

POWDER PAINTS

Revision version : 001

Date of revision : 31-Dec-2024

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Product Category	<ul style="list-style-type: none"> ● Pigment Dispersant for Powder Paints ● Precipitated Baryte for Powder Paints ● Powder Paint OEM from THAI Manufacturers
Application	<ul style="list-style-type: none"> ● Alloy wheels ● Aluminum frames ● Cabinets
Key Function(s)	<ul style="list-style-type: none"> ● Improve color shade ● Optimize cost of powder paint product

Powder paint (also known as powder coating) is a type of coating that is applied as a dry powder and then cured under heat to form a durable, solid finish. It is commonly used for metal, plastic, and other materials in a variety of industries, such as automotive, appliances, architecture, and industrial equipment. Unlike liquid paints, powder coatings do not require solvents and are applied using an electrostatic process, making them an eco-friendly option.

Powder coatings are made up of several key components, each serving a specific purpose in the coating's performance, durability, and application:

1. Resins (Binders):

Resins are the primary component in powder coatings that hold the powder together and form the film when cured. They provide the necessary bonding to the substrate.

○ Types of Resins:

- **Epoxy:** Provides excellent adhesion, corrosion resistance, and durability. However, it is more sensitive to UV light, which can cause yellowing or degradation over time.
- **Polyester:** Known for good weather resistance and UV stability. Polyester resins are widely used in outdoor applications due to their resistance to sunlight and environmental conditions.
- **Polyurethane:** Offers superior hardness, abrasion resistance, and chemical resistance, often used in automotive and industrial applications.
- **Acrylic:** Provides good gloss retention and clarity, often used in decorative and architectural applications.
- **Hybrid (Epoxy-Polyester):** Combines the strengths of both resins for improved performance in terms of hardness, flexibility, and corrosion resistance.
- **Specialty Resins such as PVDF:** It is the top quality powder paint with premium qualities such as strong acid-base resistance, super durability for extreme weather conditions, and high UV resistance.



For more information of product



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2. Curing Agents (Hardeners):

- These are chemicals that promote the curing (or hardening) of the powder coating when heated. Curing agents are typically activated by heat, causing the powder to melt, flow, and chemically bond to the substrate to form a solid, durable coating.
- **Common Curing Agents:**
 - **Polymerized Curing Agents:** Typically used with epoxy or polyester systems to achieve crosslinking, which provides durability.
 - **Isocyanates:** Often used in polyurethane-based powder coatings to promote crosslinking.

3. Pigments:

- Pigments provide color to the powder coating and contribute to the overall aesthetic properties of the finish. In powder coatings, pigments must be stable at high temperatures and resistant to UV degradation.
- **Types of Pigments:**
 - **Inorganic Pigments:** Such as titanium dioxide (for white) and iron oxide (for red), which are often used for their stability and resistance to heat.
 - **Organic Pigments:** These offer brighter, more vibrant colors but may not be as stable as inorganic pigments in terms of UV and heat resistance.

4. Additives:

- Various additives are used to improve the performance, application, and finish of powder coatings. These include:
 - **Flow agents:** Help the powder flow smoothly during application and ensure uniform coverage.
 - **Anti-caking agents:** Prevent the powder from clumping during storage and transport.
 - **UV stabilizers:** Protect the powder coating from UV degradation, particularly for outdoor applications.
 - **Leveling agents:** Help the powder melt and flow evenly to avoid texture inconsistencies.
 - **Degassing agent:** Remove gases during baking or from by-product reaction.

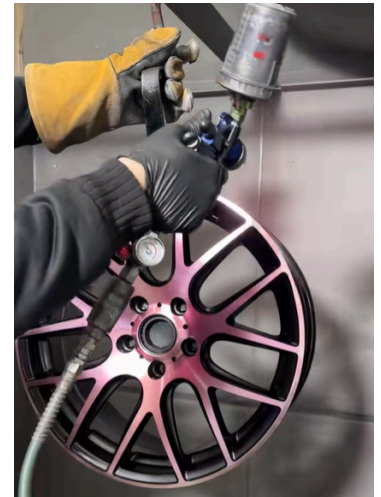
5. Fillers:

- Fillers are inert materials added to the powder coating formulation to reduce costs or improve specific properties (e.g., hardness, texture, or weight). They can be materials like baryte (both natural and precipitated), calcium carbonate, silica, or talc.

How Powder Paint is Applied:

Powder coating is applied using an **electrostatic spray process**, which involves:

1. **Spraying the Powder:** The powder is sprayed onto the surface using a specialized spray gun. The gun applies a high-voltage charge to the powder particles, which causes them to stick to the grounded substrate.
2. **Curing the Coating:** After the powder is applied, the object is heated in an oven at high temperatures (typically 160°C to 200°C) for a set period. During this time, the powder melts, flows, and chemically bonds with the surface, forming a hard and durable finish.



Benefits of Powder Paint:

1. **Durability:** Powder coatings are known for their high resistance to scratching, chipping, fading, and wear. Due to higher thickness application, they are highly durable and long-lasting.
2. **Environmental Benefits:** Since powder coatings do not contain solvents, they release fewer volatile organic compounds (VOCs) into the atmosphere, making them more eco-friendly compared to traditional liquid paints.
3. **Cost-Effectiveness:** Powder coating reduces the need for primers or multiple coats, which can lower material costs. Additionally, it is efficient because excess powder can often be recycled and reused.
4. **Variety of Finishes:** Powder coatings can achieve a wide range of finishes, including matte, glossy, textured, and even metallic looks.
5. **Corrosion Resistance:** Powder coatings, particularly those based on epoxy or polyester resins, offer excellent protection against corrosion, making them ideal for outdoor and industrial applications.

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Applications of Powder Paint:

- **Automotive and Aerospace:** Powder coatings are commonly used for car parts, wheels, bumpers, and even entire vehicle frames due to their durability and resistance to harsh environments.
- **Furniture:** Metal furniture, such as outdoor chairs and tables, benefits from the weather-resistant properties of powder coating.
- **Appliances:** Household appliances like refrigerators, washers, and dryers often have powder-coated finishes for durability and aesthetics.
- **Architectural Coatings:** Window frames, doors, and other architectural elements are coated with powder paints to withstand outdoor conditions.
- **Industrial Equipment:** Machinery, metal parts, and tools are often powder coated for additional protection from wear, corrosion, and chemicals.

Conclusion:

Powder paint (or powder coating) is a durable, eco-friendly coating system made from resins, curing agents, pigments, and various additives. It is applied as a dry powder and then cured under heat to form a tough, long-lasting finish. Powder coatings are widely used in industries ranging from automotive to architecture due to their excellent durability, aesthetic flexibility, and minimal environmental impact.

Please contact our sales representative to exchange more details of our products whether they can be part of your new product development for specific market demands.

Stellar Unity has been in connection with OEM manufacturers of powder paints and our business partners are happy to exchange the business collaboration with those who are interested.



There are many ways and options while elaborating in Powder Paint Arena with Stellar Unity. Stellar Unity has collaborated with local paint manufacturers who could be your partners in producing liquid paint products under your brands. Moreover, Stellar Unity has promoted some materials for your powder paint products such as pigment dispersant and precipitated baryte.

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