









## **Colorants for Coating Industry**

www.gs-chemicals.com



## **CATALOGUES**

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#### 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.

#### **Distributors in China**

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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.



**Z+**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.

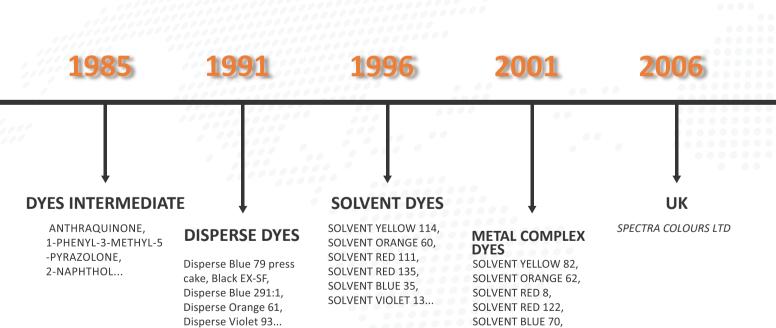
"People-oriented, honest-oriented" business ethics and "advanced technology" scientific spirit of seeking progress of the industry, creating value for society, for the nation to contribute to staff development and well-being and efforts to provide customers with high-quality technical service and high-tech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



SOLVENT BLACK 27...

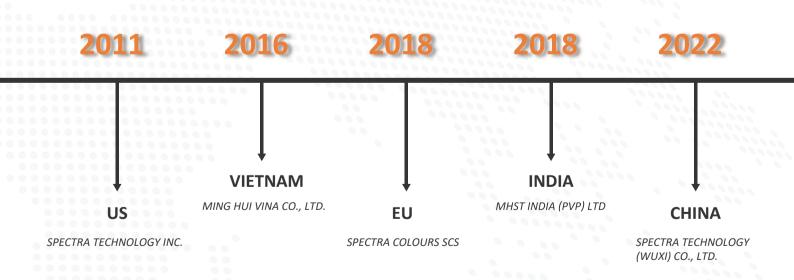




Pursuit Excellence
Quality Innovation







## Solvent Dyes

#### Metal Complex Dyes (Powder)

MH Dyestuffs are soluble in organic solvents and exhibit good all-round fastness properties. They have particularly good solubility in alcohols, ketones, esters and ethers.

MH Dyestuffs are suitable for coloration of inks, wood stains, leather finish, stamping foil and paints based on solvents.

MH Dyestuffs are approved by the following regulations: EN71-3, EN71-9, RoHS, ASTM F963

MH Dyestuffs have been acquired REACH PRE-Registration numbers

#### **Properties & Application**

| Color  | Shada            |                            |               |             | Solubil | ity (g/l)     |      |                  |                 | Fast           | ness l    | Prope            | rties             |                 |
|--|------------------|----------------------------|---------------|-------------|---------|---------------|------|------------------|-----------------|----------------|-----------|------------------|-------------------|-----------------|
| Wood   | Coated Art Paper | MH Code<br>C. I. NO.       | Alcohol 99.5% | Isopropanol | MPA     | Ethyl Acetate | MEK  | Solvent Mixture* | Heat Resistance | Light Fastness | Migration | Water Resistance | Alkali Resistance | Acid Resistance |
|  |                  | MH YELLOW 175<br>S. Y. 162 | 40            | <5          | 130     | 440           | >500 | 360              | 4               | 6              | 5         | 5                | 5                 | 5               |
|  |                  | MH YELLOW 181<br>S. Y. 79  | 190           | 40          | 240     | >500          | >500 | 400              | 3-4             | 6-7            | 5         | 5                | 5                 | 5               |
| A CONTRACTOR OF THE PARTY OF TH |                  | MH YELLOW 20<br>S. Y. 21   | 280           | 250         | 220     | 480           | >500 | 450              | 5               | 6-7            | 5         | 5                | 5                 | 5               |
|  |                  | MH YELLOW 57<br>S. Y. 82   | 260           | 80          | 300     | 460           | 470  | 370              | 5               | 6-7            | 5         | 5                | 5                 | 5               |
|  |                  | MH YELLOW AB<br>S. O. 11   | 50            | 25          | 150     | 150           | 200  | 150              | 5               | 7              | 5         | 5                | 5                 | 5               |
|  |                  | MH YELLOW KK<br>S. O. 45   | 300           | 140         | 220     | 460           | 400  | >500             | 4-5             | 6-7            | 5         | 4-5              | 5                 | 5               |
|  |                  | MH ORANGE 09<br>S. O. 62   | 230           | 70          | 190     | 150           | 500  | 400              | 4               | 6-7            | 5         | 5                | 5                 | 5               |
|  |                  | MH ORANGE 10<br>S. O. 54   | 230           | 60          | 180     | >500          | >500 | 480              | 4               | 6-7            | 5         | 5                | 5                 | 5               |
|  |                  | MH RED 04<br>S. R. 8       | 180           | 170         | 330     | 300           | 500  | 250              | 4               | 7-8            | 5         | 5                | 5                 | 5               |
|  |                  | MH RED 55<br>S. R. 119     | 10            | <10         | 300     | 10            | >500 | 360              | 4-5             | 6-7            | 5         | 5                | 5                 | 5               |
| **************************************   |                  | MH RED 06<br>S. R. 122     | 200           | 80          | 200     | 400           | 500  | 330              | 4               | 6-7            | 4-5       | 5                | 4-5               | 5               |
|  |                  | MH RED 357<br>S. R. 124    | 10            | <10         | 340     | 20            | 300  | 430              | 5               | 3-4            | 5         | 5                | 4-5               | 5               |

Formulation: MH Dyestuff 1%, Thinner 33%, Varnish 66%

<sup>\*</sup>Solvent Mixture: Alcohol 60%, Toluene 30%, Ethyl Acetate 10%



| Color | Shada            |                          |               |             | Solubil | ity (g/l)     |      |                  |                 | Fast           | tness     | Proper           | ties              |                 |
|-------|------------------|--------------------------|---------------|-------------|---------|---------------|------|------------------|-----------------|----------------|-----------|------------------|-------------------|-----------------|
| Wood  | Coated Art Paper | MH Code<br>C. I. NO.     | Alcohol 99.5% | Isopropanol | MPA     | Ethyl Acetate | MEK  | Solvent Mixture* | Heat Resistance | Light Fastness | Migration | Water Resistance | Alkali Resistance | Acid Resistance |
|       |                  | MH RED 10<br>S. R. 218   | 180           | <10         | 30      | <10           | 200  | 360              | 4               | 4-5            | 4-5       | 4-5              | 5                 | 4-5             |
|       |                  | MH RED 12<br>S. R. 49    | 30            | 20          | 260     | >500          | 300  | 320              | 3-4             | 4-5            | 4         | 5                | 5                 | 4-5             |
|       |                  | MH BLUE 03<br>S. BL. 5   | 30            | <10         | <10     | -             | 20   | 180              | 2               | 3-4            | 4         | 4                | 4                 | 4-5             |
|       |                  | MH BLUE BS<br>S.BL.45    | 55            | 65          | 230     | 295           | 390  | 300              | 5               | 5              | 5         | 5                | 5                 | 5               |
|       |                  | MH BLUE BL<br>S. BL. 136 | 200           | 200         | 200     | 25            | 300  | 200              | 5               | 5              | 4-5       | 4-5              | 5                 | 4               |
|       |                  | MH BLUE 06<br>S. BL. 70  | 90            | 130         | 210     | 15            | 450  | 350              | 3-4             | 5-6            | 5         | 5                | 5                 | 4               |
|       |                  | MH BLUE GN<br>S.BL.67    | 150           | 50          | 100     | 25            | 300  | 200              | 5               | 6              | 5         | 5                | 5                 | 5               |
|       |                  | MH GREEN 575<br>MIXTURE  | 25            | 60          | 210     | 25            | >500 | 400              | 4               | 5-6            | 4         | 4-5              | 5                 | 4-5             |
|       |                  | MH GREEN 20<br>MIXTURE   | 70            | 100         | 300     | 250           | >500 | 330              | 5               | 5-6            | 4-5       | 5                | 5                 | 5               |
|       |                  | MH BROWN 02<br>MIXTURE   | 100           | 40          | 130     | 100           | 400  | 350              | 5               | 6-7            | 5         | 4-5              | 5                 | 5               |
|       |                  | MH BROWN 05<br>MIXTURE   | 120           | 50          | 130     | 100           | 400  | 400              | 5               | 6-7            | 5         | 5                | 5                 | 5               |
|       |                  | MH BLACK 20<br>S. BK. 27 | 20            | 15          | 300     | 40            | 400  | 80               | 5               | 6-7            | 5         | 5                | 5                 | 4-5             |
|       |                  | MH BLACK 56<br>S. BK. 28 | 130           | 60          | 150     | 40            | 400  | 200              | 5               | 6-7            | 5         | 5                | 5                 | 5               |
|       |                  | MH BLACK 17<br>S. BK. 29 | 30            | 25          | >300    | 40            | >300 | >300             | 6               | 6              | 5         | 5                | 5                 | 5               |
|       |                  | MH BLACK 04<br>S. BK. 34 | 20            | <10         | 180     | 30            | 300  | 30               | 4-5             | 7-8            | 5         | 4-5              | 5                 | 5               |

Formulation: MH Dyestuff 1%, Thinner 33%, Varnish 66%

<sup>\*</sup>Solvent Mixture: Alcohol 60%, Toluene 30%, Ethyl Acetate 10%

## Solvent Liquid Dyes

#### C Type

Selected particularly suitable for wood stains, which are desalinated by special process. The basic characteristics of these liquid dyestuffs are good light fastness, good over lacquering resistance, very good compatibility with a wide variety of solvents, good storage stability low viscosity, fast drying and ease of use.



<sup>\*30%</sup> Concentration

#### L Type

In liquid form, this type can be thoroughly mixed and dissolved in water or oil, well meets environment friendly requirements. Similar to BASF's Eukesolar® E Liguid Dyes.

Usage Reference: Diluted directly water by 1:5 or 1:9, then mix with added water base resins (polyurethane e.g.), casein, auxiliary (Cross-linking agent, anticorrosive agent e.g.).



<sup>\*17%</sup> Concentration

#### RECOMMENDATION

The resins of woodstain popularly used are Nitrocellulose (NC) and Polyurethane (PU) etc.

#### Profile

SD series organic pigments are the special colorants for coating industry belong to gschem<sup>®</sup>.

SD series organic pigments are widely used for industrial paint, coil coating, powder coating, auto paint, textile printing, offset inks, water-base inks, solvent-base inks etc.

SD series organic pigments are sorted out and combined the consideration of properties and cost-benefit, it contains traditional adopted pigments, but also some high performance pigments, which were successful to be stably synthesized and supplied into market in recent years. SD series organic pigments are approved according to EN 71-3, RoHS, AP89-1.

#### **Properties & Application**

| Color      | Shade          |  | Fast<br>Prope          |                |                  |              |                | Pro                            | duct A                           | pplica     | ition            |             |                 |                   |
|------------|----------------|--|------------------------|----------------|------------------|--------------|----------------|--------------------------------|----------------------------------|------------|------------------|-------------|-----------------|-------------------|
| Full Shade | 1/3 Tint Shade | SD Code<br>C. I. NO.                     | Oil Absorption ml/100g | Light Fastness | Industrial Paint | Coil Coating | Powder Coating | Water-base<br>Decorative Paint | Solvent-base<br>Decorative Paint | Auto Paint | Textile Printing | Offset Inks | Water-base Inks | Solvent-base Inks |
|            |                | SD YELLOW GB                             | 45                     | 7              |                  |              |                | •                              |                                  |            | •                | •           |                 |                   |
|            |                | C. I. P. Y. 1<br>Semi-transparent, Brigl |                        |                | ade              |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW 10G                            | 45                     | 7              |                  |              |                | •                              |                                  |            |                  |             | •               | •                 |
|            |                | C. I. P. Y. 3<br>Semi-transparent, Gree  |                        |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW GP                             | 40                     | 6              |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | C. I. P. Y. 12<br>Semi-transparent, Neur |                        |                | hade             |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW GR                             | <br>55                 | 5              |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | C. I. P. Y. 13<br>Semi-transparent, Redo |                        |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW G                              | 40                     | 5              |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | C. I. P. Y. 14<br>Semi-transparent, Redo |                        |                |                  |              |                |                                |                                  |            |                  |             |                 | <u> </u>          |
|            |                | SD YELLOW 5GX<br>C. I. P. Y. 74          | 45                     | 7              | •                |              |                | •                              | •                                |            | •                | •           | •               | •                 |
|            |                | Semi-transparent, Gree                   | nish Sh                | ade            |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW HR<br>C. I. P. Y. 83           | 50                     | 6              | •                | •            | •              | •                              | •                                |            | •                | •           | •               | •                 |
|            |                | Semi-transparent, Redo                   | dish Sha               | de             |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW GRO<br>C. I. P. Y. 110         | 50                     | 8              | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Transparent, Reddish S                   | hade                   |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW HD<br>C. I. P. Y. 138          | 50                     | 6              | •                | •            | •              | •                              | •                                |            | •                |             |                 |                   |
|            |                | Semi-transparent, Gree                   | nish Sh                | ade            |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW H3R<br>C. I. P. Y. 139         | 45                     | 7              | •                | •            | •              | •                              | •                                |            | •                | •           | •               | •                 |
|            |                | Opaque, Reddish Shade                    | 9                      |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW EMD<br>C. I. P. Y. 150         | 55                     | 8              | •                | •            |                | •                              | •                                | •          | •                |             | •               | •                 |
|            |                | Semi-transparent, Neur                   | tral Yello             | owish S        | hade             |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW H4G<br>C. I. P. Y. 151         | 50                     | 8              | •                | •            |                | •                              | •                                | •          | •                | •           | •               | •                 |
|            |                | Semi-transparent, Gree                   | nish Sh                | ade            |                  |              |                |                                |                                  |            |                  |             |                 |                   |

## Organic Pigments

| Color      | Shade          |  |                        | ness<br>erties |                  |              |                |                                | duct A                           | pplica     | tion             |             |                 |                   |
|------------|----------------|--|------------------------|----------------|------------------|--------------|----------------|--------------------------------|----------------------------------|------------|------------------|-------------|-----------------|-------------------|
| Full Shade | 1/3 Tint Shade | SD Code<br>C. I. NO.                                     | Oil Absorption ml/100g | Light Fastness | Industrial Paint | Coil Coating | Powder Coating | Water-base<br>Decorative Paint | Solvent-base<br>Decorative Paint | Auto Paint | Textile Printing | Offset Inks | Water-base Inks | Solvent-base Inks |
|            |                | SD YELLOW H3G<br>C. I. P. Y. 154                         | 55                     | 7              | •                | •            |                | •                              | •                                | •          | •                | •           | •               |                   |
|            |                | Semi-transparent, Gree                                   | nish Sh                | ade            |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD YELLOW HG<br>C. I. P. Y. 180<br>Semi-transparent, Gre | 45<br>enish Sl         | 6-7<br>nade    | •                | •            | •              |                                | •                                | •          |                  |             |                 | •                 |
|            |                | SD ORANGE G<br>C. I. P. O. 13<br>Semi-transparent, Yelli | 50<br>owish S          | 6<br>hade      | •                |              |                | •                              | •                                |            | •                | •           | •               |                   |
|            |                | SD ORANGE RL<br>C. I. P. O. 34                           | 45                     | 6              | •                |              | •              | •                              |                                  |            | •                | •           | •               |                   |
|            |                | Semi-transparent, Red                                    | uish sh                | aue            |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD ORANGE GR<br>C. I. P. O. 43<br>Transparent, Reddish S | 45<br>Shade            | 5              | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD RED F2R<br>C. I. P. R. 2<br>Semi-transparent, Yell    | 45<br>owish S          | 6<br>hade      |                  |              |                | •                              |                                  |            | •                |             | •               |                   |
|            |                | SD RED B<br>C. I. P. R. 3<br>Semi-transparent, Yell      | 50<br>owish S          | 6<br>hade      | •                |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED F4R<br>C. I. P. R. 8<br>Semi-transparent, Blue    | 40<br>eish Sha         | 5<br>ide       |                  |              |                | •                              |                                  |            | •                |             | •               |                   |
|            |                | SD RED N<br>C. I. P. R. 22                               | 45                     | 5              |                  |              |                | •                              |                                  |            | •                |             | •               |                   |
|            |                | Semi-transparent, Yell                                   | owish S                | nade           |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED 2BN<br>C. I. P. R. 48:1<br>Semi-transparent, Yell | 55<br>owish S          | 4<br>hade      |                  |              |                |                                |                                  |            |                  |             | •               | •                 |
|            |                | SD RED 2BL<br>C. I. P. R. 48:2<br>Transparent, Blueish S | 60<br>hade             | 6              |                  |              |                |                                |                                  |            | •                |             | •               | •                 |
|            |                | SD RED 2BM<br>C. I. P. R. 48:4<br>Opaque, Blueish Shado  | 55<br>e                | 6              | •                |              | •              | •                              |                                  |            |                  |             | •               |                   |
|            |                | SD RED C C. I. P. R. 53:1 Semi-transparent, Yell         | 45                     | 4<br>hade      |                  |              |                |                                |                                  |            |                  | •           | •               | •                 |
|            |                | SD RED BK<br>C. I. P. R. 57:1<br>Semi-transparent, Blue  | 55<br>eish Sha         | 6<br>ide       |                  |              |                | •                              | •                                |            |                  | •           | •               | •                 |
|            |                | SD RED FGR<br>C. I. P. R. 112<br>Semi-transparent, Neu   | 40                     | 6              | •                |              |                | •                              |                                  |            | •                | •           | •               |                   |

## Organic Pigments

| Color      | Shade          |   | Fastne<br>Propert |                |                  |              |                |                                | duct A                           | pplica     | tion             |             |                 |                   |
|------------|----------------|---|-------------------|----------------|------------------|--------------|----------------|--------------------------------|----------------------------------|------------|------------------|-------------|-----------------|-------------------|
| Full Shade | 1/3 Tint Shade | SD Code<br>C. I. NO.                                    | Oil Absorption    | Light Fastness | Industrial Paint | Coil Coating | Powder Coating | Water-base<br>Decorative Paint | Solvent-base<br>Decorative Paint | Auto Paint | Textile Printing | Offset Inks | Water-base Inks | Solvent-base Inks |
|            |                | SD RED E-1<br>C. I. P. R. 122                           | 50                | 7              | •                | •            | •              | •                              | •                                | •          | •                | •           | •               | •                 |
|            |                | Semi-transparent, Blu                                   | eish Shade        | ?              |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED DNC<br>C. I. P. R. 123<br>Transparent, Neutral F |                   | 5-7<br>ada     | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD RED 3RK  |                   | auc            |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | C. I. P. R. 170<br>Semi-transparent, Yell               |                   | 6<br>de        | •                | •            |                | •                              |                                  | •          | •                | •           | •               |                   |
|            |                | SD RED 5RK<br>C. I. P. R. 170                           | 50                | 6              | •                |              | •              | •                              | •                                |            | •                | •           | •               |                   |
|            |                | Semi-transparent, Blu                                   | eish Shade        | ;              |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED HFC<br>C. I. P. R. 176                           | 70 6              | 6-7            | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Transparent, Blueish S                                  | Shade             |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED ATY<br>C. I. P. R. 177                           |                   | 7-8            | •                |              | •              | •                              | •                                | •          |                  |             |                 |                   |
|            |                | Transparent, Blueish S                                  | nade<br>          |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED 2GL<br>C. I. P. R. 179<br>Transparent, Dark Red  |                   | 7-8<br>e       | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD RED AHE  |                   |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | C. I. P. R. 185 Transparent, Blueish S                  |                   | 5-7            | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD RED SR<br>C. I. P. R. 190                            | 45                | 8              | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Transparent, Yellowei                                   | sh Shade          |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED 5BK<br>C. I. P. R. 202                           | 40 7              | 7-8            | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Transparent, Blueish S                                  | Shade             |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED HW<br>C. I. P. R. 208                            | 80 6              | 5-7            | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Transparent, Neutral                                    | Reddish Sh        | ade            |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED HE<br>C. I. P. R. 224                            | 35 7              | 7-8            | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Transparent, Blueish S                                  | Shade             |                |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED BO<br>C. I. P. R. 254                            |                   | 8              | •                | •            | •              | •                              | •                                | •          | •                |             |                 | •                 |
|            |                | Transparent, Neutral F                                  | kedish Shad       | de             |                  |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | SD RED 5G<br>C. I. P. R. 255<br>Opaque, Yellowish Sh    |                   | 7-8            | •                | •            |                | •                              | •                                |            |                  |             | •               | •                 |
|            |                | SD RED TTR  |                   |                | _                |              |                |                                |                                  |            |                  |             |                 |                   |
|            |                | C. I. P. R. 264   |                   | 7-8            | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | Semi-transparent, Blu                                   | eish Shade        | 9              |                  |              |                |                                |                                  |            |                  |             |                 |                   |

## Organic Pigments

| Color S    | ihade          |  | Fastness<br>Propertie |                  |              |                | Pro                            | duct A                           | pplica     | ition            |             |                 |                   |
|------------|----------------|--|-----------------------|------------------|--------------|----------------|--------------------------------|----------------------------------|------------|------------------|-------------|-----------------|-------------------|
| Full Shade | 1/3 Tint Shade | SD Code<br>C. I. NO.                                       | Oil Absorption        | Industrial Paint | Coil Coating | Powder Coating | Water-base<br>Decorative Paint | Solvent-base<br>Decorative Paint | Auto Paint | Textile Printing | Offset Inks | Water-base Inks | Solvent-base Inks |
|            |                | SD VIOLET PM<br>C. I. P. V. 3<br>Transparent, Blueish SI   | 50 5<br>hade          |                  |              |                |                                |                                  |            |                  | •           | •               | •                 |
|            |                | SD VIOLET E201<br>C. I. P. V. 19<br>Semi-transparent, Blue | 60 7                  | •                | •            | •              | •                              | •                                | •          | •                | •           | •               | •                 |
|            |                | SD VIOLET RL<br>C. I. P. V. 23<br>Transparent, Reddish S   | 60 7                  | •                | •            |                | •                              | •                                |            | •                |             | •               | •                 |
|            |                | SD VIOLET FM<br>C. I. P. V. 29<br>Semi-transparent, Red    | 45 7-                 | 8                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD BLUE B C. I. P. BL. 15 Transparent, Neutral B           | 45 7                  |                  |              |                | •                              |                                  |            | •                | •           | •               |                   |
|            |                | SD BLUE BR<br>C. I. P. BL. 15:1<br>Transparent, Reddish S  | 50 7                  |                  |              |                |                                |                                  |            |                  | •           | •               |                   |
|            |                | SD BLUE BF<br>C. I. P. BL. 15:2<br>Transparent, Reddish S  | 55 7<br>Shade         | •                | •            | •              | •                              | •                                | •          |                  | •           | •               |                   |
|            |                | SD BLUE BGS<br>C. I. P. BL. 15:3<br>Transparent, Greenish  | 50 7<br>Shade         | •                | •            | •              | •                              | •                                |            | •                | •           | •               | •                 |
|            |                | SD BLUE GX<br>C. I. P. BL. 15:4<br>Transparent, Greenish   | 45 7<br>Shade         | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD BLUE EP<br>C. I. P. BL. 15:6<br>Transparent, Reddish S  | 45 7<br>Shade         | •                | •            |                |                                | •                                | •          | •                |             |                 | •                 |
|            |                | SD BLUE A3R<br>C. I. P. BL. 60<br>Semi-transparent, Red    | 45 8<br>Idish Shade   | •                | •            | •              | •                              | •                                | •          |                  |             | •               | •                 |
|            |                | SD GREEN G C. I. P. GN. 7 Transparent, Neutral G           | 45 7                  |                  | •            | •              | •                              | •                                |            | •                | •           | •               | •                 |
|            |                | SD GREEN 6G<br>C. I. P. G. 36<br>Transparent, Yelloweis    | 35 7                  |                  | •            | •              | •                              | •                                | •          |                  |             | • s             | uitable           |

#### Application

Basically used for construction materials Plastic and rubber Paints and coatings Animal feed
Pigmented mulch
Ink and universal tint system

#### **Iron Oxide Pigments**

| Color      | Shade                   | Product Name    | Fe <sub>2</sub> O <sub>3</sub> | Fe <sub>3</sub> O <sub>4</sub> | Oil Absorption | Residue On Sieve            | Water-soluble<br>Content | Moisture | pH Value | Apparent Density |
|------------|-------------------------|-----------------|--------------------------------|--------------------------------|----------------|-----------------------------|--------------------------|----------|----------|------------------|
| Full Shade | ZnO Reduction<br>(1:10) | Troduct Name    | %                              | %                              | ml/100g        | - <u>ς</u><br>-γ<br>45μm, % | uble<br>%                | %        |          | Density<br>g/cm³ |
|            |                         | SW RED FE110    | ≥95                            | -                              | 15-25          | ≤0.3                        | ≤0.5                     | ≤1.0     | 3-7      | 0.7-1.1          |
|            |                         | SW RED FE120    | ≥95                            | -                              | 15-25          | ≤0.3                        | ≤0.5                     | ≤1.0     | 3-7      | 0.7-1.1          |
|            |                         | SW RED FE130    | ≥95                            | -                              | 15-25          | ≤0.3                        | ≤0.5                     | ≤1.0     | 3-7      | 0.8-1.1          |
|            |                         | SW YELLOW FE313 | ≥86                            | -                              | 25-35          | ≤0.3                        | ≤0.5                     | ≤1.0     | 3-7      | 0.4-0.7          |

#### Chrome Green

| Color Shade | Product Name  | Appearance      | Specific Gravity | Cr2O3 Content % | Tinting Strength + % | Oil Absorption % | Residue On Sieve m, % | Water Soluble<br>Matter | Moisture % | pH Value | Δm     |
|-------------|---------------|-----------------|------------------|-----------------|----------------------|------------------|-----------------------|-------------------------|------------|----------|--------|
|             | SW GREEN CRGN | Green<br>Powder | 5.2              | Min. 99         | 100                  | 15-25            | Max. 0.05             | Max. 0.5                | Max. 0.3   | 5-8      | Max. 1 |
|             | SW GREEN CRG  | Green<br>Powder | 5.2              | Min. 99         | 100                  | 15-25            | Max. 0.3              | Max. 0.5                | Max. 0.2   | 5-8      | Max. 1 |

#### Ultramarine Blue

| Color Shade | Product Name | Appearance     | Tinting Strength ±5%, | Oil Absorption<br>ml/100g | Residue On Sieve<br>45µm, % | Free Sulfur % | Moisture % | Ć <sub>m</sub> |
|-------------|--------------|----------------|-----------------------|---------------------------|-----------------------------|---------------|------------|----------------|
|             | SW BLUE 08   | Blue<br>Powder | 100                   | 35-45                     | 0.1                         | < 0.05        | ≤1         | <1             |
|             | SW BLUE 462  | Blue<br>Powder | 100                   | 35-45                     | 0.1                         | < 0.05        | ≤1         | <1             |

## II Inorganic Pigments

#### Chrome Yellow (Silica Coating Grade)

|             |               |           | Арр                    | earance             |          |         |            |        | Applica  | tion Appe                  | erance                      |               |                  |
|-------------|---------------|-----------|------------------------|---------------------|----------|---------|------------|--------|--|----------------------------|-----------------------------|---------------|------------------|
|             |               |           | Oil A                  | Spec                | pH Value | Solv    | ent Resist | tane   | Acid   | Alkal                      | Heat S                      | tability      | Wea              |
| Color Shade | Product Name  | C. I. No. | Oil Absorption ml/100g | Specific Gravity 9: | alue     | Butanol | MEK        | Xylene | Acid Fastness 2%<br>H <sub>2</sub> SO <sub>4</sub> | Alkali Fastness 1%<br>NaOH | Dop<br>8<br>150°C<br>30min. | Plastic 5min. | Weather Fastness |
|             |               |           |                        |                     |          |         |            |        |  |                            |                             |               |                  |
|             | LEMON CHROME  | P. Y. 34  | 27-33                  | 4.3                 | 6.0-8.0  | 5       | 5          | 5      | 5  | 5                          | 5                           | 280           | 3-4              |
|             |               |           |                        |                     |          |         |            |        |  |                            |                             |               |                  |
|             | MIDDLE CHROME | P. Y. 34  | 27-33                  | 4.3                 | 6.0-8.0  | 5       | 5          | 5      | 5  | 5                          | 5                           | 280           | 3-4              |
|             |               |           |                        |                     |          |         |            |        |  |                            |                             |               |                  |
|             | MOLYBDATE RED | P. R. 104 | 27-33                  | 4.3                 | 6.0-8.0  | 5       | 5          | 5      | 5  | 5                          | 5                           | 280           | 4-5              |

#### Bismuth Yellow

| Color Shade | Product Name  | Appearance       | Specific Gravity cm | Oil Absorption<br>ml/100g | Avg. Particle Size 🚊 | Residue On Sieve<br>45µm, % | Water Soluble<br>Matter | Moisture % | pH Value | Heat Resistance 。い | Acid Fastness | Alkali Fastness | Light Fastness | Weather Fastness |
|-------------|---------------|------------------|---------------------|---------------------------|----------------------|-----------------------------|-------------------------|------------|----------|--------------------|---------------|-----------------|----------------|------------------|
|             | SW YELLOW BIV | Yellow<br>Powder | 6.2                 | 18-28                     | 0.2                  | ≤ 0.5                       | ≤1                      | ≤ 1        | 6.0-9.0  | < 240              | 5             | 5               | 8              | 5                |

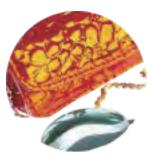
#### Titanium Dioxide (Rutile)

|             |               |                  | Basic C                  | haracters |                  |                            |                         | Ар             | plication C | onditions                         |                                   |   |
|-------------|---------------|------------------|--------------------------|-----------|------------------|----------------------------|-------------------------|----------------|-------------|-----------------------------------|-----------------------------------|---|
| Color Shade | Product Name  | Specific Gravity | TiO <sup>2</sup> Content | Moisture  | Residue On Sieve | Rutile Transformation Rate | Whiteness of Oil System | Oil Absorption | Ë           | pH Value of Aqueous<br>Suspension | Resistivity of Aqueous<br>Extract | Dispersion Under High-speed<br>Mixing of Alkyd System |
|             |               | g/cm³            | %                        | %         | 45μm, %          | %                          |                         |                | ml/100g     |                                   | Ω·Μ                               | <u>ā</u><br>μm  |
|             | 1             |                  |                          |           |                  |                            |                         |                |             |                                   |                                   |   |
|             | 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 pigments and dyestuff.







#### **Typical Properties**

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

### Pearlescent Pigments

#### **P-6000 Series Weather Resistance**

P-6000 Series Weather 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 <sub>2</sub> , SnO <sub>2</sub> , Ce <sub>2</sub> O <sub>3</sub>                                  |
| P-6205 | Rutile Platinum Pearl | 10-48             | Mica, TiO <sub>2</sub> , SnO <sub>2</sub> , Ce <sub>2</sub> O <sub>3</sub>                                  |
| P-6219 | Rutile Violet Pearl   | 10-48             | Mica, TiO <sub>2</sub> , SnO <sub>2</sub> , Ce <sub>2</sub> O <sub>3</sub>                                  |
| P-6300 | Bright Gold           | 10-60             | Mica, TiO <sub>2</sub> , Fe <sub>2</sub> O <sub>3</sub> , SnO <sub>2</sub> , Ce <sub>2</sub> O <sub>3</sub> |
| P-6504 | Wine Red              | 10-48             | Mica, TiO <sub>2</sub> , SnO <sub>2</sub> , Ce <sub>2</sub> O <sub>3</sub>                                  |

#### 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 <sub>2</sub> , SnO <sub>2</sub> |
| P-7205 | Super Flash Diamond Gold   | 40-300            | Calcium Sodium Borosilicate, TiO <sub>2</sub> , SnO <sub>2</sub> |
| P-7219 | Super Flash Diamond Violet | 40-300            | Calcium Sodium Borosilicate, TiO <sub>2</sub> , SnO <sub>2</sub> |
| P-7225 | Super Flash Diamond Blue   | 40-300            | Calcium Sodium Borosilicate, TiO <sub>2</sub> , SnO <sub>2</sub> |
| P-7235 | Super Flash Diamond Green  | 40-300            | Calcium Sodium Borosilicate, TiO <sub>2</sub> , SnO <sub>2</sub> |

#### **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 Properties**

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

## Fluorescent Pigments | | |

#### **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-2000 Series**

GS-2000 Series is the most widely used fluorescent pigment of all others, having brilliant, strong fluorescent color; fine particle size; uniform chroma. It's suitable for water and various solvent systems as paper coating, fabric printing paste, gravure ink, paint, screen printing ink (water base), PVC plastics and colloidal sol. Also the pigment can be used in plastics by injection molding in which the processing temperature is below 195 degree.

#### **Physical & Chemical Property**

Type Thermoplastic pigment

 $\begin{array}{lll} \text{Specific gravity} & 1.36 \text{ g/cm}^3 \\ \text{Avg. particle size} & \leq 10 \text{ } \mu\text{m} \\ \text{Softening point} & 115\text{-}125 ^{\circ}\text{C} \\ \text{Decomposition point} & 200 ^{\circ}\text{C} \\ \text{Oil absorption} & 56 \text{ ml/}100\text{g} \end{array}$ 

| Code    | Color Shade | Equivalence |
|---------|-------------|-------------|
| GS-2011 | CERISE      | AX 12       |
| GS-2012 | PINK        | AX 11       |
| GS-2013 | RED         | AX 13       |
| GS-2014 | RED ORANGE  | AX 14       |
| GS-2015 | ORANGE      | AX 15       |

| Code    | Color Shade   | Equivalence |
|---------|---------------|-------------|
| GS-2016 | ORANGE YELLOW | AX 16       |
| GS-2017 | STRONG YELLOW | AX 17       |
| GS-2018 | GREEN         | AX 18       |
| GS-2019 | BLUE          | N/A         |
| GS-2021 | MAGENTA       | AX 21       |

#### **GS-4000 Series**

GS-4000 Series is based on thermosetting resin fluorescent pigments, designed for applications in which solvent resistance and strong color strength are requied. Suitable for C-type gravure inks and screen printing ink (solvent base), PVC plastisols formulated with water and natural rubber.

#### **Physical & Chemical Property**

Type Thermoset pigment

 $\begin{array}{lll} \text{Specific gravity} & 1.36 \text{ g/cm}^3 \\ \text{Average particle size} & \leq 5 \text{ } \mu\text{m} \\ \text{Decomposition point} & 230 ^{\circ}\text{C} \\ \text{Oil absorption} & 56 \text{ ml/100g} \\ \end{array}$ 

| Code    | Color Shade | Equivalence  |
|---------|-------------|--------------|
| GS-4010 | VIOLET      | N/A          |
| GS-4011 | CERISE      | T 12         |
| GS-4012 | PINK        | T 11 / GT 11 |
| GS-4013 | RED         | T13 / GT 13  |
| GS-4014 | RED ORANGE  | T14 / GT 14  |
| GS-4015 | ORANGE      | T15          |

| Code    | Color Shade   | Equivalence  |
|---------|---------------|--------------|
| GS-4016 | ORANGE YELLOW | T16          |
| GS-4017 | LEMON YELLOW  | T 17 / GT 17 |
| GS-4018 | GREEN         | T 18         |
| GS-4019 | BLUE          | T 19         |
| GS-4020 | WHITE         | N/A          |
| GS-4021 | MAGENTA       | GT 21        |

#### **GS-5000 Series**

GS-5000 Series is good transparency, fully dissolved in solvents, suitable for solvent base relief and gravure printing ink, wrapping papers, transparent films, aluminum foil surface printing and UV-curing ink.

#### **Physical & Chemical Property**

Type Thermoset pigment

Specific gravity 1.36 g/cm<sup>3</sup>

Recommended solvent MEK, Ethyl Acetate

## Fluorescent Pigments

| Code    | Color Shade   | Equivalence |
|---------|---------------|-------------|
| GS-5010 | LEMON YELLOW  | N/A         |
| GS-5012 | PINK          | HM-11       |
| GS-5013 | RED           | HM-13       |
| GS-5014 | RED ORANGE    | HM-14       |
| GS-5015 | ORANGE        | HM-15       |
| GS-5016 | ORANGE YELLOW | N/A         |
|         |               |             |

| Code    | Color Shade   | Equivalence |
|---------|---------------|-------------|
| GS-5017 | STRONG YELLOW | HMS-34      |
| GS-5018 | GREEN         | N/A         |
| GS-5019 | BLUE          | N/A         |
| GS-5020 | VIOLET        | N/A         |
| GS-5021 | MAGENTA       | HMS-30      |
|         |               |             |

#### GS-8900 Series

GS-8900 Series are thermoset and fine microspherical particles distributed render new properties ever seen before: the best resistance to plateout and plasticizers. They have excellent light scattering and opacity, dispersability, tinting strength, and broad compatibility.

RECOMMENDED APPLICATOINS: Extruded & moulded polyolefin plastics; PVC coating & moulding

#### **Physical & Chemical Property**

Type Thermoset pigment

Specific gravity 1.3 g/cm³
Avg. particle size ≤5 µm
Decomposition point 300°C

| Code    | Color Shade  | Equivalence |
|---------|--------------|-------------|
| GS-8910 | LEMON YELLOW | N/A         |
| GS-8912 | PINK         | 210-45      |
| GS-8913 | RED          | 210-8       |
| GS-8914 | RED ORANGE   | 210-6       |
| GS-8915 | ORANGE       | 210-5       |
| GS-8916 | ORANGE       | 210-4       |

| Code    | Color Shade   | Equivalence |
|---------|---------------|-------------|
| GS-8917 | STRONG YELLOW | 210-3       |
| GS-8918 | GREEN         | 210-1       |
| GS-8919 | BLUE          | 210-21      |
| GS-8920 | VIOLET        | 210-60      |
| GS-8921 | MAGENTA       | 210-45      |
|         |               |             |

#### **GS-9000 Series**

GS-9000 Series is aqueous dispersion of fluorescent pigments which is Formaldehyde Free, they have excellent particle size with narrow distribution, bright, high tinting strength, can be widely used in aqueous series field.

#### **Physical & Chemical Property**

Type 40% Paste Specific gravity  $1.0 - 1.1 \text{ g/cm}^3$  Avg. particle size  $0.2 - 0.25 \text{ } \mu \text{m}$  Solid percentage 40% - 42% pH value 7.0 - 8.5

| Code    | Color Shade   | Equivalence |
|---------|---------------|-------------|
| GS-9011 | CERISE        | N/A         |
| GS-9012 | PINK          | SPL-11N     |
| GS-9013 | RED           | SPL-13N     |
| GS-9014 | RED ORANGE    | SPL-14N     |
| GS-9015 | ORANGE        | SPL-15N     |
| GS-9016 | ORANGE YELLOW | N/A         |

| Code    | Color Shade  | Equivalence |
|---------|--------------|-------------|
| GS-9017 | LEMON YELLOW | SPL-17N     |
| GS-9018 | GREEN        | N/A         |
| GS-9019 | BLUE         | SPL-19N     |
| GS-9020 | VIOLET       | N/A         |
| GS-9021 | MAGENTA      | SPL-21N     |
|         |              |             |

### **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.





| Туре          | Appearance      | Effect Color    | 1'Brightness<br>(mcd/m²) | 5'Brightness<br>(mcd/m²) | 10'Brightness<br>(mcd/m²) | Avg. Particle Size<br>(μm) | S.G<br>(g/cm³) |
|---------------|-----------------|-----------------|--------------------------|--------------------------|---------------------------|----------------------------|----------------|
| н <b>G</b> ко | 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        | Orange Red      | Orange          | 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            |

## **UV Fluorescent Pigments**

#### Profile

FG series UV fluorescent pigments have a light grey or white color body under visible light and produce a bright color when exposed to an UV light source. They can be used for security and tracing functions where a non-visible color is warranted.

FG series UV fluorescent pigments can be used in a wide range of applications such as rotogravure and intaglio printing, plastics and coatings. These materials have excellent temperature stability and solvent resistance. FG series UV fluorescent pigments can be also mixed with each other to create additional color.

FG series UV fluorescent pigments have excellent heat stability, they can withstand temperatures above 300 °C making them excellent candidates for use in plastic resins. FG series UV fluorescent pigments are compatible with a number of different resin systems and molding processes. They can be used in polyolefins, PVC, ABS, PC, GPPS, and HIPS. Concentrations of FG series pigments between 0.25% (organic UV pigment) and 2% (inorganic UV pigment) are recommended for initial formulatory screenings.



#### **Graphic Arts and Coating Applications**

Because of FG series UV fluorescent pigments excellent solvent resistance, they can be used in a number of inks and coatings. An initial pigment concentration of 5% to 10% is recommended but may need to go up to 25% based on film thickness. Also, this is an individual choice based on color strength response under a UV light source.



| TYPE  | Appearance  | Emission Color | Avg. Particle Size<br>(μm) | Heat Resistance | Oil Absorption | S.G<br>(g/cm³) | Light<br>Fastness |
|-------|-------------|----------------|----------------------------|-----------------|----------------|----------------|-------------------|
| FG-OR | Grey White  | Red            | 5-10                       | 150°C 30min     | 31-42          | 1.02           | 2                 |
| FG-OY | Grey White  | Yellow         | 5-10                       | 150°C 30min     | 31-42          | 1.02           | 4                 |
| FG-OG | Grey White  | Green          | 5-10                       | 150°C 30min     | 31-42          | 1.02           | 2                 |
| FG-OB | Light Green | Blue           | 5-10                       | 150°C 30min     | 31-42          | 1.02           | 4                 |

## Thermochromic Pigments

#### Profile

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

## Heated

#### **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.

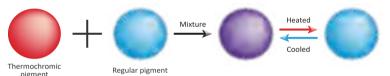
Multi color available: 10 standard colors for each activation temperature. Yellow, Red, Pink, Magenta, Royal Blue, Yellowish Green, Green, Bluish Green, Brown, Black. Beside this, all the colors can be mixed with each other or added other pigments.

#### **Reference colors for Application**

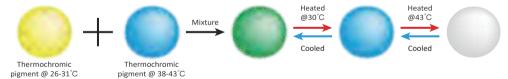
A. Match any color as your expect. You may mix different colors of thermochromic pigments with the same temperature to create more colors.



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

Metallic Glitter is made from coloring PET film through high brightness vacuum aluminum, outstanding metal effect. It gives stable physical and chemical properties.

Hologram Glitter is made of hologram film. Reflecting nature light caused it's visual multicolor with different sight angle.

#### **Physical & Chemical Property**

Color: Various colors are available Particle shape: hexagon, square

Material: PET film

Particle size: 1/360"(0.07mm), 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).

| Resistant                          | Test Method        | Description   |
|------------------------------------|--------------------|---|
| Temperature (5 min.)               | Laboratory furnace | Between 60"C and 175°C                                      |
| MEK (Methyl Ethyl Keton)           | 15 min.            | Partially resistant   |
| Low concentrated alcohol (30 %)    | 15 min.            | Resistant<br>Please test prior to application.              |
| Highly concentrated alcohol (70 %) | 15 min.            | Depends on the colours<br>Please test prior to application. |
| H <sub>2</sub> O                   | 24 hour            | Resistant   |
| H <sub>2</sub> O                   | 3 months           | Partially resistant   |

#### **Metallic Glitter**

| Color Shade | Commercial Name | Apperance   |
|-------------|-----------------|-------------|
|             | HX-001          | Silver      |
| 1.5         | HX-102          | Royal Gold  |
|             | HX-103          | Gold        |
|             | HX-109          | Bright Gold |
| (47)        | HX-210          | Bronze      |
|             | HX-305          | Red         |
|             | HX-307          | Magenta     |
|             | HX-404          | Violet      |

| Color Shade | Commercial Name | Apperance     |
|-------------|-----------------|---------------|
| 李可思         | HX-405          | Purple        |
|             | HX-506          | Lake Blue     |
|             | HX-508          | Jet Blue      |
|             | HX-602          | Lemon Green   |
| 3 144       | HX-603          | Green         |
|             | HX-711          | Brown         |
|             | HX-812          | Black         |
|             | HX-000          | Crystal Clear |

#### **Hologram Glitter**

| Color Shade | Commercial Name | Apperance   |
|-------------|-----------------|-------------|
| - T         | HXR-001         | Iris RG     |
|             | HXR-002         | Iris GB     |
|             | HXR-003         | Iris Violet |
| and the     | HXR-102         | Yellow      |
| 1 1 1       | HXR-304         | Pink        |

| Color Shade | Commercial Name | Apperance |  |
|-------------|-----------------|-----------|--|
|             | HXR-305         | Red       |  |
|             | HXR-404         | Violet    |  |
| A STATE OF  | HXR-506         | Blue      |  |
|             | HXR-603         | Green     |  |

#### Profile

Retro-reflective fabric commonly known as reflective fabric, reflective film of all varieties. This fabric is a fabric with a safety function, or a dark night when the person wearing or carrying activities such material back to the gas safety reflective material, in the event of light irradiation, because of its retro-reflective function, will produce eye-catching effect, improve their visibility, so that the light at the officers in finding the target quickly and effectively to avoid accidents, ensure personal safety are widely used in road safety, cloth fabric, ports, fire, mining, marine, transportation, etc. area.

#### Theory

Retro-reflective is the phenomenon of light reflection, the reflected light by the incident light direction most of the return light source direction. Reflective fabric is reflective of the main directional glass beads, mirrors (coated) and the fabric substrate, adhesive, etc., when the light shines into the glass sphere, with light refraction in the glass medium, the days after the ball surface specular reflection layer after reflection, and refraction through the ball return light source direction, the direction of reflected light to achieve the return direction by refraction purpose.

#### Application

- 1. Glass Bead for Road Marking Line
  - (1) Drop on glass bead
    - Druing the application of paint on road work, thermoplastic paint should be heated to a certain level and used on the road surface as marking line, drop on glass bead should be dropped on the surface of line while it is still wet to increase the reflectivity of road marking line.
  - - During the production of road marking paint, mix glass bead into paint based on the ratio of 18-25% (weight percentage). After application of such kind of paint on road work, the paint still can keep reflectivity after wear and friction of car wheels.



Production of high-refraction glass beads is the core component of reflective material, barium titanium oxide is a synthetic glass. Gravity 4.2±0.1, refractive index ND1.93 ± 0.02. (Proportion of 2.7 ordinary silica glass, the refractive index of 1.52). Bead appearance, white or slightly yellow, not round rate greater than or equal to 95%; defects bead ratio <3% -5%, brightness ≥ 560 degrees.

- (1) Exposed type: fabric or membrane
  - Stick by agents, reflective layer (coating layer) stick by agents, bead layer, which is characterized by single-bead level was arranged, no beads in front of the cover, part of beads exposed to the air, part of the plant in the sticky mixture layer. Beads and the reflective layer by direct contact or very close, reflective and better adapt to the incident angle.
- (2) Implant type: film or fabric
  - Stick by agents, reflective layer (coating layer) stick by agents, bead layer, resin layer, which is characterized by single beads were arranged beads implanted in the adhesive resin layer, without contact, bonding strong, broad adaptation to the environment.

# Resin Lave

Exposed Type of Reflective Glass Bead

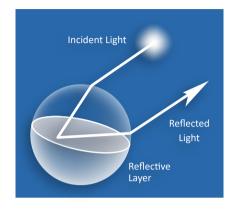
#### **Products**

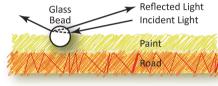
#### Glass Bead for Road Marking Line

| Code      | Туре     | Refractivity |
|-----------|----------|--------------|
| RGB 6030A | Intermix | 1.5          |
| RGB 6030B | Drop on  | 1.5          |

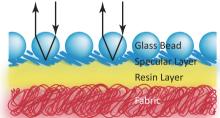
#### **Reflective Glass Bead**

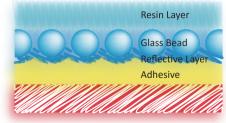
| Code      | Refractivity | Particle Size<br>(Mesh) |
|-----------|--------------|-------------------------|
| RGB 1620C | 1.93         | 160-200                 |
| RGB 2025C | 1.93         | 200-250                 |
| RGB 2530C | 1.93         | 250-300                 |
| RGB 3035C | 1.93         | 300-350                 |
| RGB 3540C | 1.93         | 350-400                 |
| RGB 4045C | 1.93         | 400-450                 |
| RGB 4550C | 1.93         | 450-500                 |





Glass Bead for Road Marking Line





Implant Type of Reflective Glass Bead

#### **High Refractive Index Glass Bead**

| Code      | Refractivity | Particle Size<br>(Mesh) |
|-----------|--------------|-------------------------|
| RGB 1620D | 2.2          | 160-200                 |



#### Vinyl Chloride- Vinyl Acetates Copolymers

| ltem    | Appearance   | Adhesion<br>Number | K value | Vinyl Acetate %<br>Content | Volatile | Sieving@40 %<br>mesh | Impurity<br>Particles | Application   |
|---------|--------------|--------------------|---------|----------------------------|----------|----------------------|-----------------------|---|
| VC-VA50 | White Powder | 48-52              | 45-46   | 13-15                      | <1       | 100                  | <20                   | Gravure inks and varnish.                               |
| VC-VA55 | White Powder | 53-57              | 46-48   | 13-15                      | <1       | 100                  | <20                   | Color chips,paint                                       |
| VC-VA62 | White Powder | 60-64              | 49-51   | 13-15                      | <1       | 100                  | <20                   | Color chips,paint                                       |
| VC-VA68 | White Powder | 66-69              | 51-53   | 12-14                      | <1       | 100                  | <20                   | Spray ink for shoes                                     |
| VC-VA72 | White Powder | 71-73              | 53-55   | 13-15                      | <1       | 100                  | <20                   | Color chips(black & white)                              |
| VC-VA80 | White Powder | 79-82              | 53-55   | 10-12                      | <1       | 100                  | <20                   | Binder of magnetic substrates<br>(credit card)          |
| VC-VA92 | White Powder | 91-93              | 60-62   | 13-15                      | <1       | 100                  | <20                   | PVC leather surface treatment agent,PVC sheet modifiers |

Package:25 KG paper bag.

#### Vinyl Terpolymer Resin with Carboxyl Function Group

| Item   | Appearance   | Adhesion<br>Number | K value | Vinyl Acetate %<br>Content | Maleic Acid %<br>Content | Volatile | Application  |
|--------|--------------|--------------------|---------|----------------------------|--------------------------|----------|--|
| 14/45M | White Powder | 48-52              | 45-46   | 13-15                      | 1.5-2.1                  | <1       | Primer and inks for golden and   |
| 14/46M | White Powder | 53-57              | 46-48   | 13-15                      | 1.5-2.1                  | <1       | silver card papers. Hot melting binder for aluminium foils package, can coating, |
| 14/48M | White Powder | 58-60              | 48-50   | 13-15                      | 1.5-2.1                  | <1       | plastic paint, anti-corrosive paint  |
| 12/49M | White Powder | 60-62              | 49-50   | 11-13                      | 1.5-2.1                  | 1        | Adhesive for nail and PCB,   |
| 12/47M | White Powder | 55-57              | 47-48   | 11-13                      | 1.5-2.1                  | 1        | coatings on aluminum foil.   |
| 25/36M | White Powder | 37-39              | 36-37   | 24-26                      | 0.9-1.1                  | 1        | Ester-soluble ink and can coating  |

Package:25 KG paper bag.

#### Polyamide Resin (Alcohol Soluble)

| Item  | Appearance           | *1<br>Viscosity<br>mpa.s | Acid Value | Amine Value | Color<br>Fe-Co | Soften Point ့O | * Tolerance ∞ | Application                     |
|-------|----------------------|--------------------------|------------|-------------|----------------|-----------------|---------------|---------------------------------|
| AP-01 | Light Yellow Granule | 120-180                  | <6         | <6          | <8             | 95-106          | >6.7          | Gravure ink, hot melt adhesive. |
| AP-02 | Light Yellow Granule | 120-160                  | <6         | <6          | <8             | 100-120         | >3            | ,                               |

#### Polyamide Resin (Benzene Soluble)

| Item  | Appearance           | * Viscosity a.s | Acid Value | Amine Value | Color<br>Fe-Co | Soften Point ့O | × Tolerance ∞ | Application                     |
|-------|----------------------|-----------------|------------|-------------|----------------|-----------------|---------------|---------------------------------|
| BP-01 | Light Yellow Granule | 70-90           | <5         | <5          | <6             | 105-115         | N/A           |                                 |
| BP-02 | Light Yellow Granule | 100-150         | <5         | <5          | <6             | 105-115         | N/A           | Gravure ink, hot melt adhesive. |
| BP-03 | Light Yellow Granule | 150-200         | <5         | <5          | <6             | 105-115         | N/A           |                                 |

Package: 25 KG paper bag.

#### **Vinyl Terpolymer Resin with Hydroxyl Function Group**

| Item  | Appearance   | Adhesion Number | K value | Vinyl Acetate Content % | Hydroxyl Value | Volatile | Application  |
|-------|--------------|-----------------|---------|-------------------------|----------------|----------|--|
| 4/45H | White Powder | 48-52           | 45-46   | 4-6                     | 70-77          | <2       |  |
| 4/46H | White Powder | 53-57           | 46-48   | 4-6                     | 70-77          | <2       | Polyester ink(mix with PU and EVA);<br>wood paint and metal paint. |
| 4/48H | White Powder | 58-62           | 48-50   | 4-6                     | 70-77          | <2       |  |

Package:25 KG paper bag.

#### Poly(vinyl chloride-co-isobutyl vinyl ether)(VC-IBVE)

| Item   | Appearance   | Chlorine % | K value | Density<br>g/cm <sup>3</sup> | *Viscosity a.s<br>mpa | Application   |
|--------|--------------|------------|---------|------------------------------|-----------------------|---|
| MP-150 | White Powder | 44±1       | ≈30     | 1.25                         | 15±3                  |   |
| MP-250 | White Powder | 44±1       | ≈35     | 1.24                         | 25±5                  | Chlorinated binders, resistant to hydrolysis for the manufacture                                    |
| MP-350 | White Powder | 44±1       | ≈35     | 1.24                         | 35±5                  | of anticorrosive paint on iron<br>and steel as well as for printing<br>inks and roadmarking paints. |
| MP-450 | White Powder | 44±1       | ≈35     | 1.24                         | 45±5                  |   |

Package: 20 KG paper bag

<sup>\*</sup>¹Viscosity Testing: Benzene soluble type is at 25°C,40% solution in mixture solvent(Toluene:IPA=7:3); Alcohol soluble type is at 25°C,50% solution in Anhydrous Alcohol.

<sup>\*2</sup>Tolerance testing: Maximal dosage of Anhydrous Alcohol in 10g of 50% Alcohol Soluble Type resin solution.

<sup>\*</sup>Viscosity Testing: at 23°C, 20% solution in toluene.