

EFFECT PIGMENTS FOR COATING APPLICATIONS

AGENDA

- 01 Company Profile
- 02 Product Portfolio
- 03 Microscopic Images
- 04 Coating Applications
- 05 Color Popularity - Automotive
- 06 Performance Meets Design

01

COMPANY PROFILE

We Bring Color to the World



01 COMPANY PROFILE



Facts & Figures

EMPLOYEES

521

REVENUE

USD 88.6 MM in 2019

FOUNDED

In 1999

BUSINESSES

Pearlescent, Special Effect
& Colored Pigments

HEADQUARTERS

Fuqing, China

01 COMPANY PROFILE

Plant 1

- Total area: 120,000 sqm
- Construction area: 100,000 sqm
- Annual production capacity of 20,000 tons of synthetic mica substrate



Plant 2

- Total area: 300,000 sqm
- Construction area: 200,000 sqm
- Fully automated state-of-the-art production lines
- Annual production capacity of 30,000 tons of finished pearlescent pigments

01 COMPANY PROFILE



Fushi New Material Plant

- Total area of 200,000 sqm
- Production capacity of 200,000 tons of titanium oxychloride & 200,000 tons of iron chloride
- Back integrate the demand of Plant II for iron chloride and titanium oxychloride



Zhengtai Factory

- Planned production quantities:
 - 500,000 tons of TiO_2 and
 - 500,000 tons Fe_2O_3 pigments
- 100,000 tons predicted to be produced in 2nd half of 2020



Development Milestones



01 COMPANY PROFILE



Global Market Service Overview



- Over 60 distributors in China
- More than 50 international distributors
- Sales in 100+ countries
- Global Online Customer Service
- Logistics service within 24 hours

02

PRODUCT PORTFOLIO

Effect Pigments Made by Kuncai



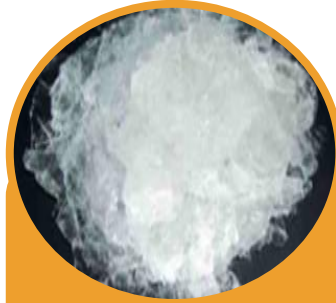


Product Portfolio



Natural Mica

- Iron content >2%
- Relatively yellowish and greyish reflection
- Natural material variations
- Moderate luster
- Naturally occurring substrate



Synthetic Mica (Fluorophlogopite)

- Iron content < 0,1%
- Very white and clean reflection
- Almost no batch-to-batch variation
- High luster and high chroma
- Synthetically produced substrate



Glass Flake (Calcium Sodium Borosilicate)

- Extreme transparency
- Extraordinary sparkle
- Multicolor reflection
- Synthetically produced substrate

NATURAL MICA



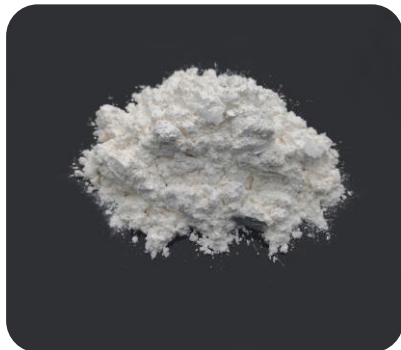
KC Pearls

- Standard effect pigment range
- Classic pearlescent effect
- Silver white, Interference, Gold, Metallic Effects



Neomica

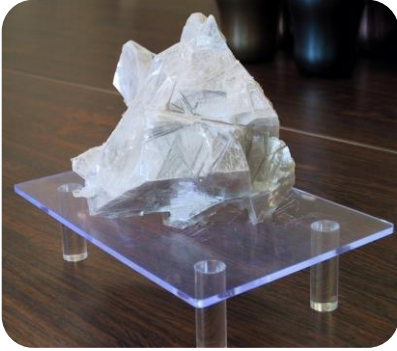
- New generation of natural mica pearls
- Improved hiding power and reflection properties
- Silver white



SyaKarp

- Multilayer coating technology
- Classic pearlescent pigments at the highest level
- Optimal color saturation and tight particle size distribution (PSD)
- Interference

SYNTHETIC MICA



Crystal

- Standard range based on synthetic mica
- Higher level of transparency, more vivid and purer colors vs. natural mica
- Silver white, Interference, Gold, Metallic Effects



Kyntaline

- Multilayer coating technology
- Strong color intensity, excellent brightness and reflection power
- Silver white, Interference



Plovence

- Multilayer coating technology
- Optimal color saturation and tight PSD
- Transparency and color purity enhanced vs. SyaKarp
- Interference

SYNTHETIC MICA



Setallic

- Multilayer coating technology
- Vibrant sparkle, outstanding color intensity, great color saturation and a three-dimensional depth
- Strong pronounced Reds, Oranges and Earth tones



XillaMaya

- Multilayer coating technology
- Highest chroma, strong sparkle and excellent hiding power and a small, tight PSD
- Silver white, Interference, Metallic Effects



Chameleon

- Eye-catching multicolor effects with amazing color travel depending on the viewing angle
- Transitions through several colors
- Multicolor (also available based on borosilicate)

BOROSILICATE



Diamond

- Most transparent multicolor sparkling pigments
- Extraordinary sparkle effect in multicolored reflections at low concentrations
- Silver white, Interference



DinaStar

- High transparency, multicolor sparkle
- Brilliant glitter and radiant shine at low concentrations
- Silver white, Interference



Chameleon

- Eye-catching multicolor effects with amazing color travel depending on the viewing angle
- Transitions through several colors
- Multicolor (also available based on synthetic mica)

02 WEATHERPROOF EFFECT PIGMENTS

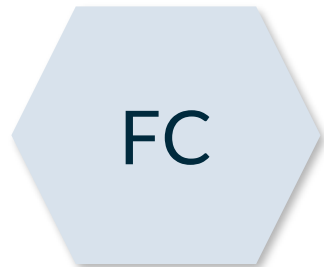
Three Weatherproof Treatments



- For solvent and waterborne systems
- Chromium free

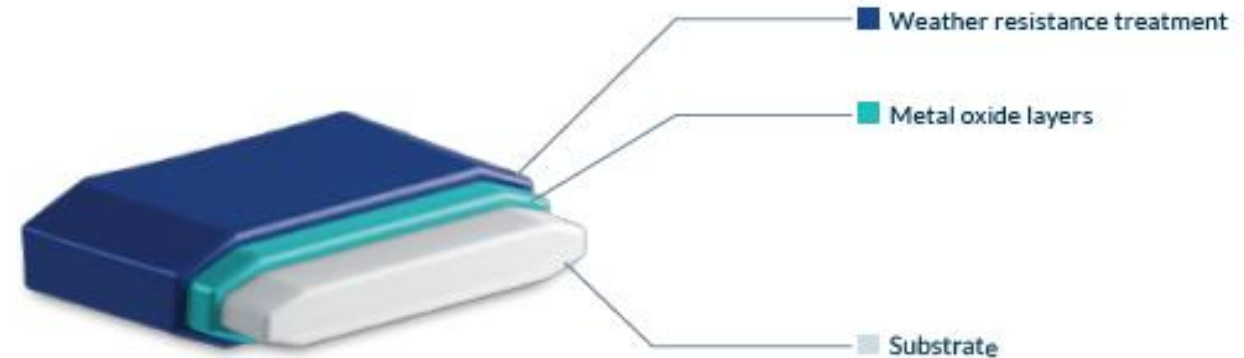


- For powder, plastic coating and other application systems
- Chromium III based coating



- For coil, high temperature coatings
- High performance for all applications
- Chromium III based coating

CROSS-SECTION OF A WEATHERPROOF EFFECT PIGMENT
STRUCTURE DIAGRAM



Product Features

- Final coating with organofunctional layer
- Coating with coupling agent to improve compatibility
- Excellent UV yellowing resistance
- Good temperature resistance
- Very good humidity resistance



Application Properties

- Suitable for waterborne and solventborne systems
- Easily dispersible
- Highly recommended for use in OEM and refinish coatings



Product Features

- Final coating of the effect pigment with chromium hydroxide
- Excellent UV yellowing resistance
- Extremely high temperature resistance
- High humidity resistance



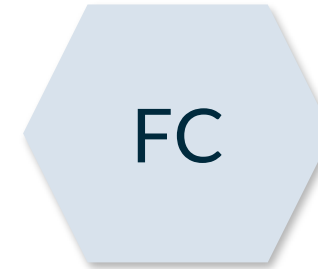
Application Properties

- Suitable for waterborne and solventborne systems
- Easily dispersible
- Suitable for exterior coatings due to excellent weather resistance properties
- Suitable for interior applications due to outstanding humidity resistance and UV resistance properties



Product Features

- Specially designed inorganic encapsulation of the effect pigment particle to protect the titanium dioxide layer and improve UV stability
- Outstanding UV resistance
- Outstanding weather resistance
- Very good high-temperature resistance



Application Properties

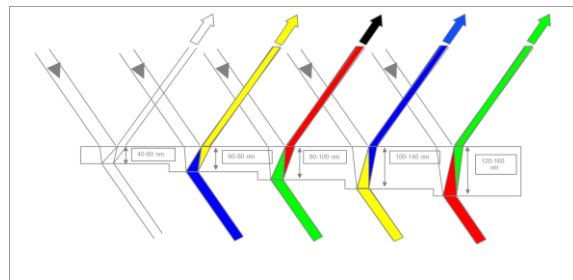
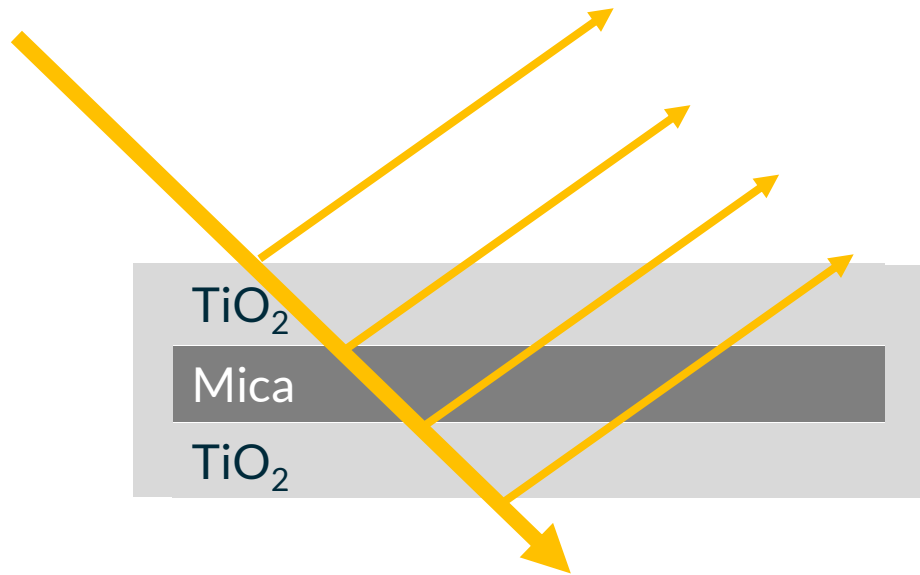
- Suitable for both waterborne and solventborne coatings
- Easily dispersible
- Ideal for high-temperature exterior fluorocarbon coatings



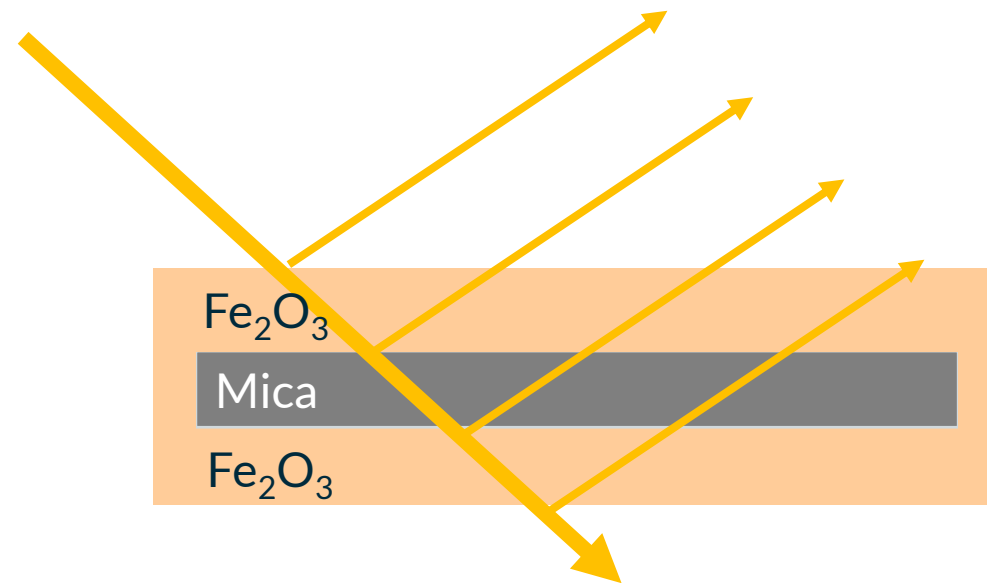
02 EFFECT COLORS

Oxide Coating

Silver white or Interference Color



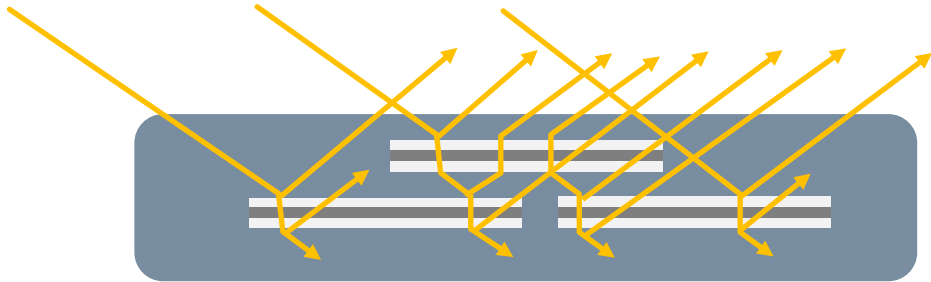
Metallic Color



Combination of TiO_2 and Fe_2O_3 layers produce gold tones like KC 300

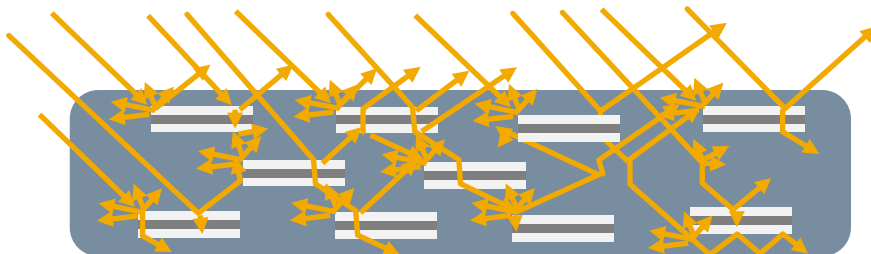
02 HIDING POWER AND PARTICLE SIZE

Impact on Hiding Power



Large Particle Size Distribution

- Strong reflection of incoming light
- Higher transparency
- Low influence on background color
- Stronger sparkle

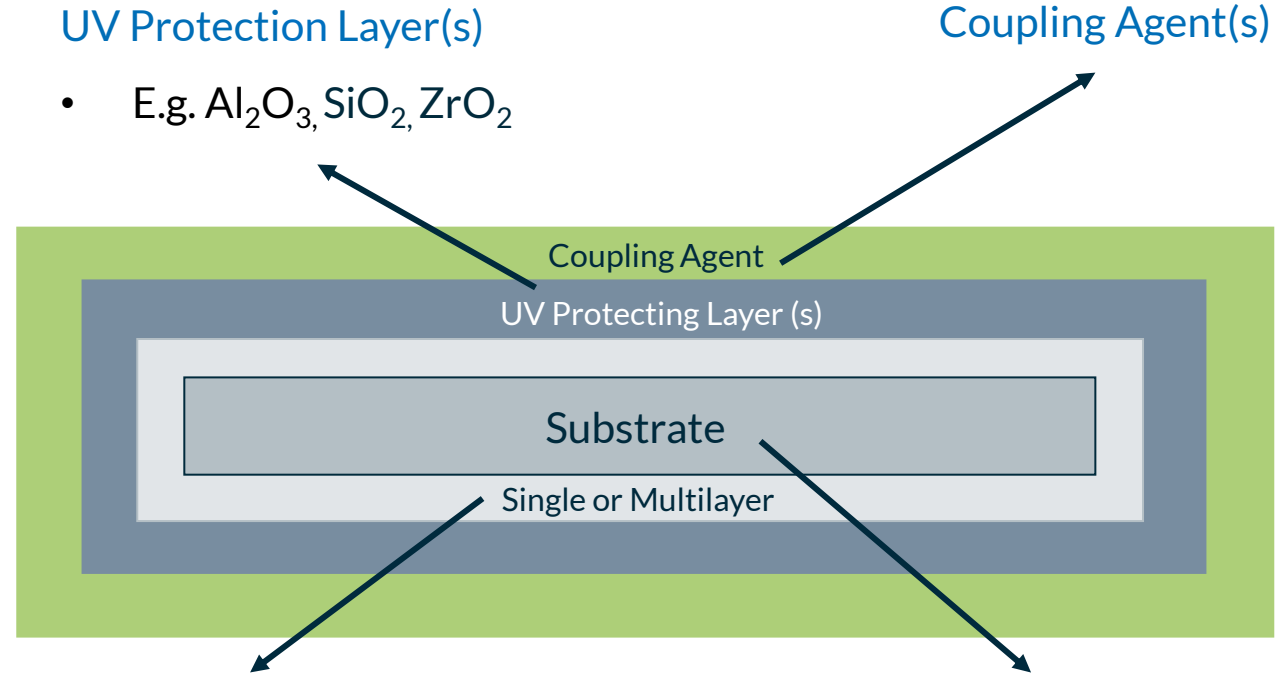


Small Particle Size Distribution

- Higher light scattering
- Increased hiding power
- High influence on background color
- Silky effect

02 EFFECT PIGMENT STRUCTURE

Basic Structure



UV Protection Layer(s)

- E.g. Al_2O_3 , SiO_2 , ZrO_2

Coupling Agent(s)

Coupling Agent

UV Protecting Layer (s)

Substrate

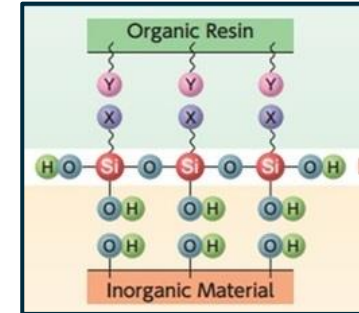
Single or Multilayer

Single or Multilayer

- TiO_2 and / or Fe_2O_3

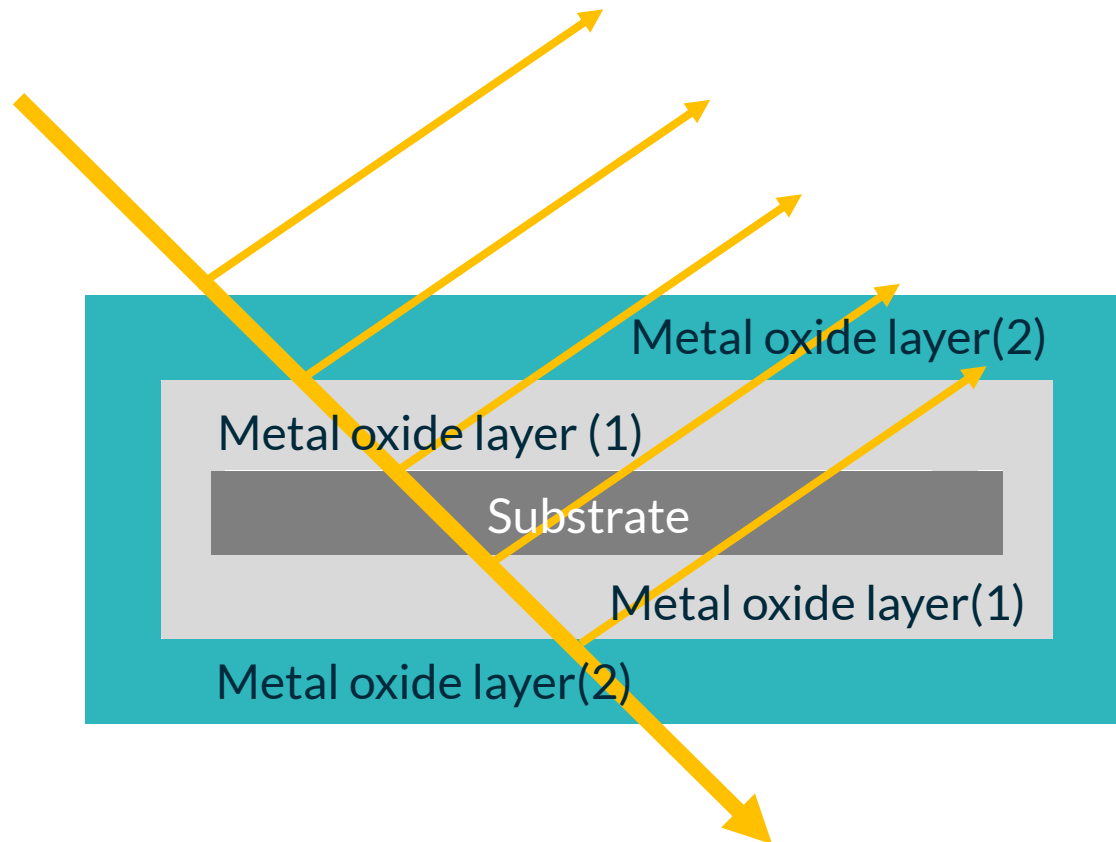
Substrate

- Natural Mica
- Synthetic Mica
- Calcium Sodium Borosilicate



02 MULTILAYER COATINGS

Multilayer Effect Pigment – Principle of 2 or more Metal Oxide Layers



High End Product Lines

- Kyntaline (Synthetic Mica)
- Plovence (Synthetic Mica)
- Setallic (Synthetic Mica)
- XillaMaya (Synthetic Mica)
- SyaKarp (Natural Mica)

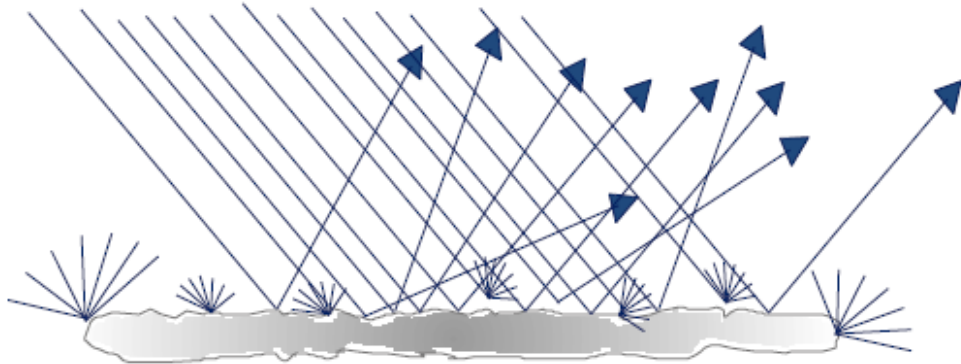
⇒ Stronger Reflection

⇒ Higher Chroma

⇒ Greater Color Intensity

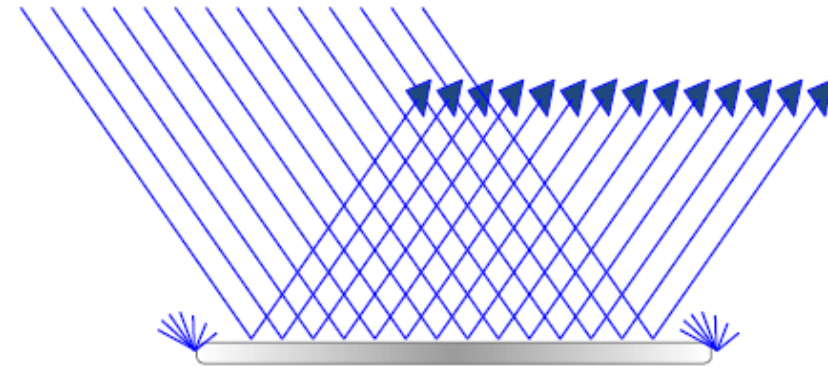
Impact of Substrate on Effect

Rough Surface



- Scattered reflection
- Lower flop
- Lower brightness
- Better hiding

Smooth Surface



- Uniform reflection
- Greater flop
- Higher brightness
- Greater transparency

02 KEY PARAMETERS

The Influence of Substrate and Processing on Color and Effect

The characteristics of a pigment are essentially influenced by:

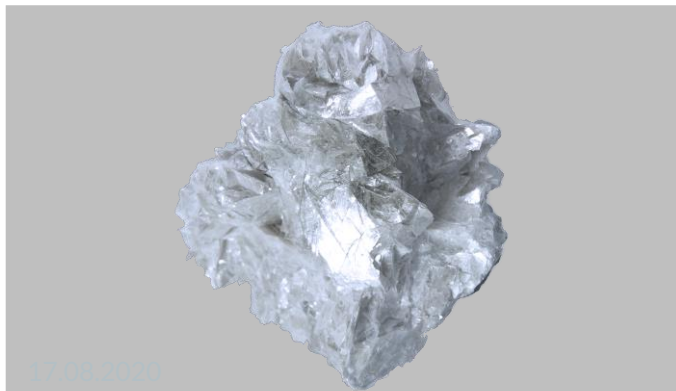
- Substrate
- Coatings technology
- Particle size distribution

The effects vary from:

- Silky shining luster to
- Brilliant depth to
- Glittering sparkle

Major color areas:

- Silver white
- Interference
- Gold
- Metallic / Earth tones
- Multicolor



Synthetic Mica By Kuncai



KC 6303D SW (10-45 μm)
Natural Mica



XillaMaya T60-23 SW (6-30 μm)
Synthetic Mica

Cleaner highly chromatic colors
Strong and saturated color tones

Comparison Natural Mica vs. Synthetic Mica (Exterior Grade)

- Less light scattering and greater reflectivity
- Smoother surface
- Nearly transparent body color
- No impurities
- Low heavy metals
- Batch to batch consistency
- No ties to mica mines

02 PERFORMANCE

Natural Mica vs. Synthetic Mica vs. Synthetic Mica (Multilayer)

Product Feature	KC Industrial	Neomica	Syakarp	Synthetic Mica	Synthetic Mica Multilayer
Substrate	<ul style="list-style-type: none"> Natural Mica 	<ul style="list-style-type: none"> Natural Mica + special production treatment 	<ul style="list-style-type: none"> Natural Mica + multilayer coating 	<ul style="list-style-type: none"> Synthetic Mica 	<ul style="list-style-type: none"> Synthetic Mica + multilayer coating
Effects	<ul style="list-style-type: none"> Serves as a reference 	<ul style="list-style-type: none"> Better hiding Less yellowish on light background colors 	<ul style="list-style-type: none"> Enhanced interference colors 	<ul style="list-style-type: none"> Finer particle size ratio Purer color tones 	<ul style="list-style-type: none"> Strong reflection Very good chroma Highest brilliance Good sparkle Good coverage
Colors	<ul style="list-style-type: none"> Silver white Interference Gold Metallics 	<ul style="list-style-type: none"> Silver white 	<ul style="list-style-type: none"> Interference 	<ul style="list-style-type: none"> Silver white Interference Gold Metallics 	<ul style="list-style-type: none"> Silver white Interference Gold Metallics Optically variable
Product Series	<ul style="list-style-type: none"> KC Pearls 	<ul style="list-style-type: none"> Neomica Silver whites 	<ul style="list-style-type: none"> SyaKarp 	<ul style="list-style-type: none"> Crystal 	<ul style="list-style-type: none"> Chameleon Kyntaline Plovence Setallic XillaMaya



Performance increase through improved product properties

03

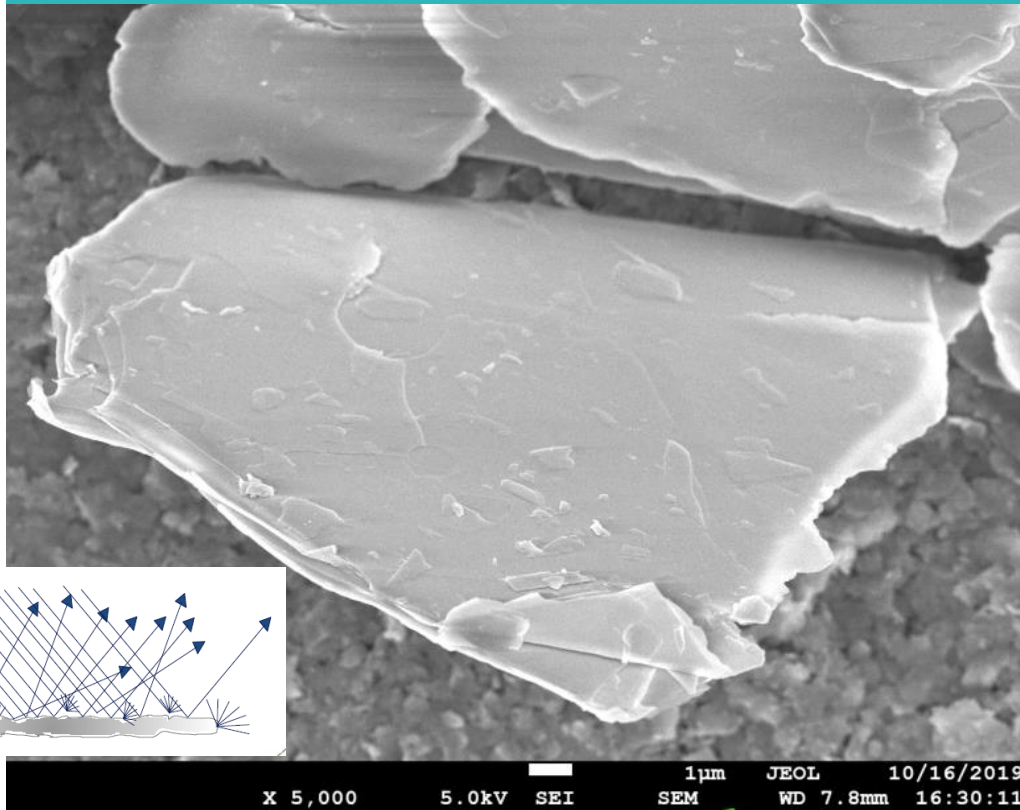
MICROSCOPIC IMAGES



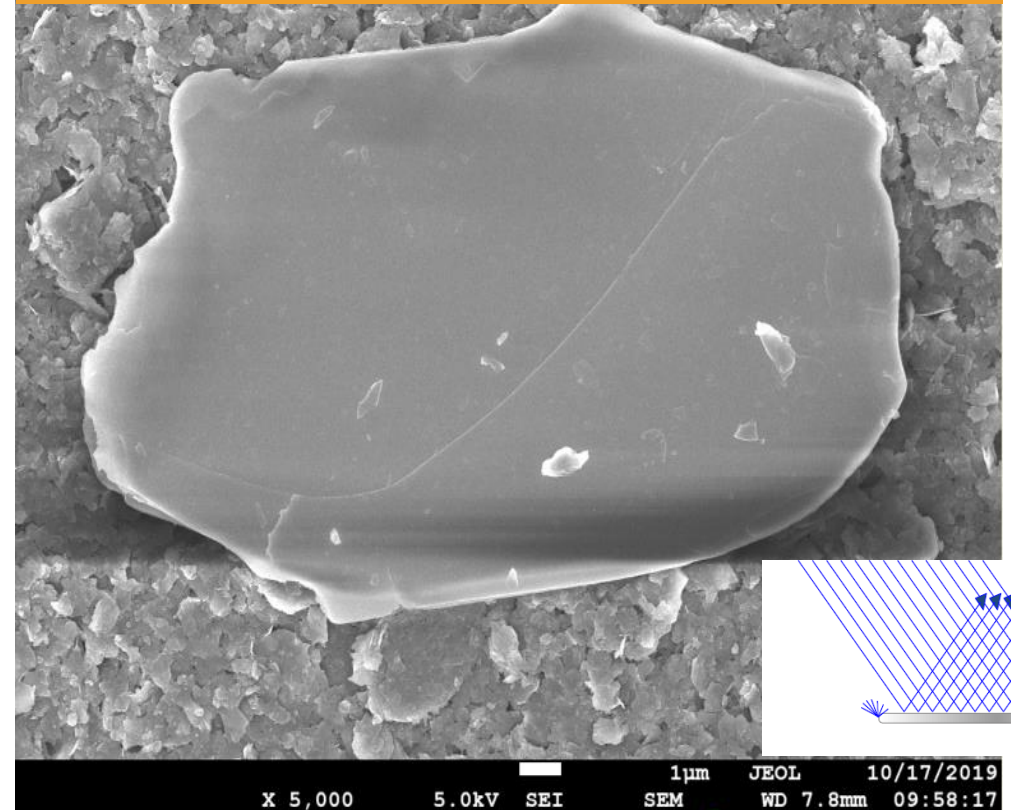
03 SUBSTRATES

Natural Mica vs. Synthetic Mica - SEM Comparison (5000x)

Natural Mica (PSD 10-60 μm)

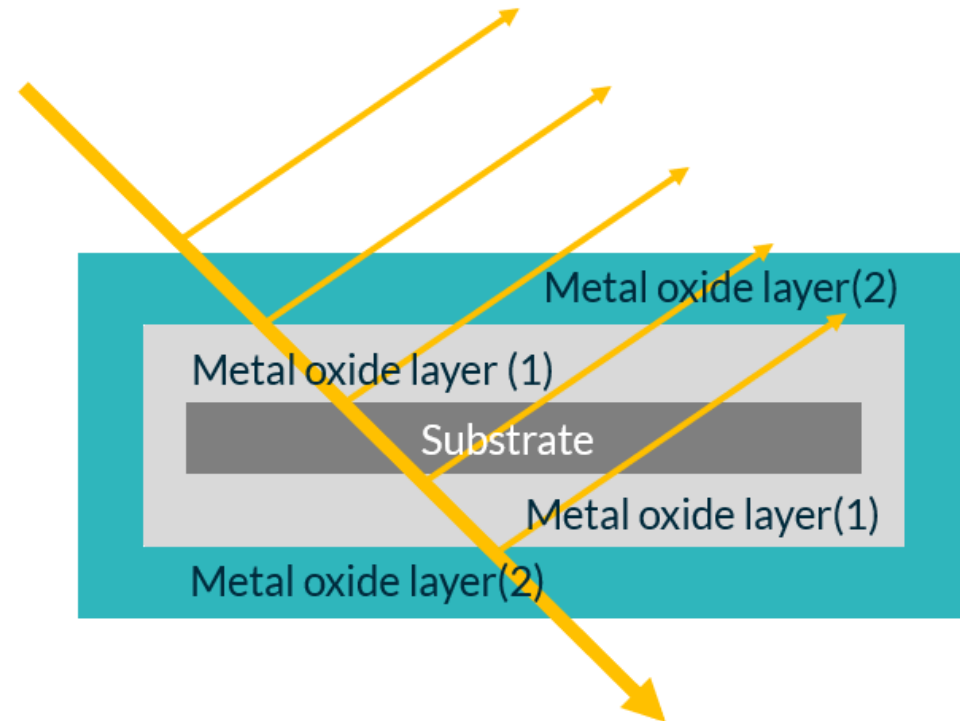
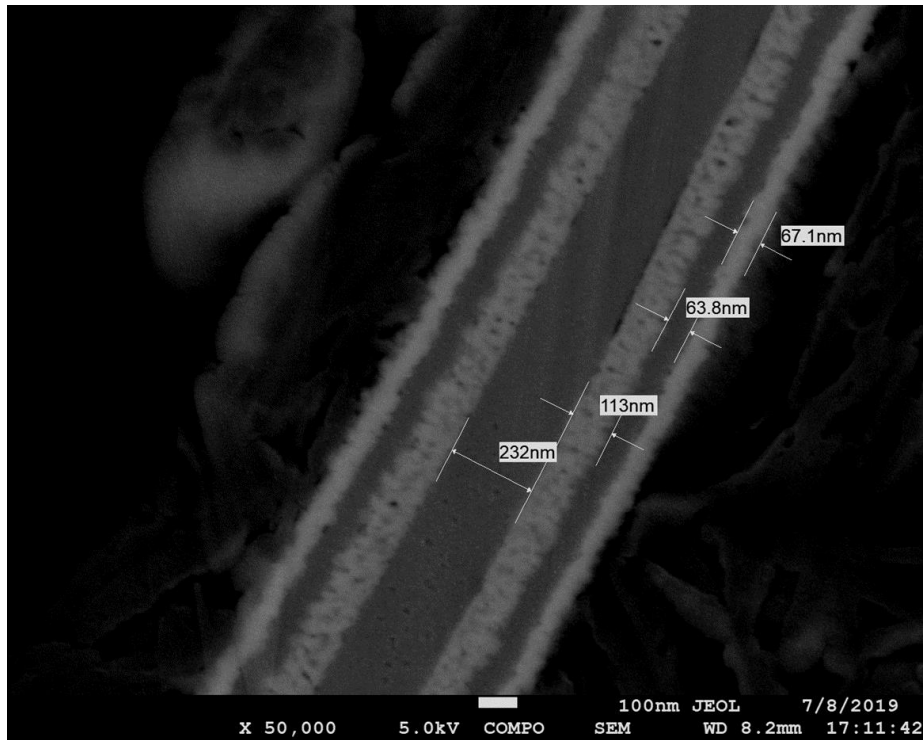


Synthetic Mica (PSD 10-60 μm)



03 MULTILAYER TECHNOLOGY

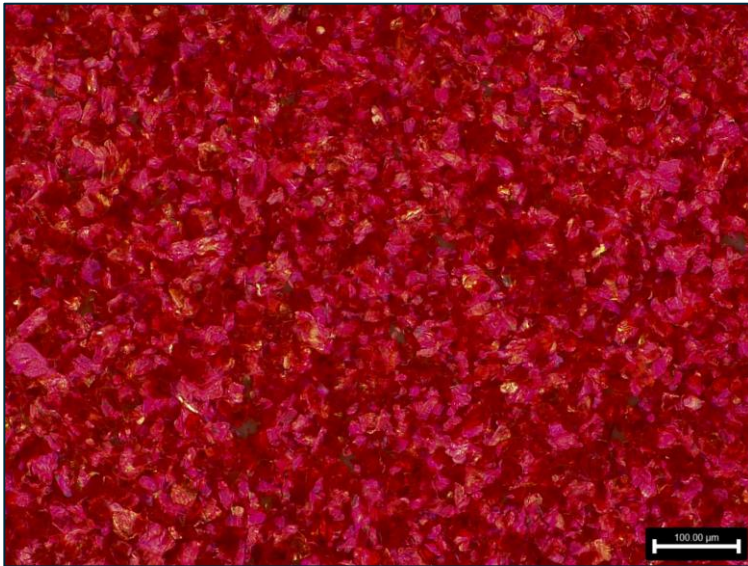
SEM Example for a Multilayer Coating



03 MULTILAYER TECHNOLOGY

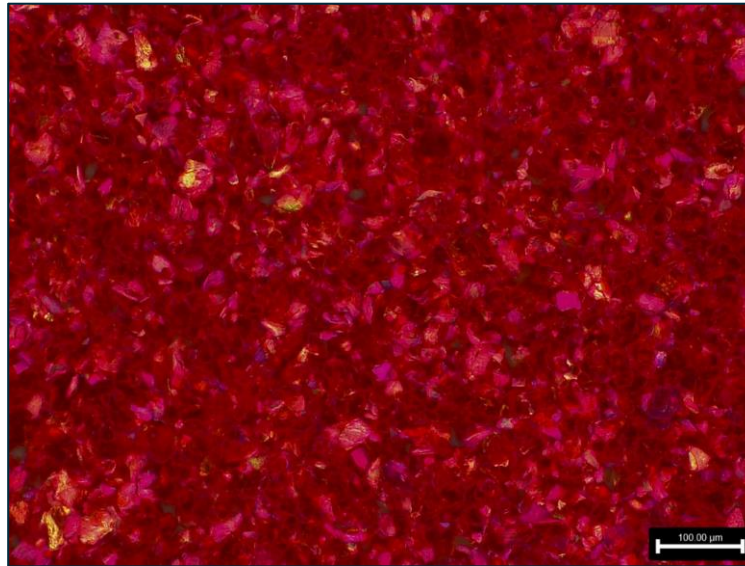
Comparison Natural Mica vs. Synthetic 1st Generation and 2nd Generation (Multilayer)

Standard Pigment



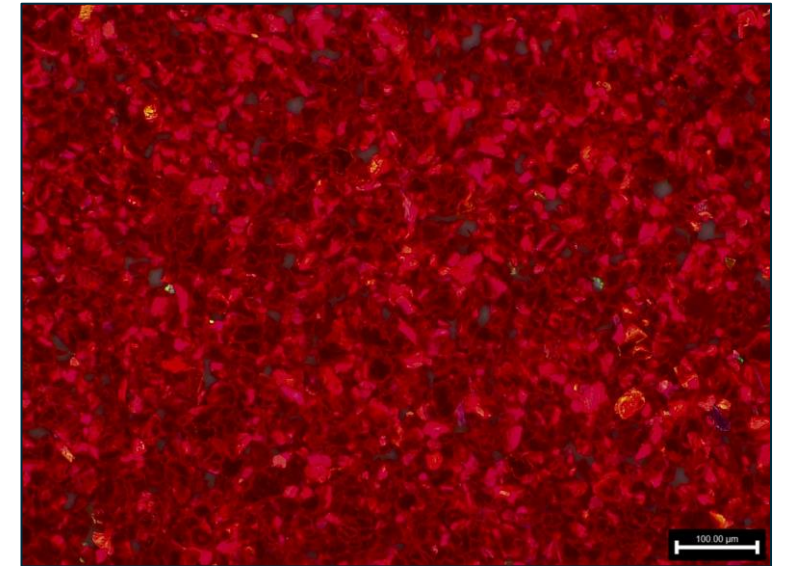
Natural Mica Pigment
1000x

Superior Pigment



Synthetic Mica Pigment
1st Generation
1000x

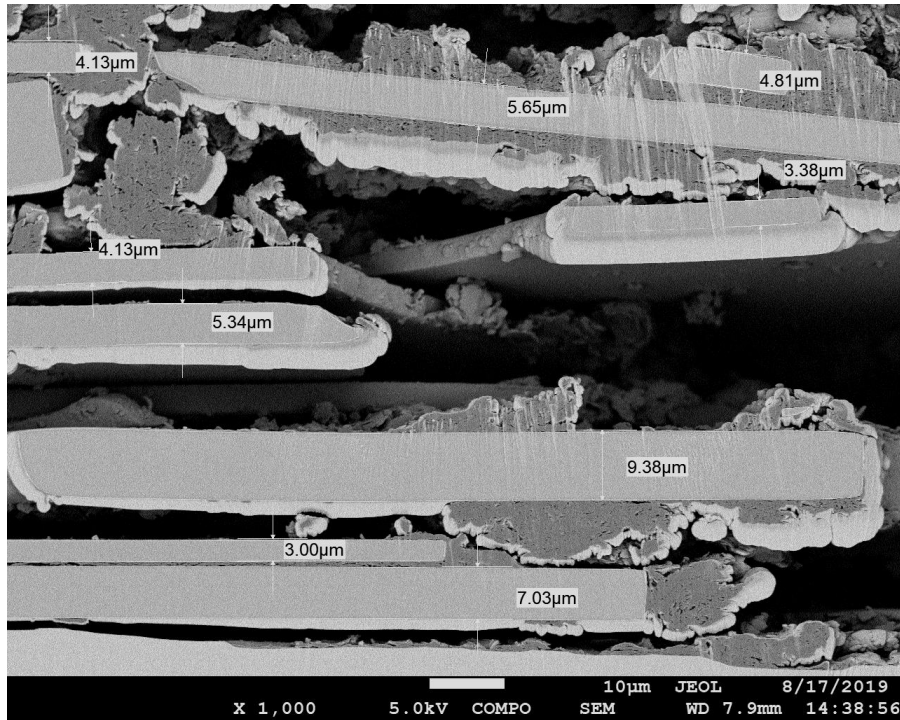
High-end Pigment



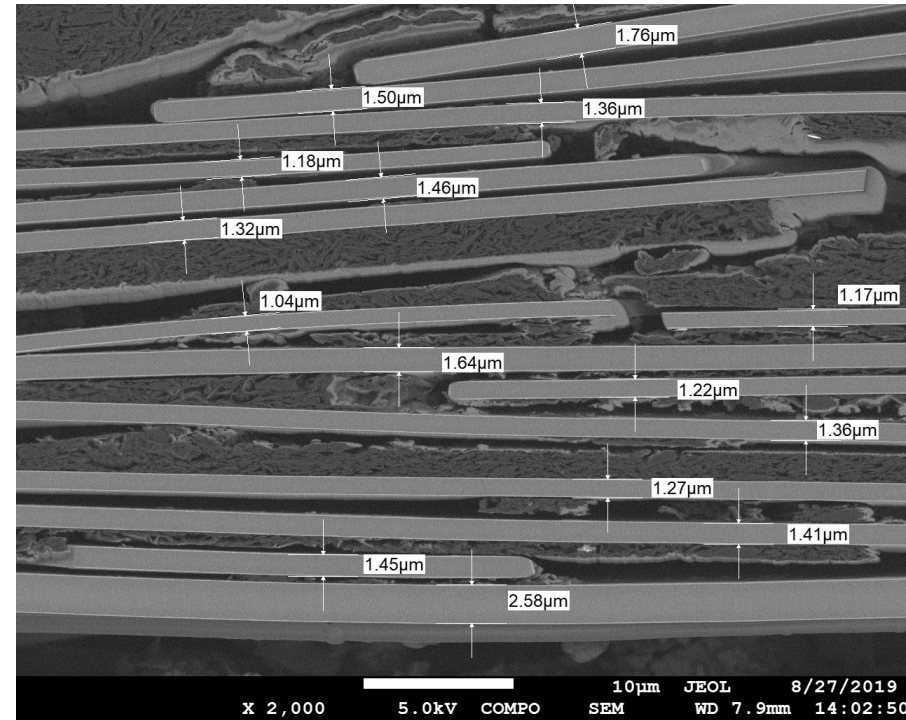
Synthetic Mica Pigment
2nd Generation (Multilayer)
1000x

03 BOROSILICATE FLAKES

Flake Thickness as a Competitive Advantage for a Superb Multicolor Sparkle



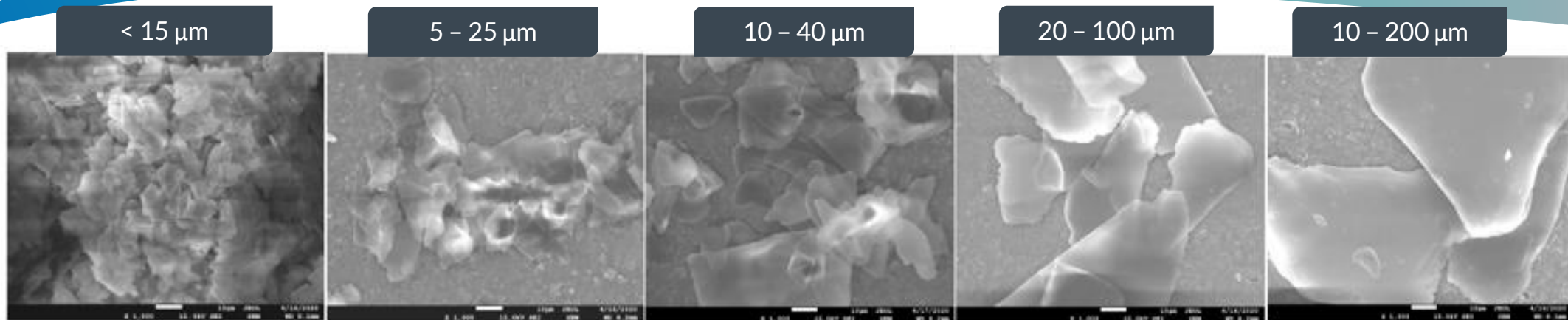
Competitive Product



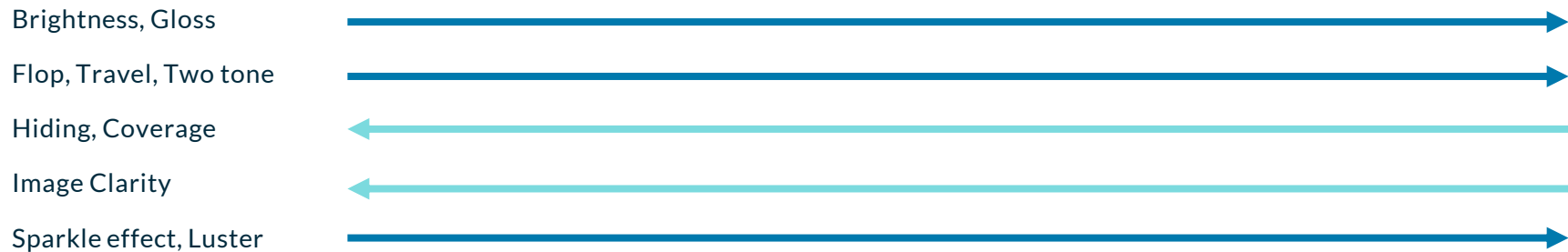
KC 9810B Special Flash Diamond White

03 COMMON PSD FRACTIONS

Common PSD Fractions and Optical Influences



	M	F	N	S	L
	<15 μm	5-25 μm	10-40 μm	20-100 μm	10-200 μm



04

COATING APPLICATIONS

Exterior and Interior





Coating Applications

04 COATING APPLICATIONS

Automotive and Refinish

High Performance Weatherproof Effect Pigments for the most Demanding Applications

Discover the paradox of amazing sparkle and fine PSD



Choose from our broad product portfolio

- KC Pearls (Natural Mica)
- KC Pearls and Setallic (1st and 2nd Generation Synthetic Mica)
- XillaMaya (Synthetic Mica)

XillaMaya is the pinnacle of OEM and Refinish paints offering a combination of strong sparkle, high color intensity and small particle size.



04 COATING APPLICATIONS

Transportation

High Performance Weatherproof Effect Pigments for the most Demanding Applications

Mobility at the highest level

- Agricultural Machinery
- Bikes
- Motorcycles
- Rail Vehicles
- Trucks
- Yachts



Picture: pressmare.it



Picture: lack-doberan.de

Effect pigments have become indispensable in this market segment.
Set new standards with our multicolor effect pigments.



04 COATING APPLICATIONS

Artist Paints

Creative Design - Effect Colors for both Young and Old Artists

Pastel shades, Silver white and Gold are some of the “Classics”

- Acrylic Paints
- Airbrush Colors
- Crayons
- Finger Paints
- Gouache Colors
- Watercolors
- Window Colors



Picture: amazon.de



Picture: paperworld.messefrankfurt.com



Picture: persenn.de



Picture: amazon.de

The perfect choice for Classics: KC Pearls, Neomica and DinaStar
... and Chameleon pigments are the new highlights.

04 COATING APPLICATIONS

Leather Coatings

Make your Products Shine and Stand Out

Metallic colors and multicolor effects are in vogue

- Accessories
- Fashion
- Interior Design
- Sportswear



Picture: girotti.de



Picture: foxerbags.com



Picture: reebok.de



Discover our KC Pearl, Chameleon, Crystal and Setallic series.

04 COATING APPLICATIONS

Plastic Coatings

Technology in Everyday Life

Technical progress communicated through the interplay of expressive effect colors

- Consumer Electronics
- Household Appliances
- Packaging
- Sports Equipment
- Technical Products
- Toys



Picture: jura.com



Picture: dyson.de



Picture: amazon.de



Picture: mediamarkt.com

Pure colors, high chroma and exciting sparkle make these products stand out from the crowd

We recommend the Kyntaline, Setallic, XillaMaya and DinaStar series.

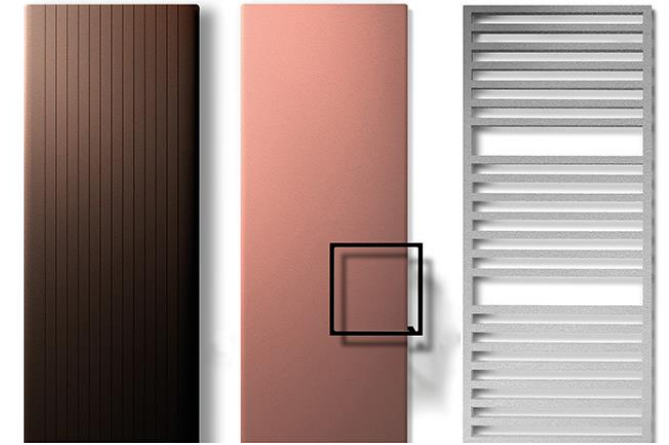
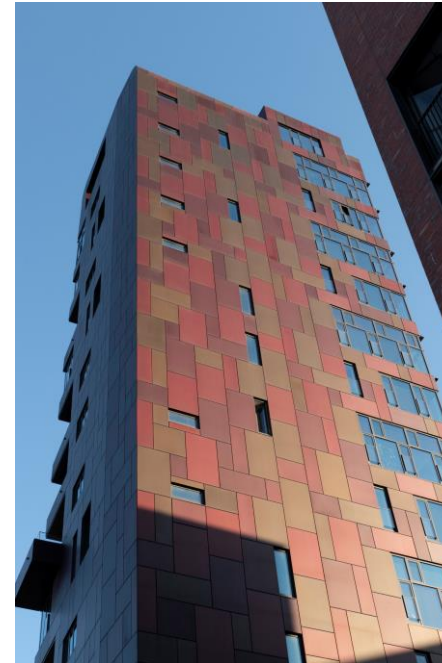
04 COATING APPLICATIONS

Powder Coatings

For Architecture and Industrial Use

Effect colors make your design even more distinctive

- Architecture
- Furniture
- Industrial Components
- Packaging
- Transportation
- “White Goods”



Picture: vasco.eu (Design Radiator)

KC Pearls are the perfect fit for standard applications.

Kyntaline, XillaMaya and Setallic are designed for high end products.



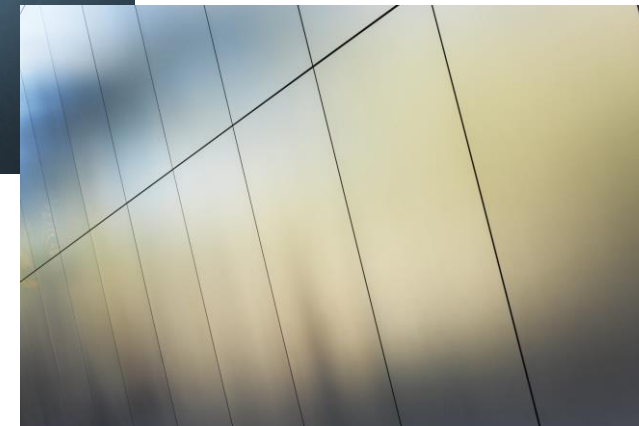
04 COATING APPLICATIONS

Coil Coatings

Retro Look - Fashionable Journey into the Past

Glaming, colorful white goods in a retro design are on trend

- Architecture
- Furniture
- Industrial Components
- Packaging
- Transportation
- “White Goods”



Picture: inone-kuechen.de



Picture: amazon.de

KC Pearls are the perfect fit for standard applications.
Kyntaline, XillaMaya and Setallic create a premium image.

04 COATING APPLICATIONS

General Industrial Paints

Esthetics in Daily Life

Be bold with color to add that certain something

- Aerosol Paints
- Candle Varnishes
- Furniture Paints
- Glass Coatings



Picture: hoefer.de



Picture: magazin.kuechenfinder.com

Be inspired by our broad portfolio of natural mica, synthetic mica and borosilicate pigments.



Picture: basteln-de.buttinette.com

04 COATING APPLICATIONS

Wood Coatings

Color Adds Character

Wood coatings for indoor and outdoor use offer plenty of colors and design options

- Architecture
- DIY
- Furniture



Picture: vix.com



Picture: bauen.com



Discover our KC Pearls for a multitude of applications.

04 COATING APPLICATIONS

Latex Paints for Interior and Exterior

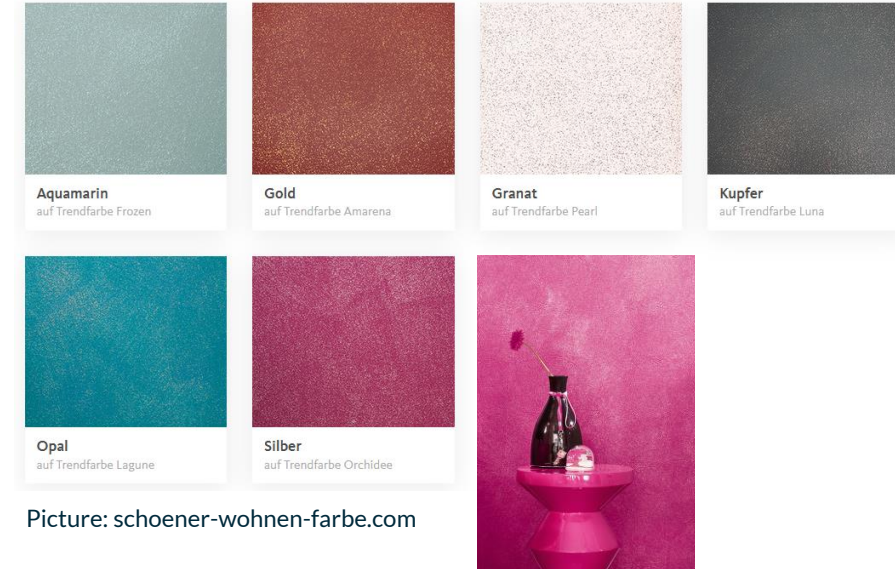
Decorate Homes with Effect Colors

Vivid and exciting surface finishes with shimmer effect

- Interior Colors
- Masonry Paints



Picture: schoener-wohnen-farbe.com



Picture: schoener-wohnen-farbe.com

We recommend our KC Pearls for elegant finishes.
For a luxurious precious metal look, we suggest KC9820G Egyptian Gold.



Picture: architekturzeitung.com

04 COATING APPLICATIONS

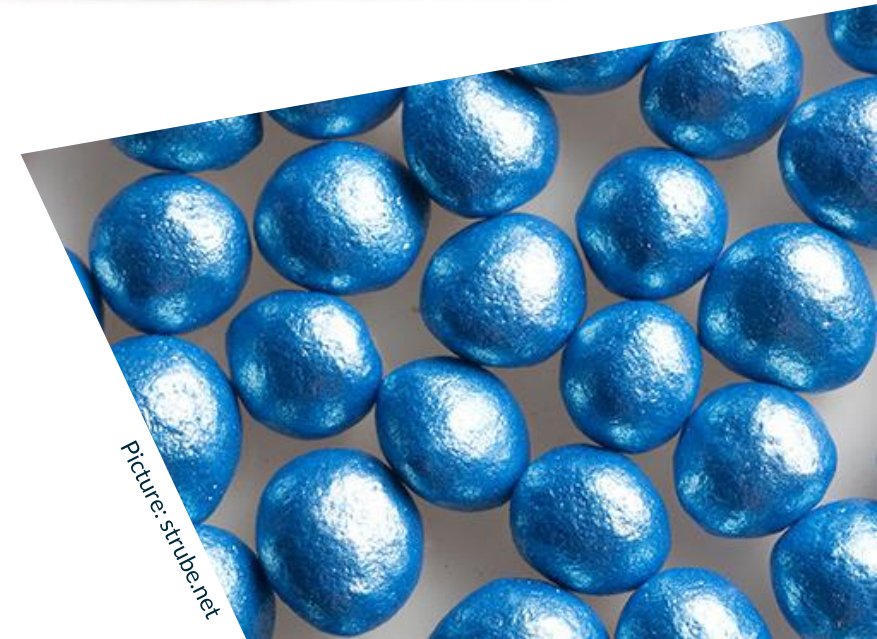
Seed Coatings

High Quality Appearance

Achieving a product benefit that counts

- Improved flow of seeds
- Reduced dust during handling
- Better binding of fungicide and insecticide seed treatments
- Enhanced identification of the seeds

Relevant products for these applications are
KC Pearls – natural mica based pigments.



05

COLOR POPULARITY

Automotive

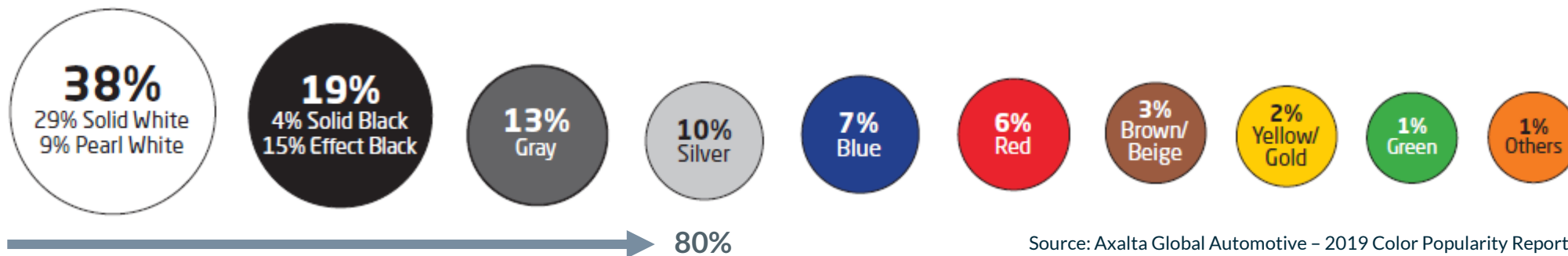


05 COLOR POPULARITY - AUTOMOTIVE

Global Automotive – Axalta 2019 Color Popularity Report

World

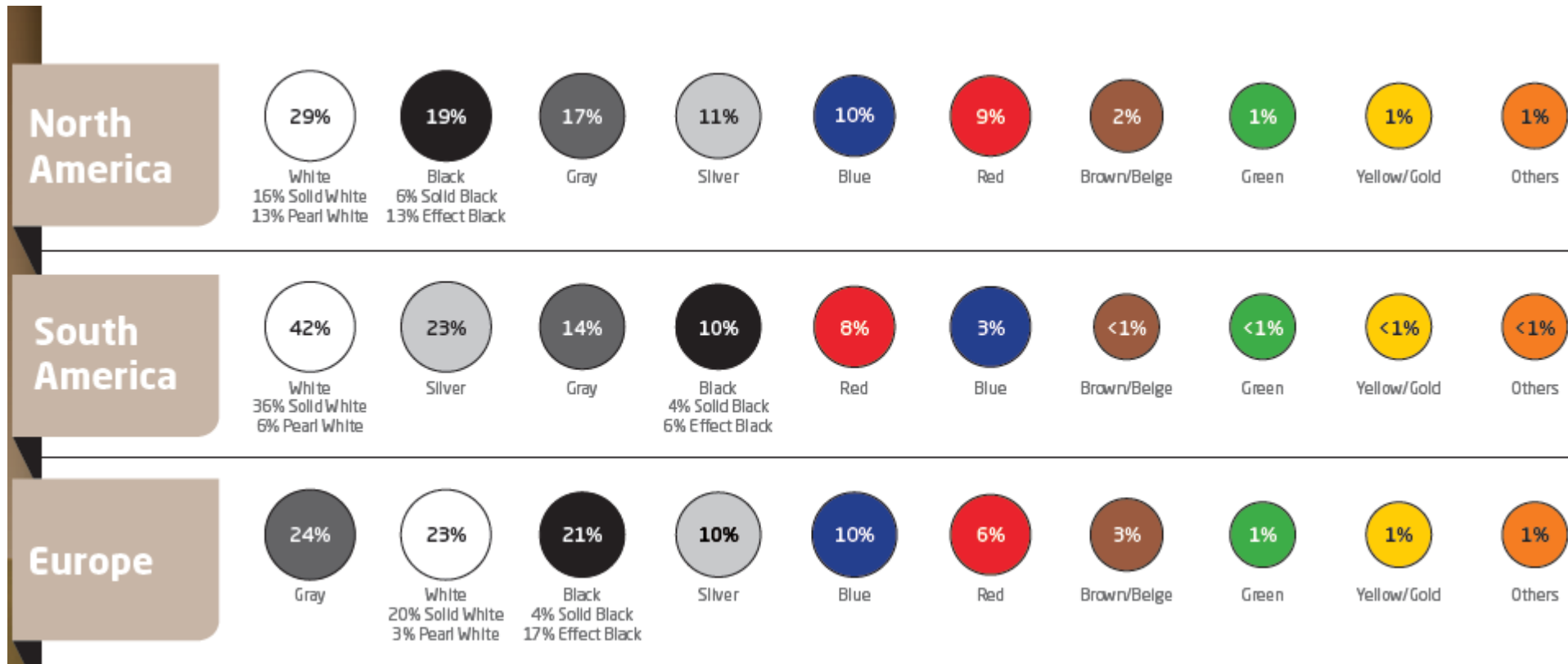
- **Neutrals** make up 80% of the market. This is a mix of White, Black, Gray and Silver
- **White** is the most popular color with a significant share of White Pearls
- **Black** represents the color with the highest share of effect coatings
- **Gray** has increased in all continents except Africa, where it held steady
- **Silver** dropped down the rankings and is at a ten-year low with 10% market share



Source: Axalta Global Automotive – 2019 Color Popularity Report

05 COLOR POPULARITY - AUTOMOTIVE

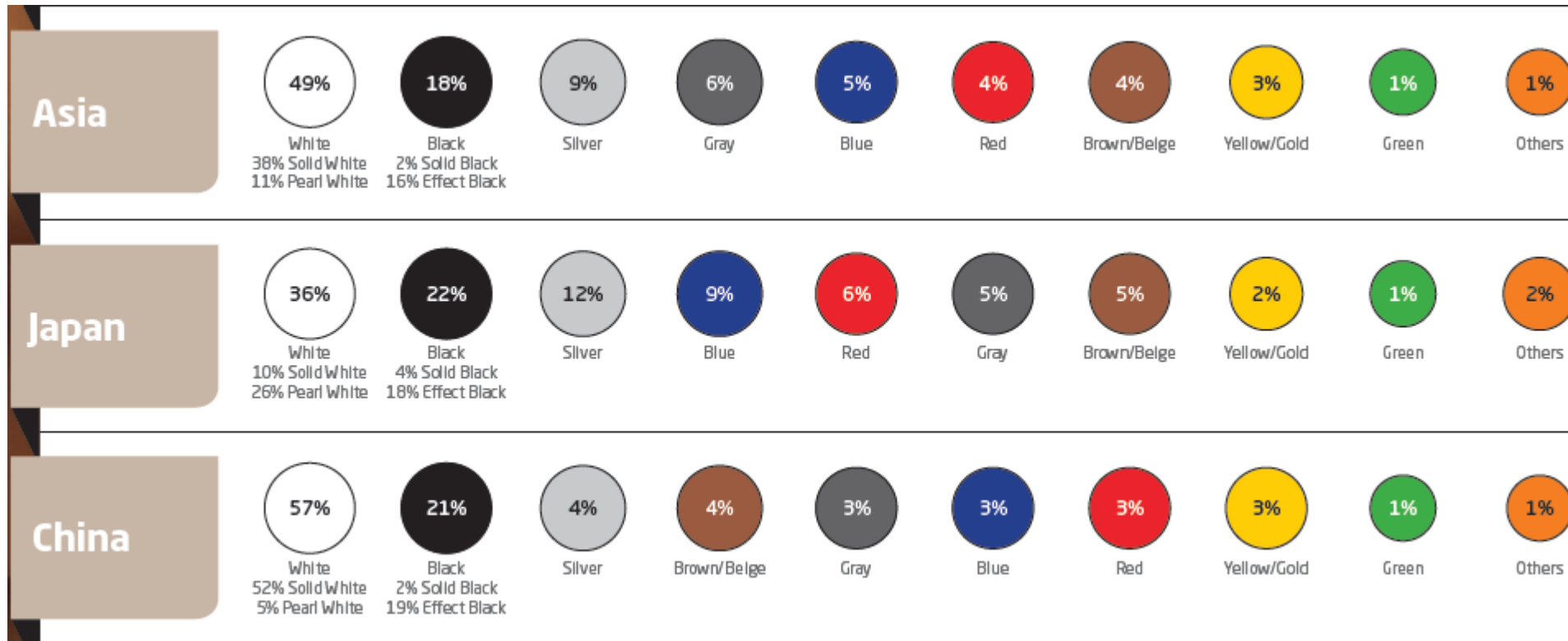
Global Automotive – Axalta 2019 Color Popularity Report



Source: Global Automotive – Axalta 2019 Color Popularity Report

05 COLOR POPULARITY - AUTOMOTIVE

Global Automotive – Axalta 2019 Color Popularity Report



Source: Global Automotive – Axalta 2019 Color Popularity Report

Resulting Conclusions by Kuncai

White is the number one color at 38% and white pearls will continue to grow

- XillaMaya T60-10 SW is the perfect choice to follow this trend
- This pigment is unique in the class of silver white effect pigments
- It offers completely new design options for high-end, pearl white formulations

Black Metallics with a 15% share of effect colors can be extremely versatile

Gray gained in nearly all continents and accounts for a significant portion of effect colors

- XillaMaya Crystal Silver, in particular, as well as the XillaMaya interference pigments add value with the highest chroma, strong sparkle and tight PSD in this color area

Red, among the bright colors, stands for sociable, extrovert, impulsive and passionate

- The Setallic 2nd generation multilayer pigments with strong pronounced reds, oranges and earth tones, vibrant sparkle and outstanding color intensity set new standards in this color range



06

PERFORMANCE MEETS DESIGN

Color Inspirations for Plastic Coatings



06 PERFORMANCE MEETS DESIGN

Consumer Lifestyle

We have selected three themes based on current trend information, each consisting of four colors, in order to create a symbiosis between technology and emotions.

- Sunny Pastels
- Natural Look
- Next Level



These color inspirations have the ability to turn heads, but also work well in combination with other hues such as classic white and black, or neutral colors and soft pastels.

In cooperation with WEILBURGER Coatings, numerous years of experience and in-depth market know how have gone into the creation of a color card to meet the requirements of the market.



Sunny Pastels

Optimism and light are incredibly stimulating, bring joy to life and let us savor the moment.

- Mojito Mint
- Fluffy Blue
- Sugar Melon
- Honey Bee



Sunny pastels with a yellow or bright appeal can reflect progress in science and technology in a youthful and carefree way.

They also convey a touch of nostalgia and feminine charm, which is fresh and welcome in this sector.

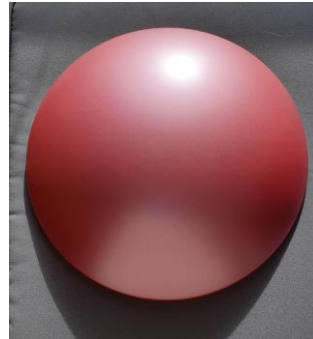


06 PERFORMANCE MEETS DESIGN

Natural Look

The contrast between strength and fragility is a central aspect of nature.

- Blackcurrant
- Dried Cereal
- Cocoon
- Ginkgo Leaf



Nature presents us with an unbelievable variety of delicate hues of natural beauty and simplicity and inspires us with the rich colors of fruit and flowers.

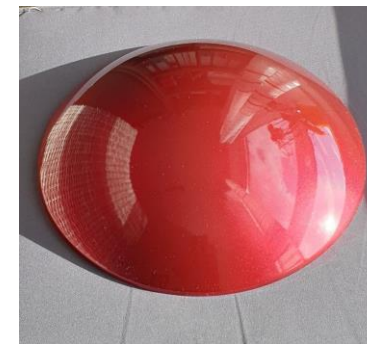
Thus green has come to be regarded as a symbol of hope and understanding and reminds us to respect and protect our environment.

06 PERFORMANCE MEETS DESIGN

Next Level

Charismatic colors capable of interacting with their environment are energetic and powerful and symbolize the complexity of reconciling technology and progress with the husbanding of existing resources.

- Golden Tuscany
- Deep Space
- Luscious Red
- Silgo Dance



These colors stand out for their confident, vibrant and technology-inspired appeal.

Scanning the horizon of new trends, we find existing colors reflected in a variety of styles and aesthetics that pursue a new direction.

06 PIGMENTS USED

Performance Meets Design

Color	Effect Pigment	Product Series	Substrate	PSD
Mojito Mint	KC815-R1 Super Bright Gold	Kyntaline	Synthetic Mica	8-35 µm
Fluffy Blue	KC8100B Fine Penguin White	Crystal	Synthetic Mica	10-30 µm
Sugar Melon	XillaMaya T60-20 SW Sunbeam Gold	XillaMaya	Synthetic Mica	6-30 µm
Honey Bee	KC9820G Egyptian Gold	KC Pearls	Synthetic Mica	10-45 µm
Blackcurrant	KC19502D Flash Brown/Red/Violet	Chameleon	Synthetic Mica	10-45 µm
Dried Cereal	KC83307 Bright Green Gold	Crystal	Synthetic Mica	10-60 µm
Cocoon	KC815-R1 Super Bright Gold	Kyntaline	Synthetic Mica	8-35 µm
Ginkgo Leaf	XillaMaya T60-10 SW Crystal Silver	XillaMaya	Synthetic Mica	6-30 µm
Golden Tuscany	KC83307 Bright Green Gold	Crystal	Synthetic Mica	10-60 µm
Deep Space	XillaMaya T60-23 SW Galaxy Blue KC815W Super Bright Penguin White	XillaMaya Kyntaline	Synthetic Mica Synthetic Mica	6-30 µm 8-35 µm
Luscious Red	KC815-M5 Fine Auspicious Red	Setallic	Synthetic Mica	8-35 µm
Silgo Dance	KC83000E1 Dove Grey	KC Pearls	Synthetic Mica	10-60 µm



THANK YOU!

Kunca Europe B.V.
Linie 506, 7325 DFZ Apeldoorn
The Netherlands

Office : +31 (0) 55-2100000
E-mail: customerservice@kuncaeurope.com
Website : www.kuncaeurope.com