

# Adamas<sup>®</sup>

Alumina Based Pearlescent Pigments



The world's leader in  
quality effect pigment technology

>>>>>>

# Adamas®

## Alumina Based Pearlescent Pigments



### Adamas®

Existing pearlescent pigments are typically manufactured using natural, synthetic mica, glass, or silica substrates. A more specialized category is based on a platy alumina.

In the manufacture of alumina-based pearlescent pigments the most important factor is creating the platy type alumina itself which is used as the base substrate. The technology involved with the manufacture of amorphous alumina is highly specialized and requires a great degree of technical and process capability and thus has been commercialized by only a few companies.

CQV Co., Ltd. through extensive research and development has been granted a patent for their formula and manufacturing process to produce platy type alumina. They have commercialized the Adamas® platy alumina product line based on these developments and grafted them to the existing technology of manufacturing pearlescent pigments for mass production.

### Brand Story

Adamas® is the word “diamond” in ancient Greek.

The Adamas® name implies products which have a sparkling and perceived value like a diamond.

Thus when incorporated into end use products they impart this same precious value in the eyes of the consumer.

### Special Features

- Pure platy alumina ( $\text{Al}_2\text{O}_3$ ) substrate
- Uniform thickness
- Extremely smooth surface
- Great sparkling effect and color purity
- Suitable for multiple industry applications

### Applications

Adamas® pigments can be applied to various fields of industry because of their excellent chemical and physical properties. Used correctly the properties of alumina based pearlescent pigments can help in developing truly distinctive products.

- |                 |                      |
|-----------------|----------------------|
| - Coatings      | - Plastics           |
| - Architectural | - Artificial leather |
| - Printing Inks | - Wall Paper         |



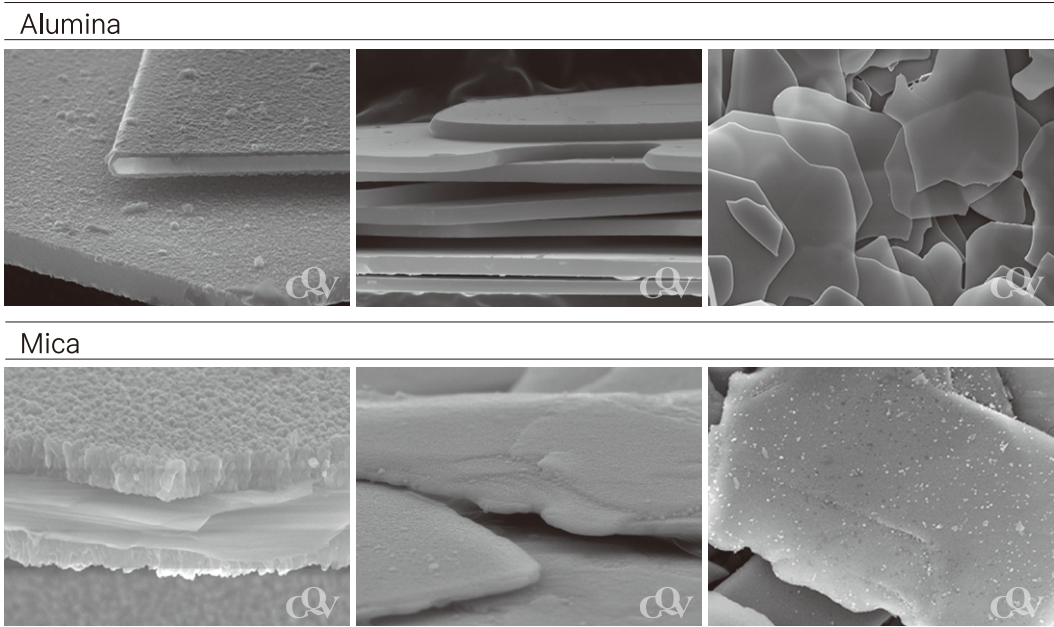
# Why Alumina?

## FESEM image comparison

Each particle of an pearlescent pigment is composed of a layer structure.

Observation of SEM pictures show platy type alumina is composed of one layer with extremely uniform thickness.

Existing mica based particles are composed of a layer structure in which the thickness of every particle is not uniform. It varies with the individual particles and within individual particles.



## Special Filler     Adamas®A-100D Alumina Powder

Because platy type alumina has inherent whiteness and transparency it can be used as unique filler quite distinct from other filler options.

It can help express a more luxurious feeling when incorporated into various coatings.

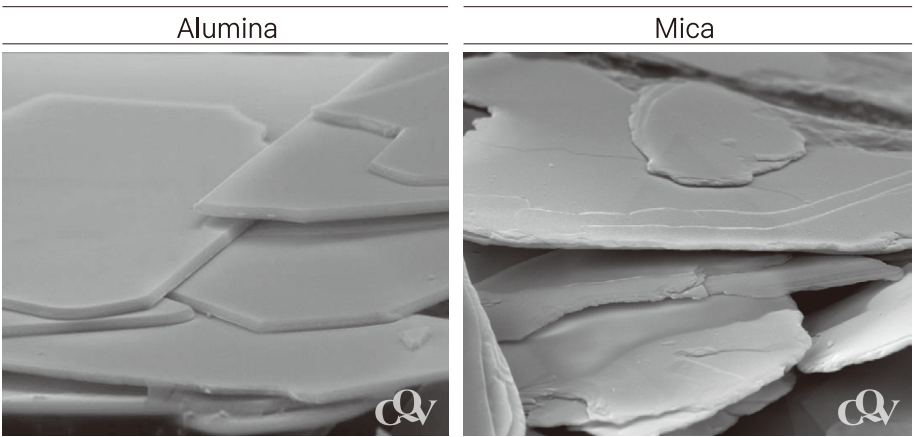


## The character of color

In the case of platy type alumina coated with a high refractive index metal oxide, irregular differences in thickness of the substrate particles can cause a serious difference in the wavelengths of light that are reflected. This is evident under a microscope where individual particles show several different reflection colors.

Substrates with uniform thickness can reflect all of the light at the same angle and wavelength, creating a color through interference that is strong and pure.

In this case each individual particle observed show uniform color throughout.



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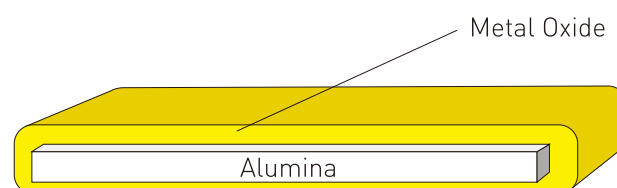
Adamas® products are coated with high refractive index metal oxides of uniform thickness on the alumina substrate of equally uniform thickness, which is observed in the structural diagram.

### Structure of Adamas®

Adamas® products are coated with high refractive index metal oxides of uniform thickness on the alumina substrate of equally uniform thickness, which is observed in the structural diagram.

Adamas®製品は厚さが一定なアルミナ基質に高屈折金属酸化物を一定の厚さでコーティング処理した製品で、アルミナ基質パールの構造的な塗色図で確認できるでしょう。

三氧化二铝( $\text{Al}_2\text{O}_3$ )基材包覆规律化的高折射金属氧化物厚度结构图。

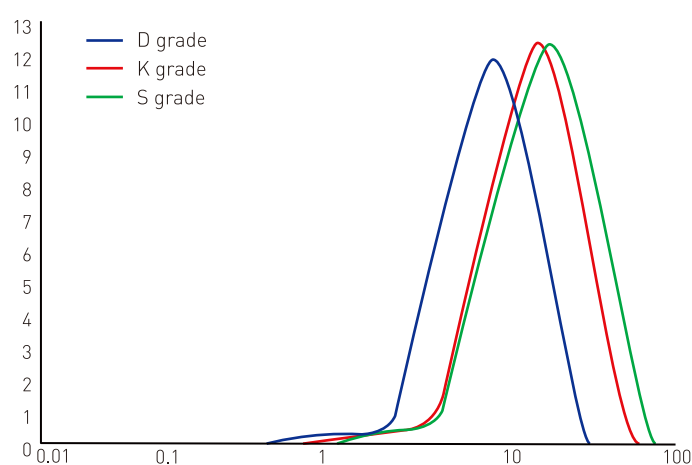


### Particle Size Distribution

Adamas® uncoated platy type alumina substrate is composed of a particle size distribution from  $5\mu\text{m}$  to  $30\mu\text{m}$ . Products coated with metal oxide have a particle size distribution from  $5\mu\text{m}$  to  $30\mu\text{m}$ . Due to the uniformity of every particle, Adamas® pigments can be produced in very narrow particle size distributions.

Adamas®製品は、サイズは板状アルミナ自体製品は $5\mu\text{m}$ 、 $30\mu\text{m}$ 、metal oxideがコーティングされた製品もやはり、 $5\mu\text{m}$ 、 $30\mu\text{m}$ の分布を現わし、粒子一つ一つのuniformityのために狭いサイズ分布を現わします。

Adamas®産品の基材粒径范围在 $5\mu\text{m}$ 、 $30\mu\text{m}$ ，经由包覆高折射金属氧化物后的粒径也是 $5\mu\text{m}$ 、 $30\mu\text{m}$ ，优化的粒径分布为其优势之一。



## Composition Data

| Code              | Product Name                      | Composition |                  |                  |                  |                                |        |
|-------------------|-----------------------------------|-------------|------------------|------------------|------------------|--------------------------------|--------|
|                   |                                   | Alumina     | SnO <sub>2</sub> | TiO <sub>2</sub> | SiO <sub>2</sub> | Fe <sub>2</sub> O <sub>3</sub> | Others |
| Adamas® A-100D    | Adamas® A-100D Alumina Powder     | ○           |                  |                  |                  |                                |        |
| Adamas® A-901K    | Adamas® A-901K Splendor White     | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-701K    | Adamas® A-701K Splendor Gold      | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-741K    | Adamas® A-741K Splendor Red       | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-781K    | Adamas® A-781K Splendor Blue      | ○           | ○                | ○                | ○                |                                |        |
| Adamas® A-791K    | Adamas® A-791K Splendor Green     | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-640K    | Adamas® A-640K Splendor Copper    | ○           |                  |                  |                  | ○                              |        |
| Adamas® A-660K    | Adamas® A-660K Splendor Russet    | ○           |                  |                  |                  | ○                              |        |
| Adamas® A-901S    | Adamas® A-901S Dazzling White     | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-701S    | Adamas® A-701S Dazzling Gold      | ○           | ○                | ○                | ○                |                                |        |
| Adamas® A-741S    | Adamas® A-741S Dazzling Red       | ○           | ○                | ○                | ○                |                                |        |
| Adamas® A-781S    | Adamas® A-781S Dazzling Blue      | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-785S    | Adamas® A-785S Dazzling Turquoise | ○           | ○                | ○                | ○                |                                |        |
| Adamas® A-791S    | Adamas® A-791S Dazzling Green     | ○           | ○                | ○                |                  |                                |        |
| Adamas® A-620S    | Adamas® A-620S Dazzling Bronze    | ○           |                  |                  |                  | ○                              |        |
| Adamas® A-640S    | Adamas® A-640S Dazzling Copper    | ○           |                  |                  |                  | ○                              |        |
| Adamas® A-660S    | Adamas® A-660S Dazzling Russet    | ○           |                  |                  |                  | ○                              |        |
| Adamas® AMP-1090S | Adamas® AMP-1090S Brilliant Black | ○           |                  |                  |                  |                                | Nickel |

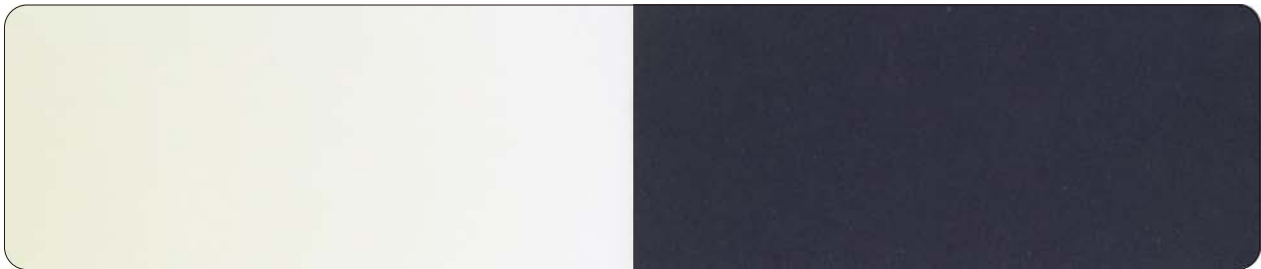
# Adamas®

## Alumina Based Pearlescent Pigments Technical Data

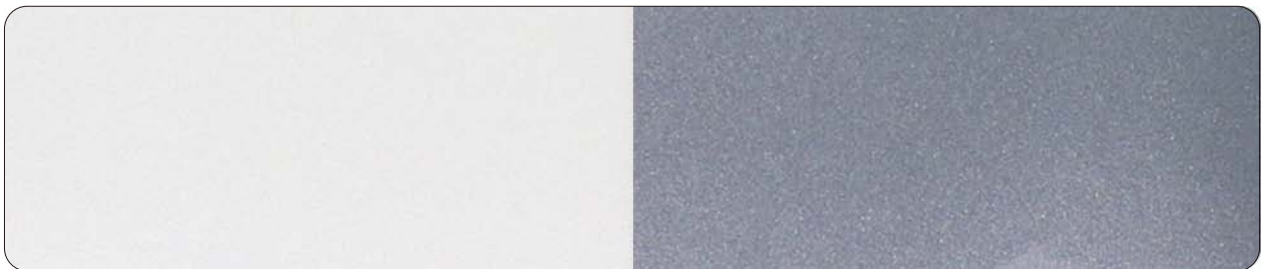
| Code              | Particle Size(μm) |         | pH         | Loss on Drying (%) | Loss on Ignition (%) |
|-------------------|-------------------|---------|------------|--------------------|----------------------|
|                   | (D10-D90)         | (D50)   | (10% Sol.) |                    |                      |
| Adamas® A-100D    | 3 < , < 30        | <10     | 7 - 11     | 0 - 1              | 0 - 0.5              |
| Adamas® A-901K    | 5 < , < 30        | 15 - 19 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-701K    | 5 < , < 30        | 15 - 19 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-741K    | 5 < , < 30        | 15 - 19 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-781K    | 5 < , < 30        | 15 - 19 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-791K    | 5 < , < 30        | 15 - 19 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-640K    | 5 < , < 30        | 15 - 19 | 7 - 11     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-660K    | 5 < , < 30        | 15 - 19 | 7 - 11     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-901S    | 9 - 45            | 19 - 23 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-701S    | 9 - 45            | 19 - 23 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-741S    | 9 - 45            | 19 - 23 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-781S    | 9 - 45            | 19 - 23 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-785S    | 9 - 45            | 19 - 23 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-791S    | 9 - 45            | 19 - 23 | 5 - 10     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-620S    | 9 - 45            | 19 - 23 | 7 - 11     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-640S    | 9 - 45            | 19 - 23 | 7 - 11     | 0 - 0.5            | 0 - 0.5              |
| Adamas® A-660S    | 9 - 45            | 19 - 23 | 7 - 11     | 0 - 0.5            | 0 - 0.5              |
| Adamas® AMP-1090S | 9 - 50            | 26 - 30 | 7 - 10     | 0 - 0.5            | 0 - 0.5              |

# Adamas®

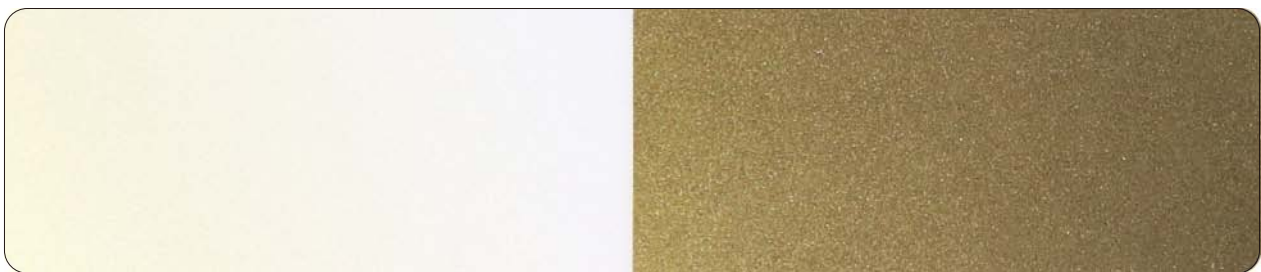
## Alumina Based Pearlescent Pigments



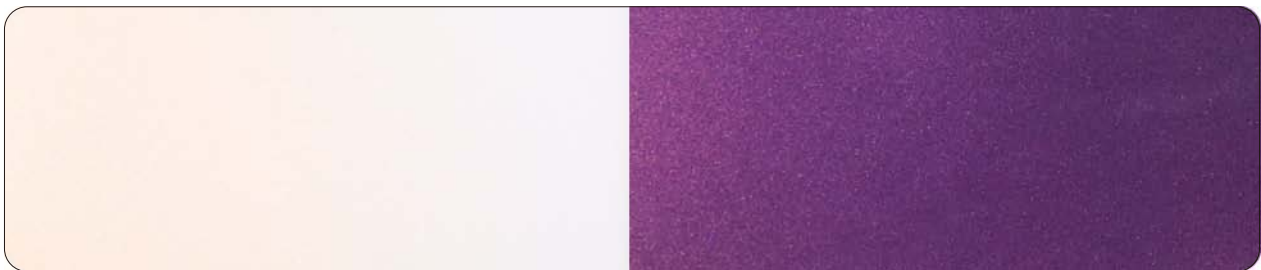
Adamas® A-100D Alumina Powder      Size(μm) 3 < , < 30



Adamas® A-901K Splendor White      Size(μm) 5 < , < 30



Adamas® A-701K Splendor Gold      Size(μm) 5 < , < 30



Adamas® A-741K Splendor Red      Size(μm) 5 < , < 30



Adamas® A-781K Splendor Blue      Size(μm) 5 < , < 30



Adamas® A-791K Splendor Green      Size( $\mu\text{m}$ ) 5 < , < 30

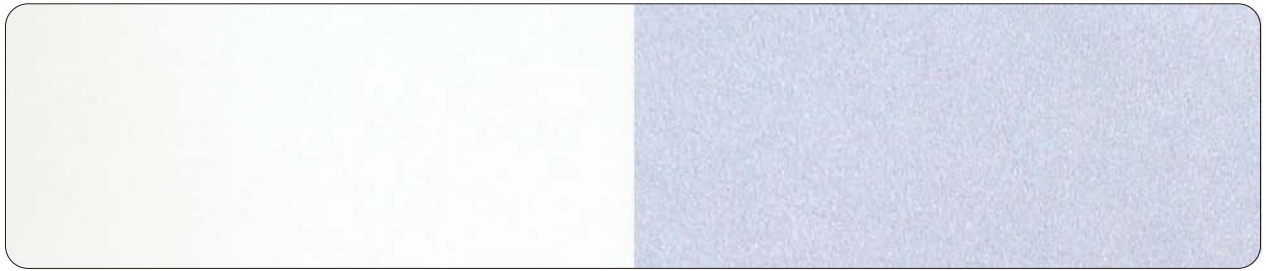


Adamas® A-640K Splendor Copper      Size( $\mu\text{m}$ ) 5 < , < 30



Adamas® A-660K Splendor Russet      Size( $\mu\text{m}$ ) 5 < , < 30

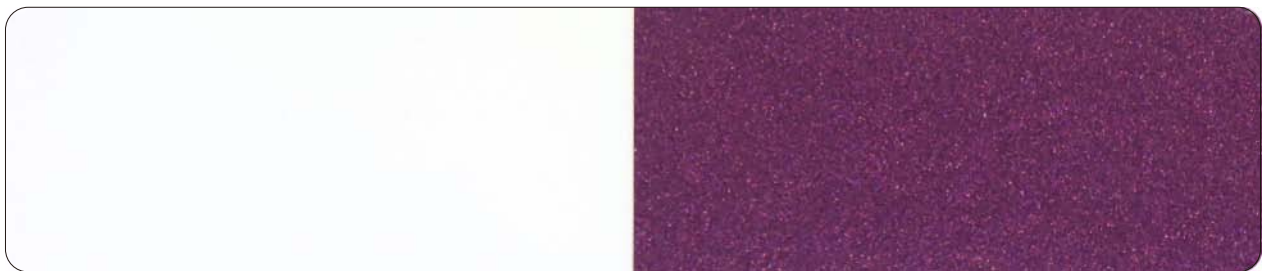




Adamas® A-901S Dazzling White      Size(μm) 9 - 45



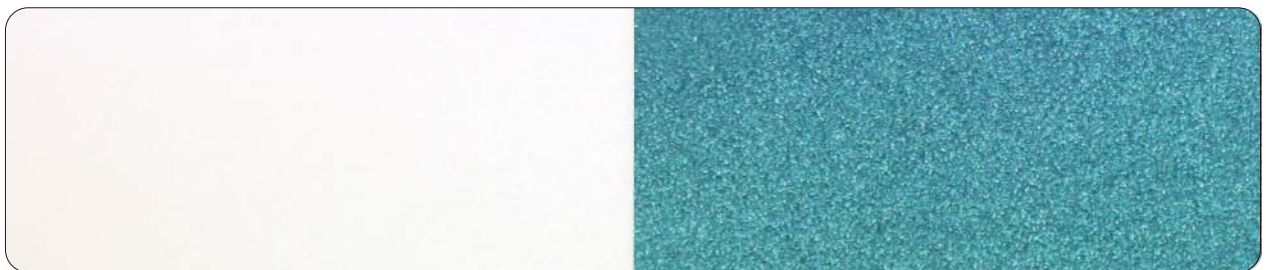
Adamas® A-701S Dazzling Gold      Size(μm) 9 - 45



Adamas® A-741S Dazzling Red      Size(μm) 9 - 45



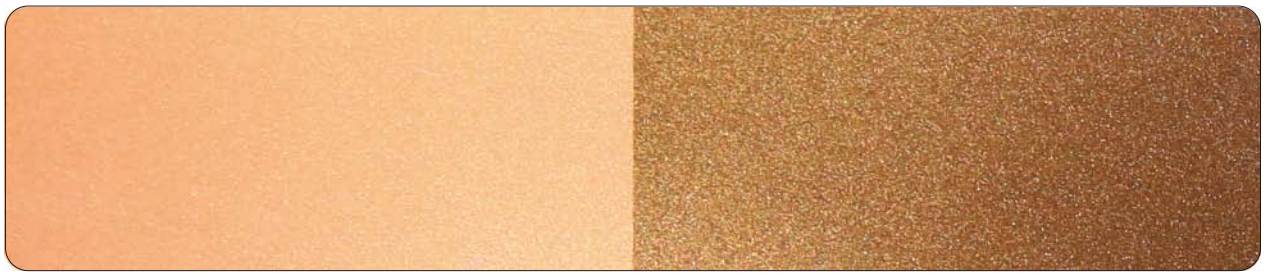
Adamas® A-781S Dazzling Blue      Size(μm) 9 - 45



Adamas® A-785S Dazzling Turquoise      Size(μm) 9 - 45



Adamas® A-791S Dazzling Green      Size( $\mu\text{m}$ ) 9 - 45



Adamas® A-620S Dazzling Bronze      Size( $\mu\text{m}$ ) 9 - 45



Adamas® A-640S Dazzling Copper      Size( $\mu\text{m}$ ) 9 - 45



Adamas® A-660S Dazzling Russet      Size( $\mu\text{m}$ ) 9 - 45



Adamas® AMP-1090S Brilliant Black

Size( $\mu\text{m}$ ) 9 - 50

# CQV GLOBAL NETWORK

“Global Supplier of High Quality Effect Pigment Technologies.”



Creation of Quality Value

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