NANO CALCIUM CARBONATE

PRODUCTS & APPLICATIONS:

Our product (NPCC) widely applied in the area of plastic, rubber, adhesives, sealants, paper, printing ink, coatings and paints, cosmetic and medicine etc.

PAINTS

NCARB-33: PAINTS: FUNCTIONAL NANO CALCIUM CARBONATE FOR AUTO PAINT is a surface treated, superultrafine and very narrow particle size distribution precipitated calcium carbonate specially formulated as functional additive in adhesives and polymers.

APPLICATIONS:

Auto Paint, PVC Plastisol, underbody sealing materials for automobiles, constructional sealing compounds.

The surface-modified nano-size calcium carbonate particles are capable of controlling the rheological and the mechanical properties of the cured Materials. PVC Plastisols with nano calcium carbonate have extended glass Transition temperatures (Tg) excellent thermal stability and low viscosity. Good tensile strength, elongation-at-break and yield stress.

Features: NANO PARTICLE SIZE, NANO PARTICLE SIZE DISTRIBUTION, REGULAR PARTICLE SHAPE, SURFACE SPECIAL TREATMENT.

Benefits: REDUCED VOLUME FORMULATION COST, IMPROVED PRODUCT QUALITY.

Due to special physical and chemical properties, NPCC has been widely applied in Industries like

SEALANT and ADHESIVES:

NPCCA -206: FUNCTIONAL NANO CALCIUM CARBONATE FOR SEALANT AND ADHESIVE

NPCCA-206 is a surface treated, super ultra fine and very narrow particle size distribution precipitated calcium carbonate specially formulated as functional additive in sealant and adhesives.
Applications:


NPCCA-206 is a functional additive providing and viscosity, thixtropy, shear thinning and yield value for economical control of slump, sag and extrusion or spray application rates also reinforce the polymers increasing tensile strength and modulus.

Physical properties are improved due to the semi reinforcing performance of NPCCA-206.

Benefits: Reduced volume formulation cost
: Improved product quality

Features: Nano particle size
  Nano particle size distribution
  Regular particle shape
  Special surface treatment

TYPICAL PROPERTIES
Average Particle Size : 0.04-0.08 microns
Specific Gravity : 2.7 g/cm3
Bulk Density : 0.48 g/cm3
Specific Surface Area (BET): ≥20 m2/g
Whiteness : ≥92%
Oil absorption (DOP) : 25-40 ml/100g
Particle shape : Cubic

CHEMICAL COMPOSITION
CaCO3 : ≥98%
Mg : ≤0.1%
Fe : ≤0.1%
Moisture (% weight lost @ 110deg C) : ≤0.5%
Surface coating agent: Coupling agent

CLASSIFICATION
Molecular Formula: CaCO3
CAS No.: 471-34-1
H.S.Code: 2836500000

Packing: it is packed in 25kg Kraft paper bag or 500-1000 jumbo bag
Storage: store in a cool, dry conditions and keep away from direct heat source and
Sunlight. When not using the material always seal the packing.
Shelf life: 12 months when stored in seal packing under above mentioned conditions.
Supply: 24 MT per 40’ container.

**PLASTICS: PLASTIC COMPOUNDING & PLASTIC MASTERBATCH:**

**NPCCA-601: NANO PRECIPITATED CALCIUM CARBONATE**

It is a super ultra fine and very narrow particle size distribution precipitated calcium carbonate specially formulated as functional filler and extender in plastic compound.

Applications:

The super ultra fine particle size and narrow particle size distribution permit exceptionally high filler loading without compromising impact strength or ductility.

1) It has the following beneficial applications; In PLASTIC COMPOUNDING as reinforcing functional filler in extruded weatherable Profiles, Conduits and Pipes. It typically can substitute up to 20% of existing reinforcing Additives such as CPE, MBS or SBS.

2) In plastic master batch as pigment / TiO2 / color extender in PVC, PP, PE, etc. It typically can substitute up to 25% of existing pigment with opacity and whiteness level maintained. Best results can be achieved with good mixing to produce good dispersion and distribution of fine particles in the polymer system.

In PLASTIC MASTERBATCH (PE, PP MASTERBATCH) Best results can be achieved with good mixing to produce good dispersion and distribution of fine particles in the polymer system.


Benefits: Reduced volume formulation cost, Minimized impact modified loading, improved product quality (Impact strength, surface gloss etc).

China’s PVC building materials market is also growing substantially as a result of China’s continuing urbanization drive and growing real estate market. When modified with a surface coating agent, NPCC becomes oleophilic and hydrophobic. The surface coating agents for plastics include fatty acid and a coupling agent, and they are compatible with organic substances. As a result, the modified NPCC can be used to fill in plastics such as PVC to increase their glossiness. Applying modified NPCC to plastics has many positive effects, such as increased strength, heat resistance and dimension stabilization. More importantly, such application reduces the overall cost substantially.
**TYPICAL PROPERTIES**

- Average Particle Size: 0.04-0.08 microns
- Specific Gravity: 2.7 g/cm³
- Bulk Density: 0.48 g/cm³
- Specific Surface Area (BET): ≥20 m²/g
- Whiteness: ≥92%
- Oil absorption (DOP): 25-40 ml/100g
- Particle shape: Cubic

**CHEMICAL COMPOSITION**

- CaCO₃: ≥95%
- Mg: ≤0.1%
- Fe: ≤0.1%
- Moisture (% weight lost @ 110deg C): ≤0.5%
- Surface coating agent: Coupling agent

**CLASSIFICATION**

- Molecular Formula: CaCO₃
- CAS No.: 471-34-1
- H.S.Code: 2836500000

**PRINTING INKS**

**FUNCTIONAL NANO CALCIUM CARBONATE FOR INK** - is a surface treated super ultrafine and very narrow particle size distribution Precipitated calcium carbonate specially formulated as functional additive in ink.

**INK INDUSTRY:** includes SOLVENT INK, OFFSET INK OR LITHOGRAPHIC INKS. In highly filled litho inks, they can serve as the main rheological additive and cost Reducing filler. In lightly filled offset inks, they can extend other more expensive Thickeners, as well as replace oils and varnishes. It thickens, PVC PLASTISOL SILK SCREEN INKS. GRAVURE INKS need very low abrasion fillers. Small particle Sized NPCC is excellent here.

**NCARB-11** is a surface treated super ultrafine and very narrow particle size distribution Precipitated calcium carbonate specially formulated as functional additive in INK.

**INK INDUSTRY** includes SOLVENT INK and OFFSET ink.

**NCARB-11** is used in Lithographic or Offset Inks.

In highly filled litho inks, they can serve as the main rheological additive and cost Reducing filler. In lightly filled offset inks, they can extend other more expensive
thickeners, as well as replace oils and varnishes. NCARB-11 thickens PVC Plastisol silk screen inks. Grauvre needs very low abrasion fillers. Small particle sized NPCC is excellent here.

**Features:** Nano particle size, Nano particle size distribution, Regular particle shape, Special surface treatment, Reduced volume formulation cost, Improved product quality

**TYPICAL PROPERTIES**
- Average Particle Size: 0.04-0.08 microns
- Specific Gravity: 2.7 g/cm³
- Bulk Density: 0.40 g/cm³
- Specific Surface Area (BET): ≥20 m²/g
- Whiteness: ≥75%
- Oil absorption (DOP): 35-45 ml/100g
- Particle shape: Cubic

**CHEMICAL COMPOSITION**
- CaCO₃: ≥93%
- Mg: ≤0.1%
- Fe: ≤0.1%
- Moisture (% weight lost @ 110 deg C): ≤0.3%
- Surface coating agent: Rosin acid

**CLASSIFICATION**
- Molecular Formula: CaCO₃
- CAS No.: 471-34-1

**Packing:** it is packed in 25kg kraft paper bag or 500-1000 jumbo bag

**Storage:** store in a cool, dry conditions and keep away from direct heat source and Sunlight. When not using the material always seal the packing.

**Shelf life:** 12 months when stored in seal packing under above mentioned conditions

**RUBBER:-**

**FUNCTIONAL NANO PRECIPITATED CALCIUM CARBONATE for RUBBER TIRE:**
NPCCA-602 is a surface treated, super ultra fine and very narrow particle size distribution precipitated calcium carbonate specially formulated as functional filler in Rubber Products.

**Applications:**
- In the sidewall and cord ply compounds of bias tire (+5-8 phr NPCC);
- In the tread compound and inner liner of radial tire (+4 phr NPCC);
In the butyl inner tube, Meanwhile (+15-20 phr NPCC);
Cycle Tire.
With adjusting the quantity of carbon black and softener properly.
PVC cables and wires

**Benefits**
- Nano particle size
- Nano particle size distribution
- Regular particle shape
- Special surface treatment
- Reduced volume formulation cost
- Improved the physical and processing properties of rubber compounds.
- Improved the air tightness and ageing resistance of butyl inner tube and the inner liner of radial tire.
- Enhanced the flex resistance of Rubber compound.

Nano calcium carbonate has reinforcement function. However comparison with carbon black, nano calcium carbonate has no obvious advantages in reinforcement function.

Our nano calcium carbonate is mainly used in inner tube of radial tire and butyl tube.

**The Benefits:**
1) Improve the air-tightness (very important for butyl tube)
2) Improve stiffness
3) Reduce permanent set, butyl not easy to deform or inflate
4) Reduce cost of rubber compound.

The application of an active nano-calcium carbonate in tire was experimentally investigated. The results showed that the processibility of rubber compound and the physical properties of vulcanizate improved by adding 5-8 phr active nano-calcium carbonate in the sidewall and carcass ply compounds of bias ply tire and adjusting the addition level of carbon black and softener properly; the comparable tear strength, abrasion resistance and other physical properties of vulcanizate and the better extrudability were obtained by adding 4 phr active nano-calcium carbonate in the tread compound of radial tire; and the production cost reduced.

NPCC is highly compatible with rubber if modified by a surface coating agent. It fills the spatial structure in rubber and enhances the property of rubber products. It can be used solely as a filler, which has a reinforcing effect, and it also can be applied with other fillers such as precipitated calcium carbonate, argil and titanium oxide for reinforcement, filling, improving the process and property of products and reducing rubber content. NPCC can be used to partially substitute some expensive materials
such as titanium oxide and silicon dioxide. Currently, we are the only Chinese manufacturer of NPCC that is able to supply the tire market.

**TYPICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Particle Size</td>
<td>0.04-0.08 microns</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.7 g/cm³</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>0.48 g/cm³</td>
</tr>
<tr>
<td>Specific Surface Area (BET)</td>
<td>≥ 20 m²/g</td>
</tr>
<tr>
<td>Whiteness</td>
<td>≥ 92%</td>
</tr>
<tr>
<td>Oil absorption (DOP)</td>
<td>25-40 ml/100g</td>
</tr>
<tr>
<td>Particle shape</td>
<td>Cubic</td>
</tr>
</tbody>
</table>

**CHEMICAL COMPOSITION**

- **CaCO₃**: ≥ 98%
- **Mg**: ≤ 0.1%
- **Fe**: ≤ 0.1%
- **Moisture (% weight lost @ 110deg C)**: ≤ 0.5%
- **Surface coating agent**: Coupling agent

**CLASSIFICATION**

- **Molecular Formula**: CaCO₃
- **CAS No.**: 471-34-1

**Packing**: it is packed in 25kg kraft paper bag or 500-1000 jumbo bag

**Storage**: store in a cool, dry conditions and keep away from direct heat source and sunlight. When not using the material always seal the packing.

**Shelf life**: 12 months when stored in seal packing under above mentioned conditions.

**Supply**: 24 mt per 40’ container.

**KAOLIN:**

We also offer:

**CALCINED KAOLIN** in flake form, high whiteness, good dispersability, excellent hiding Power, super suspension properties.

We use high quality raw materials from Shanxi to produce calcined kaolin. Our calcined kaolin is in flake form, high whiteness, good dispersability, excellent hiding power, super suspension properties.

**APPLICATIONS:**

1) Coatings
2) Paints
3) Paper coatings
4) Ceramics
5) Rubber
6) Plastics

Advantages:

1) Replace Rutile TiO₂ for cost down purpose
2) Improve suspension property of coating, good stability of coatings
3) Improve opacity of coatings and fastness of coating film, good scrub Resistance and chalk resistance.
4) Good electricity insulation, resistance acid and alkali.

**PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk density (g/cm³)</td>
<td>0.6-0.8</td>
</tr>
<tr>
<td>Whiteness (%)</td>
<td>92 min</td>
</tr>
<tr>
<td>325mesh residue (%)</td>
<td>0.05 max</td>
</tr>
<tr>
<td>pH</td>
<td>6-7</td>
</tr>
<tr>
<td>Moisture (%)</td>
<td>0.3 max</td>
</tr>
<tr>
<td>Oil absorption (g/100g)</td>
<td>55±5</td>
</tr>
<tr>
<td>10μm (%)</td>
<td>90 min</td>
</tr>
</tbody>
</table>

**CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂ (%)</td>
<td>52±1</td>
</tr>
<tr>
<td>Al₂O₃ (%)</td>
<td>45±1</td>
</tr>
<tr>
<td>Fe₂O₃ (%)</td>
<td>0.3 max</td>
</tr>
<tr>
<td>TiO₂ (%)</td>
<td>0.5 max</td>
</tr>
<tr>
<td>CaO (%)</td>
<td>0.2 max</td>
</tr>
<tr>
<td>Na₂O (%)</td>
<td>0.1 max</td>
</tr>
</tbody>
</table>
ADVANTAGES

1) Replace Rutile TiO2, for cost down purpose;
2) Improve suspension property of coating, good stability of coatings;
3) Improve opacity of coatings and fastness of coating film, good scrub resistance and chalk-resistance.
4) Good electricity insulation, resistance acid and alkali.

PACKING

<table>
<thead>
<tr>
<th>25Kg bag</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Or according customer’s request.</td>
<td>CAS NO. 1332-58-7</td>
</tr>
<tr>
<td></td>
<td>H.S.CODE 2507.0010</td>
</tr>
</tbody>
</table>

STORAGE

Store in cool, dry condition and keep away from direct heat and sunlight. When not using the material, ensure that the packings are sealed.

SHELF LIFE

At least 12 months when stored in sealed packing under above mentioned condition.

SUPPLY

20’FCL = 20MT palletised

Mr. Andy Lei (Sales Manager)
Mobile: +86-13792109566
Tel: +86-538-8560629
Fax: +86-538-6958616
Email: Globalbas@gmail.com
NANO CALCIUM CARBONATE

We represent **M/s Shandong Haize Nanomaterials co Ltd** who is a leading manufacturer of Nano Precipitated Calcium Carbonate (NPCC) IN CHINA.

ShengdaTech is now having 5 Branch companies’ details as below, please confirm the below,

- Shanxi Haize Nanomaterials Co., Ltd
- Shandong Haize Nanomaterials Co., Ltd
- Zibo Jiaze Nanomaterials Co., Ltd
- Anhui Yuanzhong Nanomaterials Co., Ltd
- Headquarter, R&D Centre and Overseas Dept. in Shanghai city

As to their Production Capacity, they now have 4 NPCC manufacturing facilities located in Shandong Province, and Shanxi Province, with our current total annual NPCC manufacturing capacity of 250,000 metric tons.

Certificate: We now have ISO 9001-2000, CNAS Quality Certificate, and REACH CERTIFICATE AND ROHS CERTIFICATE, from Finland to guarantee the safety of our products.

The Shanghai R&D Center of ShengdaTech Inc. was set up in later 2006. The center has high quality investigators and equipped with advanced instruments.

- The center concentrates to the manufacture and application of nano precipitated calcium carbonate as well as other nano materials.
- All research is market-oriented and aimed to promote the technique level and producing efficiency
- The center has a quality research team. The principal investigators (PI) include 3 professors, 20 doctors, 20 masters, 10 engineers and other technicians.

NPCC refers to ultra-fine precipitated calcium carbonate with an average particle diameter of less than 100 nanometers that is used as an additive in various products. Because of its special physical and chemical properties, NPCC has been widely applied in the paint, paper, plastic and rubber industries.

- NPCC means Nano precipitated calcium carbonate.
- Advanced technology allows the synthesis of calcium carbonates in nano-particles with large surface area. Nano particles are those which are less than 100 nanometers or 0.1 microns in size
- Each particle is surface coated with organic coupling agents to improve dispersion and compatibility with polymer matrix.
NPCC BASIC FUNCTION:

- Improve product properties
- Reduce the cost

NPCC expects to have a potential market as the substituted products for other expensive additives such as carbon black, white carbon black, titanium oxide.

NPCC is functional filler used in a variety of products to enhance their performance. NPCC applications: Tire, Adhesive sealant, Plastic, Paper, Coating, and Printing Ink.

NPCC may partially replace the expensive filler like carbon black, silica, titanium dioxide, etc.

NPCC is easy dispersion and high filling rate (up to 70% filling).

NPCC can be used in conjunction with other fillers, and recycled to use, there is no harm to environment.

APPLICATIONS OF NANO CALCIUM CARBONATE:

Shengke 107 Ink is used in the manufacture of Printing inks.

Improves viscosity, printing performance, high stability and easily compatible with other materials, makes the printed matter smooth, dot integrity and strong hiding power. As functional filler, can improve gloss, brightness, liquidity, good permeability and drying in ink. It is mainly used to regulate concentration and consistency in ink.

Benefits:
Improving printing performance and adjusting the properties of ink.
Reducing the cost of ink manufacturer

Application Field:
1. Offset printing ink, gravure printing ink and silk-screen printing ink;
2. CAB, NC, chlorinated rubber and vinyl resins.

SHENGKE 207M: NANO PRECIPITATED CALCIUM CARBONATE

Is a ultra fine surface coated nano crystalline powder, provides excellent adhesion and contribute towards post cure physical properties in silicon sealants especially can give products excellent sag resistance, tack and peel strengths, low temperature gunnability.

Applications: used as functional filler in silicone sealants which is used in construction Sanitary DIY and Industrial sectors where high quality seals are required. Preferred in controlling of rheological and tensile properties in one component opaque Silicone sealants with neutral or basic cure and also in 2 component silicone sealants.
**SHENGKE 206S: NANO PRECIPITATED CALCIUM CARBONATE**

Is a white ultra fine surface coated nano crystalline powder characterized by controlled Particle shape. **SHENGKE 206S** is affordable for various adhesives and sealants customers. It is good at controlling of rheological and tensile properties in adhesives and sealants. It has low temperature gunnability.

**Applications:** Widely used as a functional filler in various sealants such as silicone Sealants, polysulphide sealants, polyurethane sealants, acrylic sealants which is used in construction, Sanitary DIY and Industrial sectors.

**SHENGKE 206T : NANO PRECIPITATED CALCIUM CARBONATE**

Is a nano precipitated calcium carbonate with a surface treatment that enables high Performance products to be formulated. **SHENGKE 206T** can easily disperse into the formulation and provides excellent Rheological and physical properties when used as the main rheological additive and functional filler in polysulphide sealants. It offers highly effective pre-cure rheology Modification and control for good viscosity stability, slump and extrusion rate, as well as Polymer reinforcement.

**Application:** used as a functional filler in polysulphide sealants.

**SHENGKE 259 : NANO PRECIPITATED CALCIUM CARBONATE**

Is an ultra fine precipitated calcium carbonate characterized by controlled Particle shape. It has 40-80nm of particles as primary particle which surface coated with Fatty acid. **SHENGKE 259** can provide high performance in adhesives and sealants. It has low viscosity and high thixotropy, especially has excellent rheological properties thanks to the high degree of fineness, the uniform grain size distribution and good dispersion.

**SHENGKE 259** can also reduce cost with high loading lever.

**Applications:** One component or two component polyurethane adhesives and sealants.

**SHENGKE -501A: NANO PRECIPITATED CALCIUM CARBONATE**

**SHENGKE -501A** is a surface coated NPCC with nano particles and nano particle size distribution. It is widely used as functional filler for Plastics. **SHENGKE -501A** has excellent compatibility with polymer matrix resins to provide
High gloss and excellent surface finish. It can improve stiffness, heat resistance, impact strength and tensile strength of products. **SHENGKE -501A** can also promote wear resistance and dimensional stability of Plastics.

**Applications**: Rigid & flexible PVC and other plastics including PE, PP, Rigid foam, PVC window profiles.

**SHENGKE -530A NANO PRECIPITATED CALCIUM CARBONATE**

**SHENGKE-530A** is an ultra fine precipitated calcium carbonate which has narrow particle size distribution. It is surface coated with Fatty acid and has good compatibility with polymer matrix resins to provide excellent dispersion when compounded with polymers.

**SHENGKE -530A** can improve physical properties of plastic compounds such as stiffness, heat resistance and impact/ stiffness balance.

**SHENGKE -530A** is not only a reinforcing functional additive but also used as a cost-reducing filler to extend or replace the more expensive resins and makes the finished products more affordable for the consumer.

**Applications**: Plastic compounds such as PE, PP and PVC, processed by extrusion, Injection molding, blow molding etc. Especially in PE and PP the dosage can arrive Over 20 wt %.

**SHENGKE -620: NANO PRECIPITATED CALCIUM CARBONATE**

**SHENGKE -620** is an ultra fine coated white powder with narrow particle size distribution. It has good resin compatibility, excellent dispersion can provide Functionalities, improve the function of the rubbers such as increase elongation, Tensile strength, H extrusion, reduces permanent distortion, improve aging resistance, tear resistance and abrasion resistance.

**SHENGKE -620** is also used as a cost-reducing filler to replace the more expensive resins and make the finished products more affordable for the consumer. **Application**: used as a functional filler for rubber tire.