



Complex Inorganic
Color Pigments



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Hunan Jufa focuses on the development, production, sales and service of new green environmental friendly inorganic pigments. It is the leader of the national industry standard 《mixed metal oxide pigments》 and the green group standard 《technical specification for evaluation of green design products mixed metal oxide pigments》.

The main products, mixed metal oxide inorganic pigment and hybrid titanium pigment, have been listed in the industry transfer Guidance Catalogue of the Ministry of Industry and Information Technology of the people's Republic of China (the latest 2018 Edition). It is comply with the national industrial policies and encouraged industries. This product are widely used in high-end coatings, industrial coatings, marking coatings, military camouflage, engineering plastics, inks, ceramics, glass, building materials and many other fields.

Hunan Jufa was invited by the national environmental protection solid management center to participate in the South South International Conference on promoting the substitution of lead containing pigments, which held by the United Nations Environment Agency and the Ministry of environmental protection in Beijing in March 2017. JuFa , as the only representative, made a special speech.

Pigment products of Hunan Jufa have been tested by SGS and full meet the standards of ROHS, EN71-3, ASTM F963 and FDA.

The mixed inorganic pigment of Hunan Jufa is a high-end product in the field of pigment, and its output and sales volume are in the forefront among domestic brands. With the promotion of the lead-free paint policy and the development of the market, the company will have the foundation and strength to double the growth year after year, and it is expected to form 10000 tons of production and sales in the following three years.

Main Qualifications and Honors:

- National High Tech Enterprises
- National enterprise of "abiding by contract and Valuing Credit"
- Top 10 most popular pigment brands in China
- Five products are listed in the national "green design products" announced by the National Ministry of industry and information technology, they are: Titanium nickel yellow, titanium chromium brown, copper chromium black cobalt aluminates blue and cobalt titanium green.
- Leading drafter of national industry standard HGT 4749-2014 《mixed metal oxide pigments》.
- National group standard and green manufacturing standard 《technical specification for evaluation of green design products mixed metal oxide pigments》.
- Double certification of ISO9001 quality management system and ISO14001 environmental management system.
- Approval Certificate of Product adopted International standard
- Green product certification for China's petroleum and chemical industry
- Excellent exhibition enterprise of raw and auxiliary materials for coatings in China
- Famous trademark of Hunan Province
- New material enterprises in Hunan Province
- Hunan small and medium-sized enterprises "specialized, best, special and new" demonstration enterprises.
- Certification of integration management system of informatization and industrialization
- Small giant enterprises in Hunan Province
- It has 2 national invention patents, more than 20 utility new patents, and 2 invention patents under trial
- Hunan JuFa R & D base of Xiangtan University
- Hunan JuFa new materials R & D center, Beijing University of Chemical Technology
- The products are mainly supplied to nippon, AkzoNobel, PPG, Sherwin Williams and many other World top 500 enterprises or well-known enterprises from domestic and abroad such as caparol and NHH
- The company's pigment products fully meet the European Union RoHS, EN71-3, AP (89) 1 and other international standards
- "Lead containing pigment substitute complex inorganic color pigments" won the third prize of science and technology award of China Petroleum and Chemical Industry in 2019
- "Lead free mixed metal oxide pigment" won the third prize of science and technology progress of Hunan Province in 2017
- "Infrared reflective pigment technology innovation project" won the second prize of Xiangtan science and Technology Progress Award in 2016
- "R&D and application of lead-free mixed metal oxide pigment" won the title of "good technology of China" in 2018 by China Productivity Promotion Center in 2019.



National High Tech Enterprises



Hunan New Material Enterprises Certification



Leading Drafter of National Industry Standard Enterprises Certification



Green Product Certification for China's Petroleum and Chemical Industry



Good Technology of China



National Enterprise of "Abiding by Contract and Valuing Credit"



Certification of Integration Management System of Informatization and Industrialization



China Petroleum and Chemical Industry Progress Award



Hunan Science and Technology Progress Award



Xiangtan Science and Technology Progress Award



Approval Certificate of Product adopted International Standard



Certification of ISO9001:2015 quality Management System



Certification of ISO14001:2015 Environmental Management System.



Patent for Invention



Patent for Invention



Product Description

Another name of ECO-friendly complex inorganic color pigments

Chinese	English	Abbreviation
金属氧化物颜料	Mixed Metal Oxide Pigment	MMO
彩色复合无机颜料	Complex Inorganic Color Pigment	CICP
金属氧化物混相颜料	Note: see Chen Xinhua's 《overview of plastic coloring pigments》	
金属氧化物混晶颜料	Note: see Chen Xinhua's 《overview of plastic coloring pigments》	

Explanation: This kind of pigment is a kind of high performance inorganic pigment with eco-friendly and non toxicity, which is produced by a variety of metal oxides through solid state reaction at high temperature. Domestic academic circles called "metal oxide mixed pigment" or "metal oxide mixed crystal pigment". Some foreign companies call it CICP or MMO pigment. This instruction follows the title of "environmental friendly mixed inorganic color pigment" by American dry pigment manufacturers association.

Performance of environmental friendly complex inorganic color pigment

Environmental friendly complex inorganic color pigment series products have excellent weather resistance, light resistance, high temperature resistance, acid and alkali resistance, chemical resistance, strong hiding power, environmental protection and non-toxic, non migration, non bleeding and easy dispersion. Among the known inorganic pigments, organic pigments and dyes, the complex inorganic color pigment has the highest resistance, which determines its value in super durability coatings and plastic products. In addition, most of the environmental friendly complex inorganic color pigment have excellent infrared reflection function, so they are especially suitable for such fields as architectural coatings, with excellent heat insulation and cooling, environmental protection and energy saving effects; some pigments have chlorophyll function, which can be used in the field of national defense and military affairs.

Application of environmental friendly complex inorganic color pigment

Due to the excellent performance reflected by the inertia of the pigment itself, it has a wide application space and can be used for almost all kinds of military and civil functional coloring. In addition, due to environmental friendly and non-toxic, it can be used in various fields with high environmental performance requirements, such as food packaging, food containers, daily tableware, children's toys, etc.

A: Coatings: exterior wall coatings, PVDF coatings, engineering machinery coatings, aviation coatings, ship coatings, automobile coatings, military camouflage coatings, coil coatings, road marking coatings, powder coatings, oil-based coatings, water-based coatings; light resistant, weather resistant, UV resistant, and high-temperature resistant coatings.

B: Plastics: general plastics, engineering plastics, special plastics, wood plastic composites, color master batch.

C: Glass: art glass, colored glass, glass lamps. (body, surface, paper)

D: Enamel: Daily-use enamelware, industrial enamel, architectural enamel, art enamel. (colored glaze, floral paper)

E: Ceramics: art ceramics, daily-use ceramics, architectural ceramics, engineering ceramics. (colored glaze, floral paper)

F: Ink: color ink, watermark ink, concave-convex ink.

G: Building materials: colored sand, concrete, diatom mud.

H: Color paper: colorfast, acid and alkali resistant environmental color paper.

I: Painting: rock painting pigments, various high-end water color, oil painting pigments.



Jufa To build a global R&D and production base for ECO-friendly CICP.

Titanium Nickel Yellow

Product Information:

Chemical Name: Titanium Nickel Yellow
 Chemical Composition: Ni/Sb/Ti Oxide
 Chemical Formula: (Ti,Ni,Sb)O₂
 C.I. No.: Pigment Yellow 53/P.Y.53/C.I.: 77788
 Cas No.: 8007-18-9
 Appearance: Greenish Yellow Powder
 Crystal Form: Rutile Pattern



Product Features:

Easy dispersion, good hiding power, excellent light, weather, high temperature stability and chemical resistance, no color bleeding and migration. It is compatible with most thermoplastic and thermosetting resins, and is an internationally recognized non-toxic and environmentally friendly pigment. Traditional pigments, whether organic or inorganic, do not have all the above functions. So, this kind of pigment is suitable for the high performance requirements of modern coatings and plastics. Its chromatographic range can be from greenish yellow, pure yellow to reddish yellow.

Application:

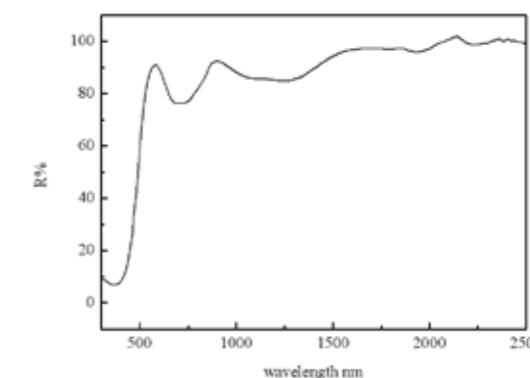
It can be used in coil coating, powder coating, high performance industrial coating, transportation coating, outdoor architectural coating, camouflage coating, painting coating, road marking coating, engineering plastics, general plastics, toy plastics, food packaging plastics, master batch, printing ink, cement, concrete, roofing materials and other building materials, as well as ceramics.

Technical Index

Model	Mean Particle Size (Mm) ≤	Heat Resistance (°c) ≥	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-B5302	2.5	1000	8	5	10-25	4.4-5.0	6-9		



Picture of Titanium Nickel Yellow



IR reflectance drawing of Titanium Nickel Yellow (P.Y.53) powder TSR 73.4%

Titanium Chromium Brown

Product Information:

Chemical Name: Titanium Chromium Brown
 Chemical Composition: Cr/Sb/Ti Oxide
 Chemical Formula: (Ti,Cr,Sb)O₂
 C.I. No.: Pigment Brown 24/ P.Br.24/ C.I.:77310
 Cas No.: 68186-90-3
 Appearance: Yellowish Brown Powder
 Crystal Form: Rutile Pattern

Product Features:

Easy dispersion, good hiding power, excellent light, weather, high temperature stability and chemical resistance, no color bleeding and migration. It is compatible with most thermoplastic and thermosetting resins, and is an internationally recognized non-toxic and environmentally friendly pigment. Traditional pigments, whether organic or inorganic, do not have all the above functions. So, this kind of pigment is suitable for the high performance requirements of modern coatings and plastics. Its chromatographic range can be from pure yellow to red yellow.

Application:

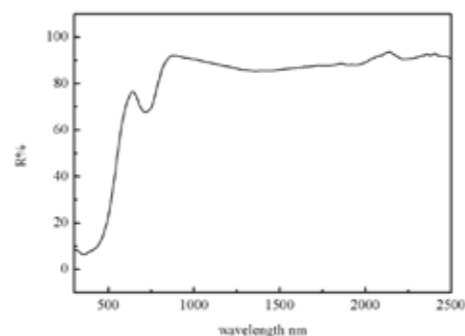
It can be used in coil coating, powder coating, high performance industrial coating, transportation coating, outdoor architectural coating, camouflage coating, painting coating, road marking coating, engineering plastics, general plastics, toy plastics, food packaging plastics, master batch, printing ink, cement, concrete, roofing materials and other building materials, as well as ceramics. The model A and B represent the excellent type and the standard type.

Technical Index

Model	Mean Particle Size (Mm) ≤	Heat Resistance (°c) ≥	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-A2405	1.1	1000	8	5	10-25	4.4-4.9	6-9		
JF-A2407	1.1	1000	8	5	10-25	4.4-4.9	6-9		
JF-B2402	2.5	1000	8	5	10-25	4.4-4.9	6-9		
JF-B2406	2.5	1000	8	5	10-25	4.4-4.9	6-9		



Picture of Titanium Chromium Brown



IR reflectance drawing of Titanium Chromium Brown (B. Br. 24) powder TSR 64%

Chromium Iron Oxide

Product Information:

Chemical Name: Chromium Iron Oxide
 Chemical Composition: Fe-Cr-O
 Chemical Formula: (Fe,Cr)₂O₃
 C.I. No.: Pigment Brown 29/ P.Br.29/ C.I.:77500
 Cas No.: 12737-27-8
 Appearance: Brown Black Powder
 Crystal Form: Spinel Type

Product Features:

Excellent chemical resistance, outdoor durability, light and high temperature stability, no color bleeding and migration. And it has excellent infrared reflection function. It is suitable for almost all plastic, paint and coating applications. Its chromatographic range can be from reddish brown to brown black.

Application:

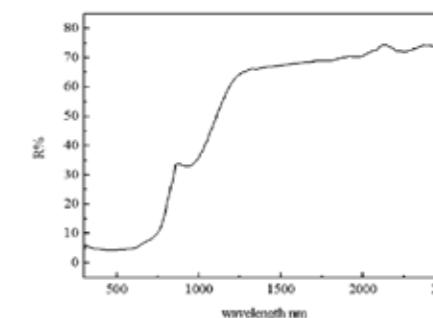
It can be used in heat insulation and cooling coating, coil coating, powder coating, high performance industrial coating, transportation coating, outdoor architectural coating, camouflage coating, painting coating, road marking coating, engineering plastics, general plastics, toy plastics, food packaging plastics, master batch, printing ink, cement, concrete, roofing materials and other building materials, as well as ceramics.

Technical Index

Model	Mean Particle Size (Mm) ≤	Heat Resistance (°c) ≥	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-A2901	2.5	1000	8	5	10-25	4.5-5.3	6-9		



Picture of Chromium Iron Oxide



IR reflectance drawing of Chromium Iron Oxide (P.Br.29) powder TSR 24%

Zinc Iron Chromium Brown

Product Information:

Chemical Name: Zinc Iron Chromium Brown
 Chemical Composition: Zn-Fe-Cr-O
 Chemical Formula: $(Zn,Fe)(Fe,Cr)_2O_4$
 C.I. No.: Pigment Brown 33/P.Br.33/ C.I.:77503
 Cas No.: 68186-88-9
 Appearance: Brownish Powder
 Crystal Form: Spinel Type



Product Features:

It has excellent chemical resistance, outdoor durability, light resistance, thermal stability, no bleeding and migration. It is suitable for almost all applications of plastics, paints and coatings, and is non-toxic. The chromatograms ranged from yellowish reddish brown to deep red reddish brown.

Application:

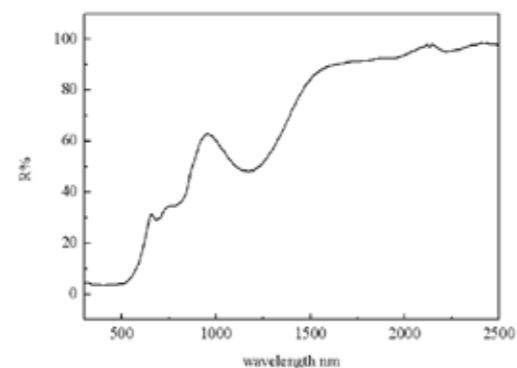
It can be used in coil coating, powder coating, high performance industrial coating, transportation coating, outdoor architectural coating, camouflage coating, painting coating, logo coating, engineering plastics, general plastics, toy plastics, food packaging plastics, masterbatch, printing ink, cement, concrete, roofing materials and other building materials, ceramics, etc.

Technical Index

Model	Mean Particle Size (Mm) \leq	Heat Resistance ($^{\circ}C$) \geq	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-B3301	2.5	1000	8	5	10-25	4.5-5.3	6-9		



Picture of Zinc Iron Brown



IR reflectance drawing of Zinc Iron Brown (P. Br. 33) powder TSR 35%.

Cobalt Titanium Green

Product Information:

Chemical Name: Cobalt Titanium Green
 Chemical Composition: Co-Ni-Zn-Ti-O
 Chemical Formula: $(Co,Ni,Zn)_2TiO_4$
 C.I. No.: Pigment Green50/P.G.50/ C.I.:77377
 Cas No.: 68186-85-6
 Appearance: Green Powder
 Crystal Form: Spinel Type





Product Features:

It is easy to disperse, with excellent heat resistance, light resistance, weather resistance, acid resistance, alkali resistance, high infrared reflectance, non-toxic. Cobalt Green has a unique yellow green and bright color.

Application:

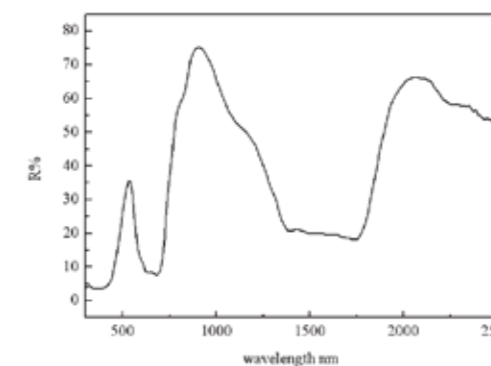
It can be used in coil coating, powder coating, high performance industrial coating, transportation coating, outdoor architectural coating, camouflage coating, painting coating, logo coating, engineering plastics, toy plastics, food packaging plastics, color masterbatch, printing ink, cement, concrete, roofing materials and other building materials, ceramics etc.

Technical Index

Model	Mean Particle Size (Mm) \leq	Heat Resistance ($^{\circ}C$) \geq	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-B5003	2.5	1000	8	5	10-25	4.01-5.01	6-9		
JF-B5005	2.5	1000	8	5	10-25	4.01-5.01	6-9		



Picture of Cobalt Green



IR reflectance drawing of Cobalt Green (P. G. 50) powder TSR 32.3%.

Cobalt Aluminate Blue

Product Information:

Chemical Name: Cobalt Aluminates Blue
 Chemical Composition: Co-Al-O
 Chemical Formula: CoAl_2O_4
 C.I. No.: Pigment Blue 28/ P.B.28/ C.I.:77346
 Cas No.: 1345-16-0
 Appearance: Blue Powder
 Crystal Form: Spinel Type

Product Features:

It has a unique bright red blue color, gorgeous color, easy dispersion, excellent heat resistance, weather resistance, acid and alkali resistance, resistance of various solvent, good covering power, special anti far infrared function, non-toxic.

Application:

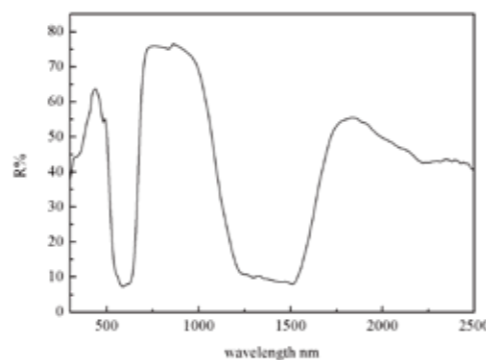
It is mainly used for coloring high temperature resistant coatings, ceramics, enamel, glass, engineering plastics with high temperature resistance, plastic coloring products which in contact with food, and art pigments.

Technical Index

Model	Mean Particle Size (Mm) \leq	Heat Resistance ($^{\circ}\text{C}$) \geq	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-B2805	2.5	1200	8	5	10-40	3.8-5.4	6-9		
JF-B2806	2.5	1200	8	5	10-40	3.8-5.4	6-9		



Picture of Cobalt Blue



IR reflectance drawing of Cobalt Blue (P. B. 28) powder TSR 45%.

Copper Chromium Black

Product Information:

Chemical Name: Copper Chromium Black
 Chemical Composition: Cu-Cr-Fe-O
 Chemical Formula: $\text{Cu}(\text{Cr,Fe})_2\text{O}_4$
 C.I. No.: Pigment Black 28/P.Bk.28/ C.I.:77428
 Cas No.: 68186-91-4
 Appearance: Black Powder
 Crystal Form: Spinel Type

Product Features:

Excellent heat resistance, weather resistance, light resistance, chemical resistance, and excellent covering power, non-toxic.

Application:

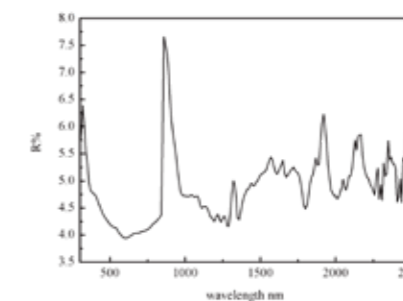
It is mainly used in high temperature resistant coatings, ceramics, enamels, coil coatings, long-term coatings, glass inks, radium engraving plating coloring, high-temperature resistant engineering plastics and plastic coloring products which in contact with food, art pigments, etc. The model A and B represent the excellent type and the standard type respectively.

Technical Index

Model	Mean Particle Size (Mm) \leq	Heat Resistance ($^{\circ}\text{C}$) \geq	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-B2852	2.5	750	8	5	10-25	4.8-5.6	6-9		
JF-A2854	1.5	750	8	5	10-25	4.8-5.6	6-9		
JF-A2855	1.5	750	8	5	10-25	4.8-5.6	6-9		
JF-B2856	2.5	750	8	5	10-25	4.8-5.6	6-9		
JF-B2861 (Ink black)	2.5	750	8	5	10-25	4.8-5.6	6-9		
JF-C28T30 (Enamel Black)	2.5	750	8	5	10-25	4.8-5.6	6-9		
JF-LDS30 (Radium black)	2.0	800	8	5	11-22	4.8-5.6	6-9		



Picture of Copper Chromium Black



IR reflectance drawing of Copper Chromium Black (P. Bk. 28) powder TSR 5%.

Bismuth Vanadium Oxide

Product Information:

Chemical Name: Bismuth Vanadium Oxide
 Chemical Composition: Bi-V-Mo-O
 Chemical Formula: BiVO₄/Bi₂MoO₆
 C.I. No.: Pigment Yellow 184/PY.184/ C.I.:771740
 Cas No.: 14059-33-7
 Appearance: Bright Lemon Yellow Powder
 Crystal Form: Tetragonal + Rhombic Twin Phase

Product Features:

It has bright color, high coloring power, strong hiding power, excellent heat resistance, light resistance, weather resistance and solvent resistance, and is non-toxic. It is an upgraded substitute product of yellow pigments containing cadmium and lead.

Application:

It can be used in automobile coatings, powder coatings, coil coatings, etc. Excellent performance Orange or red pigments can be made up on plastics to replace some superior performance organic yellow pigments with high price. The model A and B represent the excellent type and the standard type respectively.

Technical Index

Model	Mean Particle Size (Mm) ≤	Heat Resistance (°c) ≥	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-B18401	2.5	260	7-8	5	28-40	4.1-5.0	6-9		
JF-A18430 (High Temperature Bismuth Yellow)	1.5	320	7-8	5	28-40	4.1-5.0	6-9		



Picture Of Bismuth Yellow

Hybrid Pigment Yellow

Product Information:

Chemical Name: Hybrid Pigment Yellow
 Chemical Composition: High performance organic yellow pigment, Titanium nickel yellow
 Appearance: Lemon yellow, medium yellow, dark yellow to orange yellow powder

Product Features:

- (1) Environmental friendly and non-toxic, substitutes of lead chrome yellow, cadmium yellow and other lead and cadmium pigment;
- (2) It has both excellent performance of organic pigment such as high tinting power, brilliant color, and high temperature resistance, weather resistance and sunlight resistance of inorganic pigment;
- (3) Excellent cost effective, excellent comprehensive performance, some properties surpass lead cadmium pigments;
- (4) The processing performance is outstanding, which can effectively solve the problem of direct mixing caused by the obvious density difference between organic pigment and inorganic pigment, and reduce the dust flying problem.

Application:

This product can completely replace the lead containing pigment lead chromate, and can be used in automotive coatings, road marking coatings, powder coatings, industrial coatings, etc. On plastics, it can replace toxic pigments such as medium chrome yellow and cadmium yellow to be finally used in engineering plastics, modified plastics, color masterbatches, toy plastics, food packaging plastics, medical plastic parts and other application area required health and environmental friendly and replace the lead/chrome/cadmium pigments. Some products are suitable for powder coatings and coil coatings.

Technical Index

Model	Mean Particle Size (Mm) ≤	Heat Resistance (°c) ≥	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-Y2001	2.5	300	7	4-5	35	5	6-9		
JF-Y2002	2.5	250	8	5	35	5	6-9		
JF-Y2003	2.5	250	8	5	35	5	6-9		



Picture of Hybrid Pigment Yellow

Hybrid Pigment Red

Product Information:

Chemical Name: Hybrid Pigment Red
 Chemical Composition: High performance organic red pigment, Titanium nickel yellow
 Appearance: Orange red to dark red powder





Product Features:

- (1) Environmental friendly and non-toxic, substitutes of molybdenum chrome red, cadmium red and other lead and cadmium pigment;
- (2) It has both excellent performance of organic pigment such as high tinting power, brilliant color, and high temperature resistance, weather resistance and sunlight resistance of inorganic pigment;
- (3) Excellent cost effective, excellent comprehensive performance, some properties surpass lead cadmium pigments;
- (4) The processing performance is outstanding, which can effectively solve the problem of direct mixing caused by the obvious density difference between organic pigment and inorganic pigment, and reduce the dust flying problem.

Application:

This product can completely replace molybdenum chrome red, cadmium red and other lead containing pigment. It can be used in automotive coatings, road marking coatings, powder coatings, industrial coatings, etc. On plastics, it can replace toxic pigments such as molybdenum chrome red, cadmium red to be finally used in engineering plastics, modified plastics, color masterbatches, toy plastics, food packaging plastics, medical plastic parts and other application area required health and environmental friendly and replace the lead/chrome/cadmium pigments. Some products are suitable for powder coatings and coil coatings.

Technical Index

Model	Mean Particle Size (Mm) ≤	Heat Resistance (°c) ≥	Light Fastness (Grade) 1-8	Weather Resistance (Grade) 1-5	Oil Absorption (g/100g)	Density (g/cm ³)	PH Value	Mass Tone	Tint Tone 1:4TiO ₂
JF-R3012	2.5	300	8	5	30	5	6-9		
JF-R4002	2.5	300	8	5	30	5	6-9		



Picture of Hybrid Pigment Red



Color changes the world
 environmental protection benefits the world