Properties

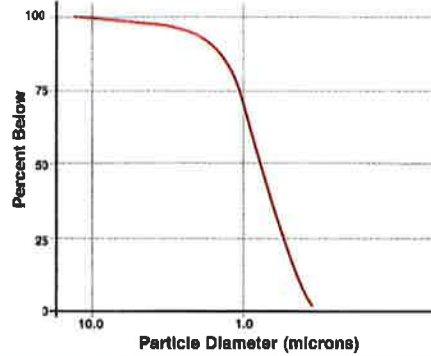
Crystal habit	Calcite
Particle Shape	Prismatic
Particle Size, median, microns	0.7
mode, microns	0.7
Surface Area, meters ² /gram	6.9
Oil Absorption, grams oil/100 grams	34
Tapped Density, grams/cc	0.61
pounds/ft ³	38.1
Bulk Density, grams/cc	0.34
pounds/ft ³	21.2
Specific Gravity	2.71
pH	10.0
Moisture, %	0.2
Dry Brightness Hunter Y, Rd value	98
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.

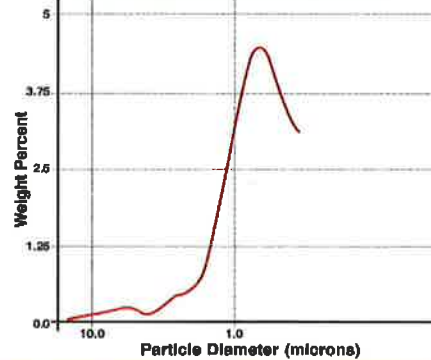
Cumulative Particle Size Distribution

Total % by weight below each micron size



Particle Size Distribution

% by weight at each micron size



Dispersion and Slurry Viscosity:

CalEssence® 70 PCC is one of the more difficult grades to disperse. Use high shear, with high solids, to achieve the small particle size.

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

30% solids650 cps
40% solids2,500 cps
50% solids8,400 cps

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

Product Code: 100-3370-3

Packaging:

CalEssence® 70 PCC is packaged in 50 pound, three-ply kraft bags. The standard shipping unit is a 54" x 42" 2-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 CalEssence® 70 PCC is 053004-3370-3 for product supplied in 50 pound bags.

Specialty Minerals Inc.

35 Highland Avenue
Bethlehem, PA 18017

For order placement:

Customer Service – toll free: 877-684-7627
Direct dial: 610-997-8306
Fax: 610-861-5179

Visit Our Website:

www.mineralstech.com

For Information and Samples:

Inside Sales – toll free: 877-229-9653
Direct dial: 610-882-8542
Fax: 610-882-9846
E-mail: spcc.sales@mineralstech.com

All products are sold on the understanding that the user is solely responsible for determining their suitability for the intended use. All information given and recommendations made herein are based upon our research and are believed to be accurate, but no guarantee, either expressed or implied, is made with respect thereto or with respect to the infringement of any patent. SMI MAKES NO WARRANTY OF MERCHANTABILITY OR SUITABILITY FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH ANY SALE OF THE PRODUCTS DESCRIBED HEREIN. Inconsistent terms and conditions contained in Buyer's purchase order shall not be binding on SMI unless reflected in writing signed by SMI representative. This information is not to be copied, used in evidence, released for publication or public distribution without written permission from Specialty Minerals Inc..