

# 专注于硫酸钡在塑料、橡胶等行业的应用

Focus on the Application of Barium Sulfate in Plastics, Rubber and Other Industries

## 功能母粒系列产品手册

Functional Masterbatch Series Product Manual



# Company Profile



Yunfu Hongzhi New Material Co., Ltd. focuses on the research, development, production and application of new chemical materials such as modified ultrafine precipitated barium sulfate, plastic functional masterbatch and biodegradable plastics. Our company is a leading high-end professional manufacturer in precipitated barium sulfate and a national high-tech enterprise. Our company adopts the original sulfuric acid process to produce precipitated barium sulfate, which has the characteristics of controllable particle size, controllable morphology, high whiteness, partial blue phase, no sulfide, no black spot impurities and good dispersion. At present, our company has the ability to produce various precipitated barium sulfate products with average particle size of 30 nm to 10  $\mu\text{m}$ , as well as various surface-treated precipitated barium sulfate series products and various plastic functional masterbatches, and the technology is at the leading level in the industry.

Barium sulfate is an environmentally friendly material because of its strong chemical inertness, good stability, acid and alkali resistance, moderate hardness, high specific gravity, high whiteness, and ability to absorb harmful rays. Therefore, it is widely used in various fields such as modified plastics, biodegradable plastics, rubber, elastomer, silica gel, paint, ink, color paste, chemical fiber, paper making, cosmetics, etc.

Our products are mainly used in **Modified Plastics (such as high gloss PP, ABS, PE, PS, PA, PPO, PPS, PBT, PET, flame retardant plastics, automobile plastics, household appliance shells, building materials plastics, etc.); Thin Films (such as shopping bags, garbage bags, rolling bags, winding films, casting films, protective films, shrink films, mulching films, optical films, etc.); Color Masterbatch (such as color masterbatch, black masterbatch and white masterbatch); Biodegradable Plastics (such as disposable tableware, shopping bags, agricultural films, 3d printing materials) and other industries are used as functional fillers.**

Yunfu Hongzhi New Materials Co., Ltd., established in 2017, is located in Yunfu Circular Economy Industrial Park, a High-tech Industrial Park in Yunfu City, Guangdong Province. It covers an area of about 50 mu and has a beautiful surrounding environment. The transportation facilities such as expressways, high-speed railway station and inland ports provide great convenience for production activities and travel. The company's Phase I and Phase II projects have been completed and put into production, with an annual production of 80,000 tons of various inorganic powder materials and 60,000 tons of functional masterbatches. Our company has its own team of experts and laboratories, and has many technical patents. Our company adopts top-notch technical equipment and a complete set of inspection and evaluation instruments, which can provide customers with personalized products and services.

As an environmentally friendly functional material, modified ultrafine precipitated barium sulfate will be widely used in more fields in the future. We will continue to strengthen the construction of talent team, enhance the core competitiveness of enterprises through personnel training and technological innovation, and lead the development direction of new inorganic powder materials and plastic functional masterbatch products.

**2017** Year

Established

**50** Mu

Land Area

**80000** Tons / Year

Inorganic Powder Materials

**60000** Tons / Year

Functional Masterbatches



# Production Process

## Properties of Precipitated Barium Sulfate

Chemical Formula: BaSO<sub>4</sub>, Molecular Weight: 233.39, CAS: NO.7727-43-7, National Standard: GB/T2889-2017, Appearance: Colorless Oblique Crystal or White No Styling Powder, Relative Density 4.50 (15°C), Melting Point 1580 °C. MOHS Hardness: 3.0, Index of Refraction: 1.64, Solubility: 20 °C: 0.00024g/100g water. It can absorb harmful rays. It is almost insoluble in water, ethanol, organic solvents, acids and alkalis. But it can be dissolved in boiling hot sulfuric acid. It is the only non-toxic common barium salt. It can be reduced to barium sulfide and carbon dioxide at 600°C by carbon.

## Mainly Application

Precipitated barium sulfate is an environment-friendly material because of its strong chemical inertness, good stability, acid and alkali resistance, moderate hardness, high whiteness and luster, and can absorb harmful X and γ rays. Therefore, it is widely used as filler for various coatings, PCB inks, color paste inks, modified plastics, high gloss PP, transparent masterbatch, color masterbatch, elastomer, chemical fiber, paper making, cosmetics, etc. It can also be used as a swallowing agent (called barium meal) when looking through the stomach and intestines, and a cathode expansion rod of a storage battery; It can be used as a protective wall material for radiation protection, used in nuclear facilities, atomic energy factories, X-ray laboratories, etc., and can play a good shielding role; With X-ray developing function, it can be used for medical developing fibers and children's toys; It can also be used for drainage pipes, sound boxes, etc., which can effectively isolate noise.

## Traditional Preparation Process

- $BaS + Na_2SO_4 = BaSO_4 \downarrow + Na_2S$  The cost of the process is the lowest, but it has sodium sulfide byproduct, the finished product whiteness and impurities are generally unstable.
- $BaS + H_2SO_4 = BaSO_4 \downarrow + H_2S \uparrow$  The process cost is low, but the process produces toxic hydrogen sulfide byproducts, which requires high equipment and environmental protection.
- $BaCl_2 + Na_2SO_4 = BaSO_4 \downarrow + 2NaCl$  This process is generally a byproduct of some factories and then simply processed, but few factories use this process.
- $Ba(OH)_2 + H_2SO_4 = BaSO_4 \downarrow + H_2O$  The process is simple, the cost of raw materials is high, but it will get high purity product, with the uniform and controllable particle size.

**Yunfu Hongzhi New Material Co., Ltd. adopts advanced environmental protection technology: using sulfuric acid and barium carbonate as raw materials, there is no harmful toxic gas and water-soluble salt by-products in the production process. It is simpler than traditional production process, environmental protection and sustainable development.**

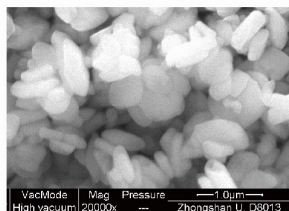
The manufacturing technique of our company:



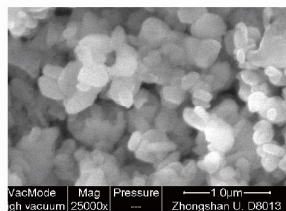
## Technological Process



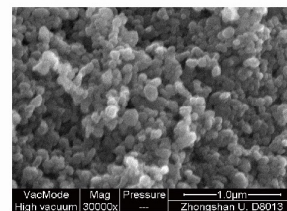
## SEM Pictures



M-700(0.70μm)



CB-300(0.30μm)



FB-100(0.10μm)

# Masterbatch Product Series 1: Special Functional Masterbatch for Modified Plastics

## Product Characteristics

- ① High mechanical properties, good dispersibility and no black spots.
- ② Environmental protection, no dust in the mixture, and good temperature resistance.
- ③ The product is certified as safe, free of sulfur, non-toxic and harmless.
- ④ Compared with traditional powder, the comprehensive cost is lower and the cost performance is higher.
- ⑤ High whiteness, good compatibility and stable quality.
- ⑥ Non-corrosive, low hardness, no damage to screw and die.
- ⑦ Increase the surface brightness of products and have super high glossiness.
- ⑧ Improve production efficiency and increase unit production.

## Performance Index

Item	P-80	P-90	P-100
Particle Size of Powder (nm)	300	700	1000
Powder Content (%)	80-85	80-85	80-85
Melting Point (°C)	150	150	150
Fluorescent Brightener	No	No	No
MI (2.16kg)	1-3	1-3	1-3
Specific Gravity (g/cm <sup>3</sup> )	2.5-2.8	2.5-2.8	2.5-2.8
Suggested Addition Amount (%)	20-50	20-50	20-50

## Application

This series of products are specially used in various high gloss PP, flame retardant plastics, ABS and other modified products. It can not only maintain the mechanical properties and gloss of the product, but also reduce the dust produced in the mixing process. This product can improve the processing of modified plastics with low price and good quality and low cost.



Typical  
Models

P-80

P-90

P-100



## Masterbatch Product Series 2: Transparent Nano Functional Masterbatch

### Product Characteristics

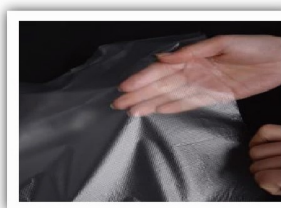
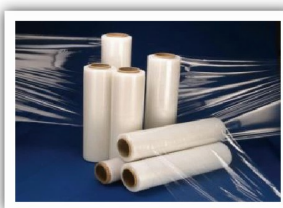
- ① High transparency, good dispersion, no crystal point, 60% no foaming.
- ② Environmental protection, recyclability and accelerated degradation.
- ③ The product has been certified for safety and has no plasticizer.
- ④ Compared with traditional plastics, it has lower price and better mechanical properties.
- ⑤ Reduce corona intensity without precipitation and improve printing quality.
- ⑥ Non-corrosive, low hardness, no damage to screw and die.
- ⑦ Increase the surface brightness of products without affecting the heat sealing effect.
- ⑧ Improve production efficiency and increase unit production.

### Performance Index

Item	T-50	T-60	T-80
Particle Size of Powder (nm)	100	100	300
Powder Content (%)	80-85	80-85	80-85
Melting Point (°C)	125	125	125
Fluorescent Brightener	No	No	No
MI (2.16kg)	1-2	1-3	1-3
Specific Gravity (g/cm <sup>3</sup> )	2.5-2.8	2.5-2.8	2.5-2.8
Suggested Addition Amount (%)	20-50	20-50	20-50

### Application

This product series is mainly used in HDPE, LLDPE, LDPE and other blown film products, which can keep the transparency of the film and improve the tensile properties of the products. This product series can improve the blown film processing, and it is cheap and good, and reduces the cost.



Typical  
Models

T-50

T-60

T-80

## Masterbatch Product Series 3: Biodegradable Functional Masterbatch

### Product Characteristics

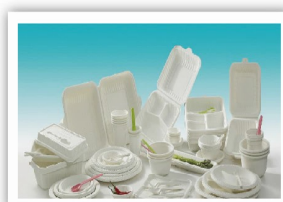
- ① The product has the advantage of being completely degradable in a short time under the composting environment, and the product has reached the environmental protection standard after being certified and tested by an authoritative organization.
- ② The processing temperature of blown film molding is about 120°C-150°C, which can be appropriately adjusted according to the types of products and different models. After processing, the machine must be cleaned with other materials, so as to prevent the degradable materials from degrading in the machine barrel and blocking the machine barrel during reheating.
- ③ Processability: Good fluidity, easy blow molding and excellent processability.
- ④ Product Properties: Good tensile property, smoothness, stiffness, easy heat sealing, good printing quality and good antistatic property.

### Performance Index

Item	B-30	B-80
Powder Content (%)	25-40	60-80
PLA+PBAT Content (%)	60-75	20-40
Melting Point (°C)	120	120
Fluorescent Brightener	No	No
MI (2.16kg)	1-3	1-3
Specific Gravity (g/cm <sup>3</sup> )	1.3-1.6	1.8-2.0
Suggested Addition Amount (%)	The film can be blown directly	20-50

### Application

This product is made of biodegradable resin as the main raw material and compounded with nano inorganic powder. Specially used in plastic packaging film, agricultural film, disposable plastic bag and disposable plastic tableware. Products can be degraded by microorganisms existing in nature, and finally completely degraded into carbon dioxide (CO<sub>2</sub>) or methane (CH<sub>4</sub>), water (H<sub>2</sub>O), mineralized inorganic salts of elements contained in products and new biomass.



Typical  
Models

B-30

B-80



## Masterbatch Product Series 4: Photooxidative Degradation Masterbatch

### Product Characteristics

- ① Safety Performance: All components in the masterbatch are nontoxic and non-irritating.
- ② Degradability: Polyethylene and polypropylene with G-60 added under natural conditions, such as light, oxygen and other composting conditions It can decompose free radicals, which make the molecular weight of polymer decrease sharply, make products brittle rapidly, and gradually decompose into small fragments and tiny powders. Finally, it is decomposed into water, carbon dioxide and other small molecules and organic matter harmless to the environment.
- ③ Processing Performance: G-60 masterbatch has good plasticization and uniform particle size. The transparency of the added material is high, and the adding amount is reasonably controlled according to the product requirements. The processing equipment is ordinary plastic processing equipment, and the processing technology remains unchanged. The addition of G-60 has little effect on the physical and mechanical properties of products.
- ④ Economic Performance: G-60 is low in price, which can effectively reduce the production cost and increase the added value of products. It is recommended to use.
- ⑤ Environmental Protection Performance: Adding degradable plastics made of G-60 can effectively save energy and reduce emissions and reduce the pressure of environmental pollution.

### Performance Index

Item	G-60
Particle Size of Powder (nm)	80
Powder Content (%)	80-85
Melting Point (°C)	125
Photosensitizer (%)	5-8
MI (2.16kg)	1-3

### Application

G-60 series is a new product researched and developed by our company. Using high-efficiency nano photosensitizer, thermosensitive and other materials, through a unique patented formula, the photooxidative degradation masterbatch with excellent performance was prepared. G-60 is specially used in various PE and PP degradable plastics, such as packaging bags, shopping bags, garbage bags, kitchen garbage bags, table linen and disposable environmental protection products.



Typical  
Models

G-60

# Masterbatch Product Series 5: Calcium Carbonate Filled Functional Masterbatch

## Product Characteristics

- ① High filling amount, good dispersibility and no foaming.
- ② Environmental protection, recyclability and accelerated degradation.
- ③ The product is certified as safe, odorless and plasticizer free.
- ④ Compared with traditional plastics, it has lower price and better mechanical properties.
- ⑤ Reduce corona intensity and improve printing quality.
- ⑥ Non-corrosive, low hardness, no damage to screw and die.
- ⑦ Keep the surface brightness of the product without affecting the heat sealing effect.
- ⑧ Improve production efficiency and increase unit production.

## Performance Index

Item	T-909	T-908	T-907
Particle Size of Powder	1250 mesh	2500 mesh	100 nm
Powder Content (%)	80-85	80-85	75-80
Melting Point (°C)	125	125	125
Fluorescent Brightener	No	No	No
MI (2.16kg)	1-3	1-3	1-3
Specific Gravity (g/cm <sup>3</sup> )	1.8-2.0	1.8-2.0	1.6-1.8
Suggested Addition Amount (%)	20-50	20-50	20-50

## Application

This product series is specially used in HDPE, LLDPE, LDPE, PP products, pipes, non-woven fabrics, woven bags and other industries. It can increase the filling amount and improve the tensile properties of products. This product series can improve the processing of products, and it is cheap and good to reduce the cost.



Typical  
Models

T-909

T-908

T-907



## Masterbatch Product Series 6: White Masterbatch

### Product Characteristics

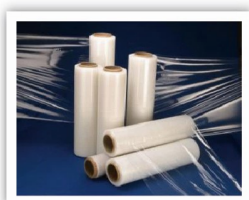
- ① High whiteness, no crystal point, good dispersion, strong hiding power and higher glossiness.
- ② No corrosivity, no damage to screw and die.
- ③ High temperature resistance, no blisters, and no influence on additive function.
- ④ No precipitation, no influence on heat sealing effect, reduced corona intensity and improved printing quality.
- ⑤ Good weather resistance to ensure product quality.
- ⑥ The product has been certified safe, has no fluorescent brightener, low price and better performance.

### Performance Index

Item	W-830	W-860	W-880
Light Fastness	Grade $\geq$ 8	Grade $\geq$ 8	Grade $\geq$ 8
White Pigment (%)	30-50	50-60	60-80
Heat Resistance	Grade $\geq$ 6	Grade $\geq$ 6	Grade $\geq$ 6
Fluorescent Brightener	No	No	No
MI (2.16kg)	1-3	1-3	1-3
Migration Resistance	Grade $\geq$ 8	Grade $\geq$ 8	Grade $\geq$ 8
Suggested Addition Amount (%)	2-30	2-30	2-30

### Application

This product series has been widely used in milk film, casting film, packaging film, protective film, straws, injection molding parts and pipes. It can also be used in other plastic products based on PE, PP, EVA, PS, ABS, etc. It can improve the blow molding process, and is cheap and good.



Typical  
Models

W-830

W-860

W-880



## 鸿志新材母粒产品型号与应用对照表

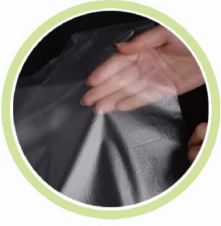
### Comparison Table of Hongzhixincai Masterbatch Products in Model and Application

Application 应用 型号 Model	连卷袋 Roll Bag	市场包装袋 Market Packaging Bag	购物袋 Shopping Bag	生物降解膜 Biodegradable Film	光氧化降解膜 Photooxidative Degradation Film	保护膜 Protective Film	垃圾袋 Garbage Bag	地膜 Mulching Film	工业膜 Industrial Membrane	缠绕膜 Stretch Film	工程塑料 Engineering Plastics	阻燃塑料 Flame Retardant Plastics	改性高光PP Modified High Gloss PP	改性高光ABS Modified High Gloss ABS	PE注塑 PE Injection Molding	无纺布 Non-woven Fabric	流延膜 Cast Film	PE管材 PE Pipe
T-50	√	√	√						√									
T-60	√		√				√											
T-63	√		√				√		√									
T-66						√				√								
T-80													√					√
D-80								√										
P-80												√	√		√			√
P-89											√			√				
G-60					√													
B-80				√														
T-90							√		√						√		√	√
T-907	√	√	√				√		√									√





# 产品展示 | Product Display



BaSO<sub>4</sub>



BaSO<sub>4</sub>



# 研发设备 | R&D Equipment



注塑机  
Injection Machine



气氛炉  
Atmosphere Furnace



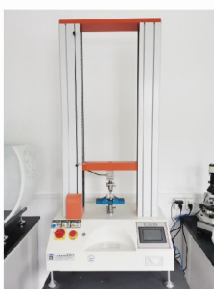
双螺杆挤出机组  
Twin Screw Extruder



老化试验箱  
Aging Test Chamber



冲击试验机  
Impact Testing Machine



拉力试验机  
Tension Tester



三辊机  
Three-roll Machine



光泽仪  
Gloss Meter



# 检测设备 | Testing Equipment



吹膜机  
Film Blowing Machine



激光粒度测试仪  
Laser Particle Size Tester



熔融指数测试仪  
Melt Index Tester



粘度计  
Viscometer



光度计  
Photometer



白度仪  
Whiteness Meter

# 资质专利 | Certificates and Patents

## 高新技术企业证书 >>>>

2020年已通过高新技术企业认证，证书编号：GR202044012890

## 发明专利证书 >>>>



## ISO9001、SGS认证证书 >>>>



## 荣誉证书 >>>>

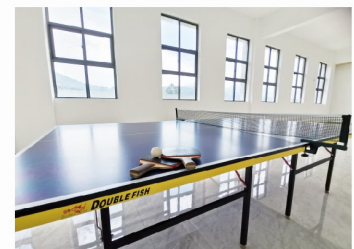
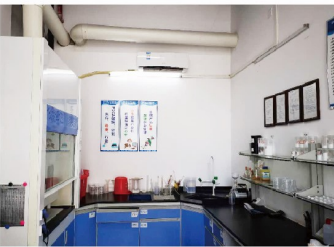


## 排污许可证 >>>>





# 鸿志风采 | Hongzhi Photos









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