Polymer Add (Thailand) Co.,Ltd.

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APPLICATION PROFILE

MICRONISED PRECIPITATED CALCIUM SILICATE

PRODUCT FORM AND PURPOSE

MICRONISED PRECIPITATED CALCIUM SILICATE is an ultrafine grade of synthetic precipitated calcium silicate designed as a high-absorption mineral carrier for liquid additives used in rubber and polymer compounding. Selected porous feedstock is micronised to a target maximum particle size of D100 below 10 µm while retaining the internal pore structure required for liquid absorption.

The product is not ground natural calcium silicate or wollastonite. Its commercial value comes from the combination of controlled fine particle size, high porosity, low bulk density and verified linseed-oil absorption of at least 400 ml/100 g after micronisation.

SPECIFIC COMMERCIAL APPLICATION

The principal application is the conversion of compatible liquid polymer additives and processing aids into dry, free-flowing carrier concentrates. The liquid is progressively absorbed into the porous calcium silicate under controlled mixing. The resulting powder can be weighed, premixed, conveyed and dosed more consistently than the liquid alone before incorporation into a rubber or polymer compound.

WHY THE MICRONISED FORM IS USED

Micronisation reduces coarse carrier particles and improves distribution through dry blends and compounds. This is important where coarse mineral particles could create visible inclusions, inconsistent additive distribution or filtration and surface-quality problems. The porous structure provides carrying capacity, while the fine particle-size distribution supports more uniform placement of the absorbed liquid.

TARGET APPLICATION AREAS

APPLICATION	SPECIFIC USE OF MICRONISED PRECIPITATED CALCIUM SILICATE
Rubber compounds	Dry carrier concentrate for compatible process oils, plasticisers and liquid processing additives before mixing.
Polymer additive concentrates	Conversion of selected liquid additives into a manageable powder for premixing, dosing and compounding.
Masterbatch production	Controlled introduction of compatible low-dose liquids where direct liquid feeding is inconvenient or inconsistent.
PVC and flexible compounds	Carrier for compatible liquid formulation ingredients requiring dry handling and uniform pre-distribution.

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APPLICATION	SPECIFIC USE OF MICRONISED PRECIPITATED CALCIUM SILICATE
Speciality industrial compounds	Liquid-to-powder conversion where acceptable flow, low coarse-particle content and consistent dosing are required.

RELEVANCE TO RUBBER AND POLYMER COMPOUNDERS

MICRONISED PRECIPITATED CALCIUM SILICATE is relevant when a formulator needs the performance of a liquid ingredient but prefers the handling characteristics of a dry powder. A carrier concentrate can simplify weighing and premixing, reduce local over-dosing and improve the initial distribution of the liquid before melt processing or rubber mixing.

The calcium silicate is a functional carrier, not a substitute for the polymer or for the liquid additive. Its loading must be included in the total formulation because the carrier remains as a fine mineral phase in the finished compound.

CRITICAL PRODUCT REQUIREMENTS

Requirement	Commercial Relevance
Particle-size distribution	Target D100 below 20 µm to minimise coarse carrier particles.
Liquid absorption	Minimum 400 ml/100 g linseed-oil absorption after micronisation, using an agreed test method.
Porous structure	High pore volume must be retained; particle size alone does not define a high-absorption carrier.
Powder condition	Free-flowing, dry and protected from moisture, contamination and compaction.
Batch verification	Particle size and oil absorption should be checked after micronisation.

FORMULATION AND HANDLING

The liquid should normally be added progressively under controlled mixing so that absorption remains uniform and local overwetting is avoided. Practical carrying capacity depends on the chemistry, viscosity and density of the liquid, the required final powder flow and the mixing process. MICRONISED PRECIPITATED CALCIUM SILICATE should be handled in closed or suitably controlled systems and stored sealed in a cool, dry location.

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DEVELOPMENT BASIS

The customer should identify the liquid ingredient, intended loading, carrier dosage, target compound and mixing sequence. Qualification should confirm liquid uptake, powder flow, caking tendency, storage stability, dispersion and the effect of the retained mineral carrier on final product properties. The supplier sample and reference material should be tested by the same laboratory because oil-absorption results are method-dependent.

Commercial suitability must be confirmed through formulation and processing trials. D50, BET surface area, bulk density, moisture and other typical batch data can be reported after the final production process is established.

DISCLAIMER

: This Application Profile is provided for general technical and commercial guidance only. Product suitability, dosage, liquid-loading capacity, processing conditions and final performance depend on the customer's formulation, equipment and intended application. Customers must conduct their own trials and confirm compatibility, regulatory compliance, safety and finished product performance before commercial use. The information provided does not constitute a product-performance guarantee or specification unless separately agreed in writing by Polymer Add (Thailand) Co., Ltd.

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