



Colorants for **Plastic** Industry

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CATALOGUES

Company Profile	01
Solvent Dyes	04
Organic Pigments	07
inorganic pigments	10
Pearlescent Pigments	11
Fluorescent Pigments	13
Luminescent Pigments	14
Optical Brightener Agents	15
Thermochromic Pigments	16
Glitter	17

Important Notice:

All information in this brochure are based on our present state of knowledge and is intended to provide general reference only on our products and their uses. It should not therefore be construed as guaranteeing specific properties of the products described or their suitability for a particular application. Any existing industrial property rights must be observed. The quality of our products is guaranteed under our general conditions of sale. Trial application tests are recommended, even if this application is well-known.

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COMPANY PROFILE

Spectra, based in EU & UK, was founded in 2006, but her history was much earlier since 1980s for manufacturing of Intermediate, which are used as for Pigments and Solvent Dyes.



2+

Manufacturing Units



19+

Years of experience



350+

Corporate customers



4+

Branch Companies



Our strength is our knowledge, hard work and humble beginnings and hence, we always opt for niche segments where technical expertise and active management involvement is needed to carry out the production. Based on this trend, we have diversified into a wide range of products having equally diverse applications.

In 2006, we reorganized and formed Spectra for further development of colorants business from EU to over the worlds.

The company is committed to being a world-class supplier of leather chemicals, integrated marketing, integrated resource technology, services, management and cultural advantages and build customer service – Product Development – provide system solutions as the core of the organization, implementation to meet the personalized service-based competitive strategies to achieve the company became the first brand in the industry, accounted for the highest share of the domestic market and has a strong international strategic objectives competitiveness.

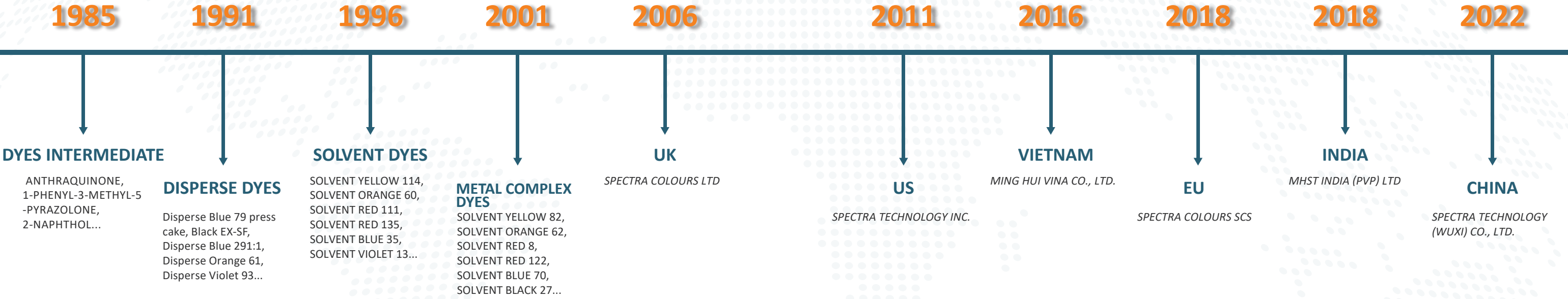
Companies adhere to the “Germany first, best use” principle of employment and management philosophy; “identify with the company, self-identity, harmony together” as a common code of conduct of employees, formed a “equality, fairness, innovation, democracy” as the basic connotation organizational ethics, “professionalism, communication, self-discipline” as the basic content of the dominant public opinion, enhance the sense of responsibility of employees, communication and collaboration skills, promote team spirit, in order to achieve “enterprise development, human development,” the human resource management objectives.

“People-oriented, honest-oriented” business ethics and “advanced technology” scientific spirit of seeking progress of the industry, creating value for society, for the nation to contribute to staff development and well-being and efforts to provide customers with high-quality technical service and high-tech products, and promote customer development.

Our wide and diverse range of products goes a long way in showing our technical expertise and our quality standards.

DEVELOPMENT
COURSE

Pursuit Excellence
Quality Innovation



Profile





























GS series solvent dyes provide an outstandingly economical means of coloring plastics. Used alone, they give brilliant colors with total clarity in transparent plastics. Used with titanium dioxide, they produce attractive pastel shades. They can also be used in combination with pigments colors either as shading components or as major ingredients in a mixture.












Appropriate polymers are

- Polystyrenes(PS)
- Polycarbonates(PC)
- Polyester (PET and PBT)
- Polymethyl methacrylate (PMMA)
- Polyamide (Nylon 6)
- ABS
- PVC-rigid

Properties & Application

Color Shade		Product Name C. I. NO.	PS	ABS	PMMA	PC	PET	PVC	PA6
Self Shade	Tint Shade		Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C
		GS YELLOW 10GN S. Y. 160:1	7 280	5-6 280	7 260	7-8 300	3 300	5-6 200	2-3 300
		GS GREEN GOLD S. GN. 5	6-7 280	5 280	6 260	6 300	* *	5-6 220	4-5 300
		GS YELLOW 3R S. Y. 98	7 280	5-6 280	7 260	7 300	7 300	5-6 220	2-3 300
		GS YELLOW YC S. Y. 33	6-7 280	6 280	7 260	7 300	* *	6 220	* *
		GS YELLOW FW S. Y. 114	8 280	8 280	7 260	8 320	7-8 300	7-8 220	* *
		GS YELLOW 2GP S. Y. 93	8 280	* *	7 260	8 300	* *	7-8 220	* *
		GS YELLOW 4G D. Y. 241	7 280	* *	7 260	7 320	7 300	7 200	* *
		GS YELLOW GHS S. Y. 163	8 280	8 280	* *	8 300	8 300	7 200	* *
		GS ORANGE HRP S. O. 60	8 280	7-8 280	8 260	8 320	8 300	8 220	* *
		GS ORANGE R S. O. 105	7 280	7 280	7 260	7 320	7 300	7 200	* *

Color Shade		Product Name C. I. NO.	PS	ABS	PMMA	PC	PET	PVC	PA6
Self Shade	Tint Shade		Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C	Light Resistance Heat Resistance °C
		GS RED GG S. O. 63	7 280	6-7 280	7 260	7 300	7 290	6 220	3 270
		GS RED MPFW S. R. 111	7 280	5 280	7 260	7 300	7 280	6 220	2 260
		GS RED H3G S. R. 135	8 280	7-8 280	8 260	8 300	8 300	8 220	5 280
		GS RED A2G S. R. 179	7-8 280	7-8 280	7-8 260	7-8 300	7-8 300	7-8 200	* *
		GS RED 5B V. R. 41	4 280	6 250	7 260	6-7 300	* *	7 220	* *
		GS RED FB S. R. 146	5-6 250	5 260	5 260	8 300	* *	5-6 220	* *
		GS RED BB S. R. 195	8 280	6-7 260	7 260	8 300	8 290	6-7 220	* *
		GS RED M6B S. R. 207	6-7 280	6-7 260	6-7 260	6-7 300	6 290	6-7 200	* *
		GS RED TRFW S. R. 52	7 280	6 250	7 260	6-7 300	6-7 280	7 220	5 270
		GS RED RS S. V. 26	5-6 280	5 260	6 260	6 280	6 270	4-5 200	* *
		GS RED EB S. R. 149	6-7 280	6 280	7 260	7 300	6-7 280	6 200	* *
		GS RED VIOLET R S. V. 59	7-8 280	6 280	7 260	8 300	7 280	6 220	5 260
		GS BLUE OR S. V. 13	7-8 280	6 260	8 260	8 300	8 280	7-8 220	* *
		GS BLUE GN S. BL. 67	6 260	5 240	6 260	* *	6 280	5-6 220	* *

Color Shade		Product Name C. I. NO.	PS		ABS		PMMA		PC		PET		PVC		PA6	
Self Shade	Tint Shade		Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C
		GS BLUE R S. BL. 122	7	280	6	250	7	260	6-7	280	6-7	280	6	200	*	*
		GS BLUE S S. BL. 104	7-8	280	5	280	7	260	7-8	320	8	300	6	220	*	*
		GS BLUE RR S. BL. 97	7	280	6	250°C	7	260	6-7	280	6-7	280	6	220	5	280
		GS BLUE M S. BL. 35	6	260	5	240	6	260	*	*	6	280	5-6	220	*	*
		GS BLUE AP S. BL. 36	7	240	6-7	240	7	260	*	*	*	*	5	220	*	*
		GS BLUE GP S. BL. 78	5-6	260	5	260	6	240	6	280	*	*	5	220	*	*
		GS GREEN B S. GN. 3	7	280	6	280	7	260	7-8	300	7	280	7	220	*	*
		GS GREEN 6G S. GN. 28	8	280	6	280	8	260	8	290	7-8	270	7-8	220	*	*
		GS BLACK HB S. BK. 3	7	260	6	260	7	260	7	280	*	*	7	220	*	*
		GS BLACK SA S. BK. 7	7	260	6	260	7	260	7	260	*	*	7	200	*	*

 This product has fluorescent effect

















































Profile




SD series organic pigments comprise the range of classical organic pigments for use in colored masterbatch, compound and rubber products. Their good fastness properties support for nearly all plastics and processing techniques. Appropriate polymers are

- Polyethylene (LDPE and HDPE)
- Polypropylenes (PP)
- PVC-soft
- Polystyrenes(PS)
- ABS
- Polycarbonatees(PC)

Properties & Application

Color Shade		Product Name C. I. NO.	Fastness to Bleeding in PVC-P	PE		PP		PVC		PS		ABS		PC		PET	
Self Shade	Tint Shade			Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C	Light Resistance	Heat Resistance °C
		SD YELLOW GP P. Y. 12	3	5	200	5	200	5	200	*	*	*	*	*	*	*	*
		SD YELLOW GR P. Y. 13	3	6-7	200	6-7	200	6-7	200	*	*	*	*	*	*	*	*
		SD YELLOW G P. Y. 14	4	5	200	5	200	6-7	200	*	*	*	*	*	*	*	*
		SD YELLOW HR P. Y. 83	5	7	200	7	200	7-8	200	*	*	*	*	*	*	*	*
		SD YELLOW H2R P. Y. 139	5	7	240	7	250	7	200	*	*	*	*	*	*	*	*
		SD YELLOW H3R P. Y. 139	4-5	7	240	7	260	7	200	*	*	*	*	*	*	*	*
		SD YELLOW EMD P. Y. 150	5	8	260	8	260	8	260	*	*	*	*	*	*	*	*
		SD YELLOW H4G P. Y. 151	5	8	200	8	200	6	200	7	260	7	260	*	*	*	*
		SD YELLOW H3G P. Y. 154	5	8	200	8	200	6	200	7	260	7	260	*	*	*	*
		SD YELLOW 3GP P. Y. 155	3-4	*	*	8	240	8	240	*	*	*	*	*	*	*	*

Color Shade		Product Name C. I. NO.	Fastness to Bleeding in PVC-P	PE	PP	PVC	PS	ABS	PC	PET
Self Shade	Tint Shade			Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance
		SD ORANGE G P. O. 13	4-5	5 200	5 200	6 200	* *	* *	* *	* *
		SD ORANGE RL P. O. 34	3	* *	6 220	* *	* *	* *	* *	* *
		SD ORANGE HL P. O. 36	5	* *	8 260	8 260	* *	* *	* *	* *
		SD RED 2BN P. R. 48:1	5	4 180	4 180°C	4 180	* *	* *	* *	* *
		SD RED 2BP P. R. 48:2	5	6-7 230	6-7 230	7 200	5-6 230	* *	* *	* *
		SD RED 2BS P. R. 48:3	5	5 230	5 230	5 200	5 230	* *	* *	* *
		SD RED C P. R. 53:1	5	3 200	3 200	6 200	4 200	* *	* *	* *
		SD RED 4BP P. R. 57:1	4-5	6-7 230	6 230	6-7 200	6 230	* *	* *	* *
		SD RED E P. R. 122	5	8 260	8 280	8 200	8 260	8 280	8 300	6 270
		SD RED 3RK P. R. 170	4	8 200	8 200	7-8 200	* *	* *	* *	* *
		SD RED 5RK P. R. 170	2-3	8 200	8 200	7 200	* *	* *	* *	* *
		SD RED ATY P. R. 177	5	7-8 260	7-8 280	7-8 200	7 280	* *	* *	* *
		SD RED BP P. R. 254	5	8 260	8 280	8 200	8 260	7-8 260	* *	* *

Color Shade		Product Name C. I. NO.	Fastness to Bleeding in PVC-P	PE	PP	PVC	PS	ABS	PC	PET
Self Shade	Tint Shade			Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance	Heat Resistance Light Resistance
		SD RED TTR P. R. 264	5	8 260	8 280	8 200	8 260	7-8 260	* *	* *
		SD RED 3R P. V. 19	5	8 260	8 280	8 200	8 280	8 280	8 280	* *
		SD VIOLET E201 P. V. 19	5	8 260	7-8 280	8 200	7-8 260	7-8 280	7-8 280	* *
		SD VIOLET RL-P P. V. 23	4	7-8 270	8 260	7-8 200	6-7 250	* *	* *	* *
		SD BLUE BGS P. BL. 15:3	5	8 240	8 260	8 200	8 260	8 260	8 270	8 270
		SD BLUE A3R P. BL. 60	5	7 260	7 280	7 200	7 260	7 280	7 280	7 270
		SD GREEN G P. GN. 7	5	8 240	8 260	8 200	8 260	8 260	8 270	8 270



Inorganic Pigments





Application

Basically used for construction materials
Plastic and rubber
Paints and coatings

Animal feed
Pigmented mulch
Ink and universal tint system

Rare Earth Inorganic Pigments

Rare earth inorganic pigments are a new type of environmentally friendly inorganic pigment that can replace toxic cadmium and lead based heavy metal pigments such as lead red and cadmium red. These pigments are not only environmentally friendly, but also have superior colouring power, covering power, thermal stability, glass fibre fusion and infrared and ultraviolet absorption than other inorganic pigments. It is mainly used in power tools, automobile interiors, high-grade engineering plastics, coloured electronic ink, 3D printing materials and other medium and high-end fields.

Color Shade	Product Name	C. I. NO.	Appearance	Specific Gravity g/m ³	Oil Absorption %	Residue On Sieve 45µm, %	pH Value	Weathering Resistance	Light Resistance	Acid Resistance	Alkali Resistance	Heat Resistance
	SW ORANGE-RED CEH	P. O. 75	Orange Powder	5	48+52	0.3	8.0-9.0	5	8	2-3	4-5	320
	SW ORANGE CEH	P. O. 78	Light Orange Powder	5	48+52	0.3	8.0-9.0	5	8	2-3	4-5	320
	SW RED CEH	P. R. 265	Normal Red Powder	5	48+52	0.3	8.0-9.0	5	8	2-3	4-5	320
	SW RED CES	P. R. 275	Bordeaux Red Powder	5	48+52	0.3	8.0-9.0	5	8	2-3	4-5	320

Titanium Dioxide (Rutile)

Color Shade	Product Name	Basic Characters					Application Conditions					
		Specific Gravity	TiO ₂ Content	Moisture	Residue On Sieve	Rutile Transformation Rate	Whiteness of Oil System	Oil Absorption	△E	pH Value of Aqueous Suspension	Resistivity of Aqueous Extract	Dispersion Under High-speed Mixing of Alkyd System
		g/cm ³	%	%	45µm, %	%		ml/100g			Ω·M	µm
	SW WHITE 2196	4.0	≥93.5	≤0.5	≤0.05	≥98	94.7-95.5	≤20	0.3	6.5-8.0	150	≤30
	SW WHITE 878	4.1-4.3	≥96.0	≤0.3	≤0.02	≥98	98.5	≤16	0.3	7.0-8.5	80	≤25

Pearlescent Pigments

Profile

P series pearlescent pigments consist of thin platelets of the nature mineral mica coated with a thin layer of titanium dioxide or iron oxide. The interaction, refraction and multiple reflections creates manifold color effects, further depending on the particle size, from a soft and silky to high glitter appearance. The semi-transparent properties allow the combination with colorants, e.g. organic or inorganic



Typical Properties

Code	Equivalence	Color	Particle Size(µm)	Composition
WHITE GRADES				
P-1000	Iriodin 100	Silver White	10-60	Mica, TiO ₂
P-1053	Iriodin 153	Flash Pearl Silver White	20-100	Mica, TiO ₂
P-1063	Iriodin 163	Shimmer Pearl Silver White	40-200	Mica, TiO ₂
P-1201	Iriodin 103	Rutile Sterling Silver	10-60	Mica, TiO ₂ , SnO ₂
P-1020	Iriodin 120	Luster Satin	5-25	Mica, TiO ₂
P-1204	Iriodin 111	Rutile Fine Satin Silver White	<15	Mica, TiO ₂ , SnO ₂
INTERFERENCE GRADES				
P-2005	Iriodin 205	Platinum Gold	10-60	Mica, TiO ₂ , SnO ₂
P-2015	Iriodin 215	Red Pearl	10-60	Mica, TiO ₂ , SnO ₂
P-2019	Iriodin 219	Violet Pearl	10-60	Mica, TiO ₂ , SnO ₂
P-2025	Iriodin 225	Blue Pearl	10-60	Mica, TiO ₂ , SnO ₂
P-2035	Iriodin 235	Green Pearl	10-60	Mica, TiO ₂ , SnO ₂
P-2049	Iriodin 249	Shimmer Gold	10-100	Mica, TiO ₂ , SnO ₂
METALLIC GRADES				
P-3020	Iriodin 300	Gold Pearl	10-60	Mica, TiO ₂ , Fe ₂ O ₃
P-3005	Iriodin 305	Aztec Gold Pearl	10-60	Mica, TiO ₂ , Fe ₂ O ₃
P-3030	Iriodin 302	Aztec	5-25	Mica, TiO ₂ , Fe ₂ O ₃
P-3033	Iriodin 303	Gold Satin	10-60	Mica, TiO ₂ , Fe ₂ O ₃
P-3051	Iriodin 351	Sunny Gold	10-100	Mica, TiO ₂ , Fe ₂ O ₃
P-5000	Iriodin 500	Bronze Pearl	10-60	Mica, Fe ₂ O ₃
P-5004	Iriodin 504	Wine Red Pearl	10-60	Mica, Fe ₂ O ₃
P-5005	Iriodin 505	Mauve Pearl	10-60	Mica, Fe ₂ O ₃
P-5020	Iriodin 520	Bronze Satin	5-25	Mica, Fe ₂ O ₃
P-5034	Iriodin 534	Glitter Wine Red	10-125	Mica, Fe ₂ O ₃

P-6000 Series Weather Resistance

P-6000 Series Wwather Resistance pearlescent pigments is the high-end pearl pigments designed for automotive paint ,exterior house coating and other industries. With the special treatment, the product can tolerate sun exposure , rain corrosion and maintain its original luster under a variety of adverse weather conditions.

Typical Properties

Code	Color	Particle Size(μm)	Composition
P-6103	Rutile Bright Silver	10-60	Mica, TiO ₂ , SnO ₂ , Ce ₂ O ₃
P-6205	Rutile Platinum Pearl	10-48	Mica, TiO ₂ , SnO ₂ , Ce ₂ O ₃
P-6219	Rutile Violet Pearl	10-48	Mica, TiO ₂ , SnO ₂ , Ce ₂ O ₃
P-6300	Bright Gold	10-60	Mica, TiO ₂ , Fe ₂ O ₃ , SnO ₂ , Ce ₂ O ₃
P-6504	Wine Red	10-48	Mica, TiO ₂ , SnO ₂ , Ce ₂ O ₃

P-7000 Series DiamondDream

P-7000 Series DiamondDream pearlescent pigments are composed of high transparent flake crystals coated with Titanium Dioxide and other metal oxides. They exhibit an unusual transparency, extremely high refraction index, big and smooth flake shapes structure... All the properties combine to create a perfect combination of color and luster. Compared with conventional pearlescent pigments, they have special chroma properties, higher purity, and enhanced brightness/transparency, to release sparking diamond effects.

Typical Properties

Code	Color	Particle Size(μm)	Composition
P-7183	Super Flash Diamond Silver	40-300	Calcium Sodium Borosilicate, TiO ₂ , SnO ₂
P-7205	Super Flash Diamond Gold	40-300	Calcium Sodium Borosilicate, TiO ₂ , SnO ₂
P-7219	Super Flash Diamond Violet	40-300	Calcium Sodium Borosilicate, TiO ₂ , SnO ₂
P-7225	Super Flash Diamond Blue	40-300	Calcium Sodium Borosilicate, TiO ₂ , SnO ₂
P-7235	Super Flash Diamond Green	40-300	Calcium Sodium Borosilicate, TiO ₂ , SnO ₂

P-9000 Series Crystal Effect

P-9000 series Crystal effect pearlescent pigments consist of synthetic mica coated by metallic oxide layer, like Titanium Dioxide and Iron Oxide. Compared with natural mica, synthetic mica is the perfect substrate for pearlescent pigments with higher purity, weather resistance and won’t get gray and yellowish under high temperature condition. Furthermore, it has wonderful properties with better luster, chroma, less black spot and easy application.
* Typical colors, please refer to the table of Ming Hui P series pearlescent pigments.

Typical Properties

Code	Color	Particle Size(μm)	Composition
P-9100	Crystal Silver Pearl	10-60	Synthetic mica, TiO ₂
P-9170	Crystal Silver	50-400	Synthetic mica, TiO ₂
P-9350	Sunny gold	10-48	Synthetic mica, TiO ₂ , Fe ₂ O ₃
P-9380	Gold	80-500	Synthetic mica, TiO ₂ , Fe ₂ O ₃ , SnO ₂
P-9500	Crystal Bronze	10-60	Synthetic mica, Fe ₂ O ₃

Profile

Fluorescent pigment is the color substance, which is fluorescent and insoluble in medium. By absorbing visible and UV lights, fluorescent pigment can transfer the impalpable UV fluorescence into visible light with certain colors. And the strength of total radiated light is higher than normal color substance.

GS-3000 Series

GS-3000 series is synthesized by environmental friendly resin of formaldehyde free, having higher color strength, heat resistance, light fastness and good compatibility, suitable for various plastic processing with good mechanical performance. During the production process, there's no formaldehyde released, no viscosity to screw, no black points. By extending the continuous productive time for screw, shortening the time to wash, predigesting the clean process, it benefits for saving production cost. It is recommended to various plastics for injection, extrusion, blow molding, with heat resistance is up to 280℃

Physical & Chemical Property

Type	Thermoplastic pigment
Specific gravity	1.2 g/cm ³
Avg. particle size	≤30 μm
Softening point	>130℃
Decomposition point	>300℃
Heat resistance	280℃, 5min, PP

Code	Color Shade	Equivalence
GS-3010	STRONG YELLOW	Z 17
GS-3011	GREEN	N/A
GS-3013	ORANGE	Z 15
GS-3014	RED ORANGE	Z 14

Code	Color Shade	Equivalence
GS-3015	RED	Z 13
GS-3018	PINK	Z 11
GS-3019	BLUE	N/A
GS-3021	MAGENTA	Z 21

GS-8100 Series

GS-8100 series having excellent dispersion ability, heat resistance, non-migration, very low plate out and is in prill form.

Physical & Chemical Property

Type	Thermoset pigment
Specific gravity	1.3 g/cm ³
Average particle size	2-5 μm
Decomposition point	275℃
Oil absorption	56 ml/100g

Code	Color Shade	Equivalence
GS-8110	LEMON YELLOW	N/A
GS-8111	CHERRY	MP-CE 5606
GS-8112	PINK	MP-PK 5661
GS-8113	RED	MP-RD 5515
GS-8114	ORANGE RED	N/A
GS-8115	ORANGE	MP-OG 5513

Code	Color Shade	Equivalence
GS-8116	ORANGE YELLOW	MP-OY 5512
GS-8118	GREEN	MP-GR 5511
GS-8119	BLUE	MP-BL 6182
GS-8120	PURPLE	MP-PR 5547
GS-8121	MAGENTA	MP-MG 5518

Luminescent Pigment

Profile

HG series luminescent pigment is one self-luminescent material, which absorbs and stores light energy when exposed in natural or artificial light, then emits visible light in the darkness. Its self-life is unlimited cycle.

HG series luminescent pigment do not contain any radio-element and free of poisonous, to be used as one kind additive, which is able to be well dispersed into transparent mediums, e.g. coating, ink, plastic, textile printing paste, ceramic, glass, fiber ect., these finish products will present self-luminescent effect and special brightness.

Properties

1. Shorten light storing period, high brightness, lasting growing-up, colorful
2. Outstanding steady physical and chemical properties, excellent compatibility and long life
3. Non-poisonous, harmlessness. radio-element free, non-flammable, heavy metal content free
4. Fine particle gives easy dispersing and processing
5. Presents exciting stability at -60°C to 600°C

Application and dossage

Solvent base ink/ paint	5-30% (thickness 20μm)
Plastic injection/ extrusion	5-15% (thickness 0.2cm)

Remark

Avoid moisture during processing
 Avoid direct contact with metals
 Avoid friction at high temperatures.

Type	Appearance	Effect Color	1'Brightness (mcd/m²)	5'Brightness (mcd/m²)	10'Brightness (mcd/m²)	Avg. Particle Size (μm)	S.G (g/cm³)
HG K0	Light Yellowish	Yellowish Green	1062	287	≥140	5-8	3.4
HG K2	Light Yellowish	Yellowish Green	1450	378	≥180	15-25	3.4
HG K4S	Light Yellowish	Yellowish Green	2100	639	≥260	20-40	3.2
HG C4	Light White	Blueish Green	1138	334	≥130	10-30	3.2
HG K2C	White Powder	Yellowish Green	1989	537	≥280	30-50	3.6
HG MB4	Light Blue	Light Blue	669	162	≥80	20-40	3.4
HG MG4	Green	Green	993	246	≥125	20-40	3.4
HG MR4	Orangewish Red	Orangewish Red	426	113	≥60	20-50	3.4
HG MT4	Peach	Pinkish Orange	509	126	≥60	20-50	3.4
HG MY4	Yellow	Yellow	1256	323	≥160	20-40	3.4



Optical Brightener Agents

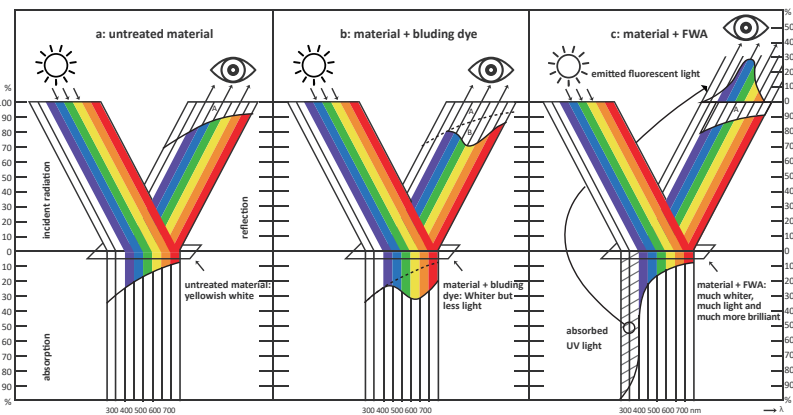
Profile

GS series Optical Brightener Agents selected widely used in application of dyeing for plastic, textile, synthetic fiber, paper and daily chemicals, etc.

Principles of operation

Principle of optical brightener: it absorbs the invisible ultraviolet light, changes the wavelength and emits visible blue light, which mixes with the yellow light of material to white light, to achieve the whitening effect.

Optical brightener can absorb invisible ultraviolet light, (wavelength range approximately 60-380 nm), convert it to a longer wavelength of visible blue or purple light , thus it can compensate unwanted yellowish in material,mean-while reflect more visible light in the range of 400-600 nm,so that products appear whiter, brighter. The whitening of fluorescent whitening agent does not cause physical damage to the material, but only tricks human eye. That's why Asians think bluish light is whiter, while Europeans see reddish-purple light as whiter.



- a: intreated material absorbs mainly blue light (A) → yellow cast
- b: blued material: yellow cast (a) compensated by additional absorption of green-yellow light (B) → loss of lightness
- c: material treated with FWA: reflectance + fluorescence → yellow cast compensated + excess of blue light (C)

Typical Properties

Code	C.I.No.	CAS	Equialence	Appearance	Shade
FOR PLASTIC, RESIN, RUBBER					
GS OB	C.I.184	7128-64-5	Uvitex OB(Ciba)	Bright yellowish greencrystal powder*	Bluish white
GS OB-1	C.I.393	1533-45-5	Eastobright OB-1(Eastman)	Light yellowish powder*	Reddish white
GS FP	C.I.378	40470-68-6	Uvitex FP(Huntsman)	Light yellowishcrystalline powder*	Reddish white
FOR POLYESTER					
GS ER-330	C.I. 199	13001-39-3	Ultraphor RN(Basf)	Light yellow liquid**	Reddish white
GS EB-330	C.I. 199:1	13001-38-2	Ultraphor SFN/SFG(Basf)	Light yellow liquid**	Bluish white
FOR COTTON					
GS 4BK	C.I.113	12768-92-2	Uvitex BHT(Ciba)	Light yellowish powder*	Reddish white
GS 4BI				Light yellowish powder*	Bluish white
FOR ACRYLIC					
GS BAC-L	C.I.363	95078-19-6	Uvitex BAC-L(Huntsman)	Amber liquid**	Pale purple
GS DT	C.I.135	12224-12-3	Uvitex ERN(Huntsman)	Light yellow liquid**	White

*Powder in 25kgs net per carton/fiber drum package

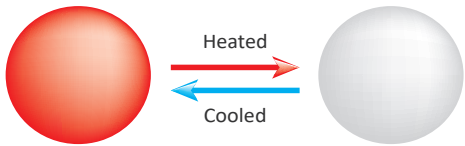
**Liquid in 25kg PVC drum/1000kgs IBC drum package

Profile

Color changes of Thermochromic pigments are induced by temperature change. The pigments are composed by microcapsules that change colors reversibly.

Properties

Fine particle size: the average size is 6-9um
Good dispersibility: With special surface treatment, it could be dispersed well in most carriers, like ink, paint and plastic.
Good heat resistance: It's stable under 140°C/ 30mins; 200°C/ 10mins.
Good solvent resistance: Insoluble in organic solvent



Application and Dosage

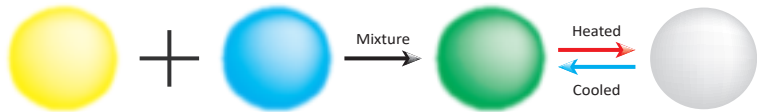
Solvent base ink/ paint
Water base ink/ paint
Plastic

Product Range

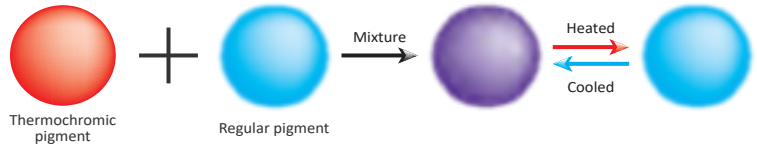
1. TCX series reversible heat sensitive color fading pigments, When temperature rises to a specified temperature, the color starts fading and back to the original color as the pigment is cooled down.
Available Activation Temperatures: 10-70°C.
Multi color available: 10 standard colors for each activation temperature. Yellow, Red, Pink, Magenta, Royal Blue, Yellowish Green, Green, Bluish Green, Brown, Black. Beside this, all the colors can be mixed with each other or added other pigments.

Reference colors for Application

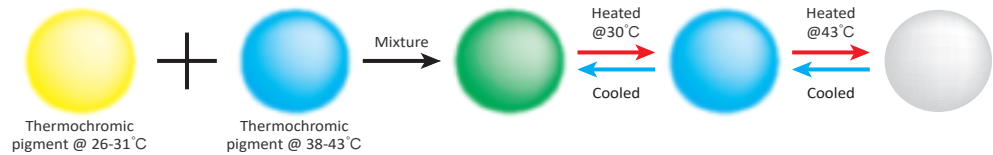
A. Match any color as your expect. You may mix different colors of thermochromic pigments with the same temperature to create more colors.



B. Two-phase Color Change. They also can be mixed with regular pigments, so that the color can be changed from one to another. At lower temperature, the color reveals matched shade. When the temperature is increased, the thermochromic pigment start fading to colorless. It only shows color of the regular pigments.



C. Multi-phase Color Change. By mixing the thermochromic pigments with different temperature ranges, the color can be varied for more than two colors.



2. TCF series reversible heat sensitive color revealing pigments, It's colorless under low temperature. When temperature rises to a specified temperature, the color starts revealing and back to colorless as the pigment is cooled down.
Available Activation Temperatures: 60-65°C.
Multi color available: Magenta, Blue, Green, all the colors can be mixed with each other or added other pigments.

Remark

Don't recommend to mix with other opaque pigments and fillers, it will be lower the effecting.
Avoid dispersing by high-speed shearing machine, like ball-grinding machine, sand-milling machine, three-rolling machine, etc. Otherwise, the protection layer may be destroyed and lose the effecting.
Avoid processing with high temperature (>230°C)
For printing inks/ paint, it is recommended to adjust the pH value of resin between 5-8.
Avoid using toluene as single solvent. If the formulation is a mixed solvent, less toluene is recommended.

Profile

Aluminum glitter is made of 100% coloring Aluminum film (refer to illustration C). Metal feeling is strong, brightness is extremely nice, the heatproof function is good, sliver color under 280°C processing, brightness and luster all will not change much.

Physical & Chemical Property

Color: Various colors are available
Particle shape: hexagon, square
Material: aluminium foil
Particle size: 1/256"(0.1mm), 1/128"(0.2mm), 1/96"(0.3mm), 1/64"(0.4mm), 1/48"(0.6mm), 1/25"(1.0mm), 1/16"(1.6mm)
Heat resistance: 280°C
They are available to be used for plastic injection molding.

Typical Properties

COLOR SHADE	COMMERCIAL NAME	APPEARANCE
	AL-001	Silver
	AL-102	Gold
	AL-107	Dark Gold
	AL-305	Red
	AL-307	Magenta
	AL-506	Blue
	AL-603	Green

