

## ViCALity™ Light

### USP / FCC Precipitated Calcium Carbonate

#### ViCALity™ PCC Products:

ViCALity™ Light 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™ Light PCC:

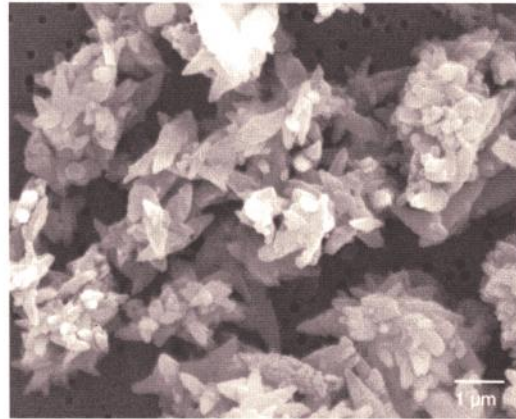
ViCALity™ Light PCC is one of three open structured scalenohedral calcites which were developed to yield a range of low powder densities. ViCALity™ Light PCC is the middle of the three products, a 1.9 micron particle, with high surface area and high oil absorption.

There is no exact ultra-low lead equivalent to ViCALity™ Light PCC; CalEssence® 160 PCC provides the closest match.

#### Characteristics:

- Low density
- High oil absorption
- High surface area
- Builds viscosity in liquids and pastes
- 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: 10,000X

#### Applications:

Because of the open structure and high surface area of the three scalenohedral ViCALity™ PCC products, they are excellent where there are needs for absorbing liquids and oils, producing thick masses or high viscosity liquids, and for low density powders. The high surface area helps maximize reaction rates and uniformity when used as a raw material in synthesis.

Some uses for ViCALity™ Light PCC are:

- Viscous personal care cream and lotion products
- Powdered beverage mixes
  - Soy, milk, chocolate, sport
- Clear beverages, when pre-reacted with a food acid
- Flavor absorbent or carrier

### Typical Physical Properties

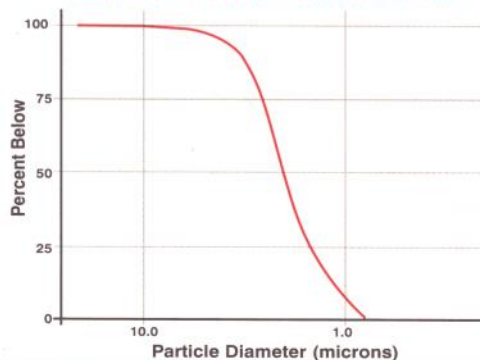
Crystal habit	Calcite
Particle Shape	Scalenohedral
Particle Size, median, microns	1.9
mode, microns	2.0
Surface Area, meters <sup>2</sup> /gram	.78
Oil Absorption, grams oil/100 grams	76
Tapped Density, grams/cc	0.46
pounds/ft <sup>3</sup>	28.7
Bulk Density, grams/cc	0.25
pounds/ft <sup>3</sup>	15.6
Specific Gravity	2.71
pH	.98
Moisture, %	0.2
Dry Brightness Hunter Y, Rd value	.97
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.*

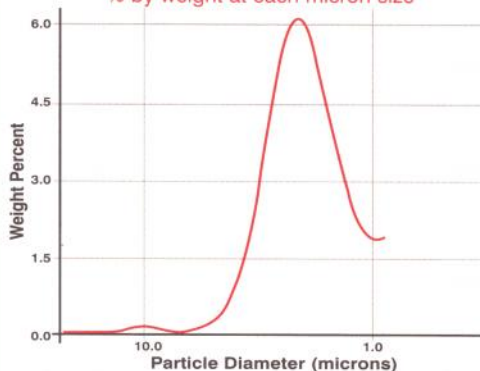
### Cumulative Particle Size Distribution

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	.375 cps
40% solids	.2,700 cps
50% solids	.paste

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

**Product Code:** 100-0490-3

### Packaging:

ViCALity™ Light 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 ViCALity™ Light PCC is 053004-0490-3 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](http://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](mailto:spcc.sales@mineralstech.com)

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## Specialty Minerals Calcium Carbonates

For Foods, Nutritionals, Drugs & Personal Care

<b>Specialty Minerals Calcium Carbonates For Foods, Nutritionals, Drugs &amp; Personal Care</b>			
<b>Product</b>	<b>Median Particle Size (Microns)</b>	<b>Particle Shape</b>	<b>Tapped Density (grams/cc)</b>
<b>ViCALity® Precipitated Calcium Carbonates</b>			
ViCALity ALBAFIL® PCC	0.7	Prismatic	0.60
ViCALity ALBAGLOS® PCC	0.8	Prismatic / Cubic Blend	0.57
ViCALity® Extra Light PCC	1.8	Scaleno-hedral	0.43
ViCALity® Light PCC	1.9	Scaleno-hedral	0.46
ViCALity® Medium PCC	2.6	Scaleno-hedral	0.55
ViCALity® Heavy PCC	3.0	Cubic	0.85
ViCALity® Extra Heavy PCC	4.5	Cubic	1.00
<b>CalEssence® Precipitated Calcium Carbonate</b>			
CalEssence® 70 PCC	0.7	Prismatic	0.61
CalEssence® 80 PCC	0.8	Prismatic / Cubic Blend	0.58
CalEssence® 160 PCC	1.6	Scaleno-hedral	0.42
CalEssence® 300 PCC	3.0	Cubic	0.87
CalEssence® 450 PCC	4.5	Cubic	1.05
CalEssence® 1500 PCC	12.0	Semi-regular Prismatic	1.50
<b>ViCALity® USP/FCC Ground Calcium Carbonates</b>			
ViCALity® GF4 GCC	4.0	Irregular Rhombohedral	1.40
<b>Food Grade VICRON® Limestone</b>			
VICRON® 15-15 FG Limestone	3.5	Irregular Rhombohedral	0.99
VICRON® 25-11 FG Limestone	5.5	Irregular Rhombohedral	1.19
VICRON® 41-8 FG Limestone	8.0	Irregular Rhombohedral	1.38
VICRON® 45-3 FG Limestone	10.0	Irregular Rhombohedral	1.40

## Our Product Families:

Specialty Minerals Inc. (SMI) has four different calcium carbonate families for food, nutritional supplement, pharmaceutical and personal care applications. This variety gives the product developer great formulating flexibility. Particle sizes range from 0.7 microns up to 12 microns.

With the Precipitated Calcium Carbonates (PCCs) the formulator also has the ability to choose from several particle shapes, further widening the formulating opportunities. One of these grades can give your product the high level of calcium you want, and the excellent physical and sensory properties consumers demand.

## About Specialty Minerals' Calcium Carbonates

The CalEssence® and ViCALity® Precipitated Calcium Carbonates are prepared from special limestones in a simple process using heat and water. This process allows the growing of many different size and shape crystals, as well as allowing the purification of the calcium carbonate.

The CalEssence® PCCs are ultra-low lead calcium carbonates, with less than 125 parts per billion lead. The ViCALity® PCCs are low lead products, with less than 500 parts per billion lead. This makes both suitable for products where California Proposition 65 is of concern.

The ViCALity® GF USP ground calcium carbonate is a high purity, low lead ground calcium carbonate suitable for food and nutritional applications.

The Food Grade VICRON® calcium carbonates are ground limestones which are manufactured using SMI's high quality limestone deposit in Adams, MA.

## Regulatory Status:

The CalEssence® PCCs, the ViCALity® PCCs and ViCALity® GF USP GCC meet the requirements for Calcium Carbonate of the United States Pharmacopeia 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.

All of Specialty Minerals' food and pharmaceutical grade calcium carbonate products are manufactured under stringent quality assurance procedures and good manufacturing practices.

## Additional Information:

Other information on Specialty Minerals' calcium carbonates for healthcare and foods is available from Inside Sales.

The literature on SMI calcium carbonate products includes:

- Data sheets for each of the families of products: ViCALity® PCC, CalEssence® PCC and Food Grade VICRON® limestones.
- Individual data sheets for each of the ViCALity®, CalEssence® PCC and ViCALity® GF GCC products.
- Information on California Proposition 65 and how it relates to calcium-containing products, and on lead levels in SMI's PCC products.
- Information sheet with Scanning Electron Micrographs of each of the Precipitated Calcium Carbonate types, relating the crystal's physical characteristics to its performance and best applications.

Please contact our Sales Department at the numbers listed below for this information or for samples of any of these products.

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Bethlehem, PA 18017

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Sales: 1-610-997-8394  
Fax: 610-861-5179

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