

Glossary of Terms

Powder Coating Glossary of Terms

- **Powder Coating Adhesion** - the firm attachment of a coating to a substrate or another coating.
- **Powder Coating Ambient Temperature** - the usual, or surrounding, environmental conditions.
- **Powder Coating ASTM** - American Society for Testing and Materials, the source for voluntary standards for materials, products, systems and services.
- **Powder Coating Atlas (Xenon Arc) Weather** - Ometer (ASTM G 26, Method A) - an accelerated test which simulates the effects of weathering through the use of a filtered xenon arc light source.
- **Powder Coating Autoclave** - a piece of equipment used to apply superheated steam under high pressure; commonly used for the sterilization of instruments in the medical field or for testing materials which will be subjected to high temperature/high pressure applications; results may vary based upon test conditions.
- **Powder Coating Back Ionization** - an excessive build-up of charged powder particles during electrostatic application which limits the ability of additional powder to be deposited onto the substrate; can neutralize the electrical charge of subsequently sprayed powder particles.
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- **Powder Coating Blooming** - a haze on the surface of a coating which can be easily removed.
- **Powder Coating Chalking** - degradation of a coating due to UV exposure, which results in loss of colour and gloss.
- **Powder Coating Compatibility** - the capacity of coating powders from either different sources or of different compositions when combined and applied which yield no visible or mechanically measurable differences in the cured film or application properties.
- **Powder Coating Contrast Ratio** - a value related to the hiding power of a coating which must be reported at a specific film thickness; the ratio of the reflectance of a coating is measured over black and white backgrounds at the same film thickness; the results are measured as a numerical value - in general, a 0.98 contrast ratio is visually opaque; directly related to product pigmentation; minimum film thickness with full coverage of the substrate is critical (see also Hiding Power or Opacity).
- **Powder Coating Corona Charging** - same as Electrostatic Spray Method.
- **Powder Coating Corrosion** - decomposition or reaction with oxygen, water, or other chemicals, when exposed to a particular environment.
- **Powder Coating Coverage (calculated)** - determines the sq.ft. /pound @ 1.0 mil; adjust accordingly for other film thicknesses.
- **Powder Coating Crosshatch Adhesion (ASTM D 3359, Method B)** - determines the relative adhesion of a coating to the substrate.
- **Powder Coating Cure Schedule** - the time at temperature necessary for a coating to develop specific properties.
- **Powder Coating Delamination** - separation between two layers of coating, or a coating and the substrate.
- **Powder Coating Dielectric Strength** - property of an insulating material where electrical breakdown occurs under specific conditions of test, expressed in volts per mil.
- **Powder Coating Disbondment or Blistering (ASTM C 550)** - the effect, usually at the scribe, of blisters formed under a cured powder film.
- **Powder Coating Distinctness of Image (DOI)** - the sharpness of an image reflected by a coating's surface.
- **Powder Coating Dwell Time** - the length of time a part is in an oven.

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- **Powder Coating Edge Coverage** - the ability of a coating in its cured state to flow, build, and adhere to sharp corners, angles and edges.
- **Powder Coating Electrostatic Spray (Corona) Method** - the induction of powder particles exposed to an electrostatic field generated by a high voltage device.
- **Powder Coating Emmaqua** - weathering test performed in Arizona where panels placed in a special apparatus are exposed to a brief water spray and magnified sunlight; ambient humidity is fairly low.
- **Powder Coating Etching** - surface preparation of metal by a chemical process; removal of a layer of the base metal.
- **Powder Coating Faraday Cage Effect** - the lack of penetration of powder particles into cavities or recessed areas of a substrate due to its configuration.
- **Powder Coating Filiform** - corrosion or creep resembling a thread-like formation.
- **Powder Coating Fines** - small powder particles, usually less than 10 microns.
- **Powder Coating Flexibility (ASTM D 522, Method A=mandrel, Method B=rod)** - measures a coating's bend capability over a given shape.
- **Powder Coating Flop** - a characteristic of metallic coatings to change colour when viewed at different angles.
- **Powder Coating Flow** - measure of self-levelling; the nature of a coating which allows it to level or spread into a smooth film of uniform thickness before hardening.
- **Powder Coating Gel Time** - the interval of time at a given temperature required for a material to be transformed from a dry solid, through a liquid state, to a gel-like condition; measured in seconds at a given temperature.
- **Powder Coating Glass Plate Flow/Hot Plate Melt Flow (HPMF)/Incline Plate Flow** - a measurement on an inclined surface when powder is in a molten state; usually measured in millimetres at a given temperature and angle.
- **Powder Coating Gloss (ASTM D 523)** - surface reflection of directed light, measured in units; the most common angle of measurement is 60°; a 20° angle should also be considered for certain full gloss formulations and an 85° angle for low gloss products.
- **Powder Coating Hiding Power** - the extent to which a powder coating masks the colour and pattern of the surface to which it is applied at a given film thickness (see also Contrast Ratio or Opacity).
- **Powder Coating Hygroscopic** - the tendency of a substance to attract or absorb moisture from the air.
- **Powder Coating Humidity Resistance (ASTM D 2247, usually tested on unscribed, pre-treated panels)** - measures a coating's ability to withstand exposure to 100% relative humidity at various temperatures.
- **Powder Coating Impact Fusion** - the tendency of powder particles to fuse with other particles at points of impact in the application equipment during the application process.
- **Powder Coating Impact Resistance (ASTM D 2794, Direct/Reverse)** - measures a coating's ability to withstand a force; expressed in inch-pounds; results can be affected by type of substrate, film thickness, or diameter of indenter.

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- **Powder Coating Infrared (IR) Cure** - a method of curing powder which utilizes direct exposure to light energy in the IR region of the light spectrum.
- **Powder Coating Intercoat Adhesion** - the ability of a coating to adhere to previously applied films.
- **Powder Coating Levelling** - a powder's ability to flow into a smooth, uniform thickness (free from defects).
- **Powder Coating Mar Resistance** - a coating's ability to withstand contact without blemishing.
- **Powder Coating Metal Temperature** - the temperature of a part at any time during the cure cycle; varies based upon mass of part and dwell time.
- **Powder Coating Out-Gassing** - air or gas that escapes from the sub-surface beneath or within the coating and causes blisters, bubbles, or small holes; frequently occurs with zinc or aluminum castings or galvanized steel.
- **Powder Coating Opacity** - the ability to hide the substrate at a given film thickness (see also Contrast Ratio or Hiding Power).
- **Powder Coating Overbake** - the application of heat using more time and/or temperature than is required for cure which often causes the coating to become too brittle; colour and gloss may be adversely affected.
- **Powder Coating Overspray** - material not deposited on the part or rack.
- **Powder Coating Particle Size** - the average diameter of powder particles; affects application properties.
- **Powder Coating Particle Size Distribution** - the overall range of particles (from coarse to fine) resulting from the grinding process; measured in microns; varies with product.
- **Powder Coating Pencil Hardness (ASTM D 3363)** - relative rating of a coating's ability to resist scratching; measured as mar and/or gouge.
- **Powder Coating Potable** - suitable for drinking.
- **Powder Coating Postformability** - the ability of a cured coating to withstand severe bending without the appearance of cracks.
- **Powder Coating Pre-treatment** - the preparation of a part prior to the application of a coating powder in order to improve adhesion and corrosion resistance.
- **Powder Coating Primer** - a coating applied to a surface to improve adhesion of a topcoat and/or improve corrosion resistance.
- **Powder Coating QUV** - accelerated weathering test performed at elevated temperatures in which coated panels are exposed to regular cycles of intense UV light alternated with dark cycles where water is allowed to condense on the panels.
- **Powder Coating Reclaim** - any material not deposited onto parts; usually mixed with virgin material for future applications.
- **Powder Coating Recoatability** - a cured coating's ability to accept another coat.
- **Powder Coating Reflectance** - the percent of light reflected at a given wavelength; the illuminant, degree of observer and the wavelength must be specified; colour (not gloss) dependent - whites will have the highest values.
- **Powder Coating Reflectivity** - the reflectance of a coating at a film thickness such that any further increase in thickness will not affect the amount of light reflected.
- **Powder Coating Salt Spray Resistance (ASTM B 117)** - the degree of corrosion determined at the scribe based upon a prescribed time period; should be tested with a control.
- **Powder Coating Service Temperature (continuous or intermittent)** - the temperature which a finish is able to withstand for an extended period of time or number of cycles without degradation.

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- **Powder Coating Shelf Life** - the period of time a coating retains its application and appearance properties if stored according to the manufacturer's recommended conditions.
- **Powder Coating South Florida Exposure (ASTM G 7)** - exposure to typical heat, humidity and sunlight conditions at southern latitudes; measurements are generally the change in gloss and/or colour (Delta E).
- **Powder Coating Specific Gravity** - the density of a formulation relative to water.
- **Powder Coating Taber Abrasion (ASTM D 4060)** - resistance to wear.
- **Powder Coating Temperature Stability** - appearance and adhesion after a period of time at a prescribed temperature and film build.
- **Powder Coating Thermoplastic** - a coating powder which will repeatedly melt when subjected to heat and solidify when cooled.
- **Powder Coating Thermoset** - a coating powder which, when subjected to heat, undergoes an irreversible chemical reaction during the cure cycle.
- **Powder Coating Transfer Efficiency** - the amount of powder attracted to the part compared to the amount of powder sprayed; measured as a percentage.
- **Powder Coating Triboelectric Spray Method** - powder particles receive an electric charge through the use of frictional contact with a nonconductive material.
- **Powder Coating Ultraviolet Radiation (UV)** - light energy from the UV region of the light spectrum which can break certain chemical bonds and contribute to the fading and wear of coatings.
- **Powder Coating Virgin Material** - powder which has not been mixed with reclaim material.
- **Powder Coating Volatile Organic Compounds (VOC's)** - carbon compounds which can undergo an atmospheric photochemical reaction, contributing to air pollution and causing ozone depletion.
- **Powder Coating Water Resistance (ASTM D 870)** - a coating's ability to withstand immersion in water at prescribed temperatures for specified time periods.
- **Powder Coating Weatherability** - degradation caused by humidity, temperature, and exposure to sunlight.
- **Powder Coating Wrap** - a characteristic of coating powders during electrostatic application to seek out and adhere to areas of the substrate not in the direct line of sight of the delivery system end point.
- **Powder Coating Yellowing** - development of a yellow colour or cast of a coating due to aging or cure variables; more evident in light coloured formulations.