Cobalt Blue Pigment PB28

Product Overview

Cobalt Blue CPB-528 is a micron-grade inorganic blue pigment based on a cobalt aluminate spinel crystal structure (PB28). It is engineered for ceramic, enamel, coating, and high-temperature plastic applications where excellent color stability, chemical resistance, and thermal durability are required.

With a controlled particle size distribution of 1–3 micrometers, CPB-528 provides stable blue coloration, predictable dispersion behavior, and minimal color deviation during high-temperature processing and long-term outdoor exposure.

CPB-528 is manufactured using a liquid-phase synthesis route rather than a conventional solid-state process. This approach allows better control over nucleation and crystal growth, leading to improved pigment purity, more uniform particle morphology, and enhanced color stability after high-temperature firing.

Compared with solid-state cobalt blue pigments, liquid-phase CPB-528 exhibits reduced particle aggregation, lower shade variation (ΔE), and more predictable performance in ceramic glazes and enamel systems.

Chemical & Structural Information

Item	Description
Pigment Index	PB28
CAS Number	1345-16-0
Chemical Composition	Cobalt Aluminate
Crystal Structure	Spinel
Appearance	Blue Powder
Specific Gravity	~4.5–5.0
Oil Absorption	Low
Magnetism	Non-magnetic
Moisture Content	<1%

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Physical Properties

Property	Value
Average Particle Size	1–3 μm
Density	4.0–4.6 g/cm³
Oil Absorption	18–28 g/100g
pH Value	7.7–7.8
Moisture Content	<0.5%

Resistance & Stability Performance

Cobalt Blue CPB-528 demonstrates excellent resistance to thermal, chemical, and environmental stresses. The spinel structure ensures color integrity under demanding industrial and ceramic processing conditions.

Property	Rating / Value
Heat Resistance	≤1000 °C
Light Fastness (1–8)	8
Weather Resistance (1–5)	5
Acid Resistance (1–5)	5
Alkali Resistance (1–5)	5

Micron-Grade Performance Advantage

Unlike nano-scale pigments, micron-grade cobalt blue offers superior thermal and structural stability during ceramic firing and high-temperature processing. The 1–3 μm particle size reduces the risk of agglomeration, minimizes color drift (ΔE), and ensures consistent shade development after firing.

This makes CPB-528 particularly suitable for ceramic glazes, enamels, and engineering plastics where nano pigments may suffer from instability or unpredictable behavior at elevated temperatures.

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Heavy Metal Solubility & Safety

CPB-528 exhibits extremely low heavy-metal solubility. Testing indicates that the combined solubility of lead and chromium after 48 hours is ≤0.005‰, supporting its suitability for regulated ceramic and industrial applications where chemical stability and safety compliance are critical.

Test Item	Result
Lead & Chromium Solubility (48 h)	≤0.005‰

Typical Applications

Cobalt Blue CPB-528 is widely used in applications requiring high color stability and durability:

- Ceramic glazes and ceramic pigments
- Enamels and frit systems
- Glass coloration
- High-temperature industrial coatings
- Architectural and decorative coatings
- Engineering plastics
- Color masterbatches for heat-resistant polymers

Supply & Handling

CPB-528 is supplied as a dry powder pigment suitable for standard industrial handling and processing. Gentle mixing is recommended to ensure uniform dispersion. No special nano-dispersion equipment is required.

Technical documentation, including TDS and SDS, is available upon request. Custom packaging and supply formats can be provided to meet OEM and distributor requirements.

Disclaimer

The information provided in this technical data sheet is based on laboratory testing and practical experience. It is intended as a reference for product selection and application development. Users should conduct their own testing to confirm suitability for specific applications.

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