

DU PONT
FABRICS AND FINISHES DEPARTMENT
GLOSSARY OF COATING TERMINOLOGY

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GLOSSARY OF COATING TERMINOLOGY

- Abrasion** - Wearing away of paint film by mechanical force.
- Accelerate** - To speed up a process.
- Acetone** - A solvent, very fast evaporating, high solvency. Has characteristic ether like odor.
- Acid** - The opposite of base; provides hydrogen ions in solution; accepts electrons; donates protons; a chemical compound. Generally tastes sour. Neutralizes bases.
- Acid Number** - A measure of the acidity of a resin or a vehicle. Expressed as milligrams (mgs) of KOH (potassium hydroxide) needed to neutralize one gram of solid resin or vehicle.
- Acrylate or Acrylic** - A certain class of monomers or polymers; polymers characterized by excellent durability, excellent gloss retention, crystal clarity, excellent color retention. Included should be acrylics, methacrylates, etc. Types: Lucite®, "Duracron" (1). Acrylic lacquers are widely used for painting automobiles.
- Addition** - A type of polymerization characterized by the formation of a polymer from one or more monomers without the loss of any atoms from the monomers or the formation of any by-product.
- Additive** - A paint ingredient added usually in small amounts to produce a desired effect such as faster dry, wetting, flow, settling resistance, mildew resistance, skinning resistance, slip, etc.
- Adhesion** - The property of "stick-to-it-ness". Difficult to measure. Most tests measure combination of adhesion, cohesion, toughness, hardness, etc.

(1) PPG

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- Aging
 - To allow a material to stand for some time; growing old.
 - Agitator
 - A paint mixer of any type.
 - Air
 - Usually used under pressure as a propellant for spraying. Trapped air can cause bubbling, popping, foam, etc.
 - Air Dry
 - The ability of a coating to dry to its ultimate hardness under normal atmospheric conditions. Measurement of time required must state conditions of test such as temperature and humidity.
 - Airless Spray
 - Atomization of paint by spraying at high pressure thru a small orifice. Gives small amount of overspray.
 - Alcohol
 - A class of chemical compounds used as solvents, diluents or co-solvents.
 - Aliphatic
 - A very low solvency hydrocarbon having straight or branched chain structure. Typically these are saturated compounds.
 - Alkali
 - See Base.
 - Alkyd
 - The chemical combination of an alcohol, an organic acid and an oil. Widely useful vehicle for paint. Properties depend on ingredients. Dulux®. A polymer, a polyester.
 - Alligatoring
 - A paint film failure resembling an alligator skin or a dried out river bed.
 - Alodizing
 - A chemical surface treatment for aluminum. "Alodine" (2).

(2) Amchem.

Aluminum	- Metal useful as substrate or pigment. When used as substrate requires paint to prevent corrosion.
"Amberol" (3)	- A resin or gum.
Amorphous	- Having no definite crystalline structure.
Anatase	- A crystal form of Titanium Dioxide pigment - Chalking type.
Angstrom Unit	- One hundred millionth of a centimeter. Used to express length of light waves.
Anhydrous	- Without water, especially water of crystallization.
Aniline Point	- A measure of aromaticity of a hydrocarbon solvent. Low numbers indicate high aromatic content, and vice versa.
Anodizing	- An electrolytic surface treatment for aluminum which builds up an aluminum oxide coating.
Antifouling	- A paint which contains toxic substances to inhibit the growth of certain organisms on ship bottoms.
Architectural	- Pertaining to buildings.
Aromatic	- A hydrocarbon solvent having greater solvency than aliphatics, contains benzene ring.
Asphalt	- A black resin or gum. Occurs naturally or may be derived from petroleum. Cheap paint vehicle.
Atom	- Smallest particle of an element.
Atomization	- The breaking up of paint into finely divided droplets. Forming a fog or mist from a liquid. Usually accomplished in spray painting.

(3) Rohm & Haas Co.

- Baking** - Drying or curing a paint film by heat.
- Ball Mill** - A machine used to disperse pigment.
- Barytes** - An extender pigment. Barium Sulphate.
- Base** - The opposite of acid. Provides hydroxyl ions in solution, donates electrons, accepts protons, a chemical compound.
- Base (Mill-)** - More commonly a colored or white paste or heavy liquid added to paints to tint them, to which vehicle is added to make a finished paint. The result of dispersing pigment in a vehicle is a base. Also see dispersion.
- Binder** - That part of a paint which holds the pigment particles together, forms a film and imparts certain properties to the paint. Part of solids. Usually a polymer and modifying additives. Also known as vehicle solids.
- Black** - The opposite of white. Black will reflect no visible light. The absence of color or lightness.
- Blacks** - Black pigments or black paints.
- Bleeding** - The property of certain pigments which transfer their color into topcoats which are applied over them. Diffusion of coloring matter into a coating from a substrate usually because of solubility.
- Blistering** - The formation of bumps or pimples on a paint film. Usually caused by moisture or heat.
- Blocking** - Sticking together, as in a pile of painted articles.
- Blown Oil** - Oil which has been bodied by passing air through it.

- Blushing** - Hazing or whitening of a film caused by absorption and retention of moisture in a drying paint film.
- Body** - The consistency of a liquid.
- Bodying** - An increase in viscosity or consistency.
- Brittle** - Lack of flexibility; usually combined with a lack of toughness.
- Bronzing** - The formation of an iridescent metallic appearing haze on a paint film. Occurs with certain pigments.
- Brush** - A tool for applying paint; to apply paint with a brush.
- Brushing** - The act of applying paint by a brush or the ability of a paint to be applied by a brush.
- Bubble Test** - A method of measuring the viscosity of clears, or vehicles by observing the rate at which an air bubble rises in a tube of the liquid.
- Build** - Ability of a coating to fill and hide surface roughness of a substrate. Thickness of a film.
- Bulking Value** - See Dry Bulking Value and Wet Bulking Value.
- Butadiene** - A petroleum derivative capable of forming polymers such as artificial rubber. Used in Budium®.
- Butanol** - The common name for butyl alcohol. A solvent, co-solvent or diluent for paint. Medium evaporation rate.
- Butyl Acetate** - A solvent for paint. Commonly used in lacquers. Usually the base for comparing evaporation rates of organic liquids. Arbitrarily assigned the rate of 1 or 100.
- Butyl Alcohol** - See butanol.

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| Cadmium | - A metal commonly used to manufacture durable, but expensive red and yellow pigments. The red is cadmium sulfide in conjunction with cadmium selenide. The yellow is basically cadmium sulfide. The pigments are toxic. |
| Calcium | - A metal component of driers and pigments. |
| Calcium Carbonate | - An extender pigment. Whiting. Limestone is chiefly calcium carbonate. |
| Camphor | - A volatile solid plasticizer for nitrocellulose. |
| Can | - A container. |
| Carbon Black | - A black pigment manufactured by collecting the carbon resulting from incomplete combustion of natural gas. |
| Carbon Tetrachloride | - A toxic solvent. Not to be recommended for use as a solvent or cleaner. Non-flammable. Used in fire extinguishers. |
| Casein | - A component of certain emulsion paints. Little used in modern emulsion paints. |
| Castor Oil | - A natural vegetable oil used in the manufacture of alkyd resins and as a plasticizer. Non-drying. Characterized by excellent color. Derived from the castor bean. |
| Catalyst | - Something which speeds up a chemical reaction without being changed by the reaction. |
| Caulking | - Sealing used in joints to prevent the passage of fluid (commonly moisture) or gas. |
| "Cellosolve" (4) | - A solvent for paint. Expensive. Slow evaporating. The monoethyl ether of ethylene glycol. |

⁽⁴⁾ Carbide & Carbon Chem. Corp.

- "Cellosolve Acetate" (5) - A solvent for paint. Expensive. Slow evaporating. The acetic acid ester of Cellosolve.
- Cellulose - A natural polymer obtained from wood, cotton, etc. Composed of repeating glucose units with three hydroxyl groups per glucose unit available for reaction.
- Cellulose Acetate - A chemically modified cellulose used as a binder in lacquers. Rayon is cellulose acetate.
- Cellulose Nitrate - Nitrocellulose, Px. A common ingredient for lacquers. A very useful binder. Tough, easy to polish, durable when pigmented. Nitrocellulose lacquers widely used for automobiles prior to acrylics. Duco®.
- Centipoise - A unit of the measurement of viscosity. One centipoise is defined as the viscosity of water at 20.2°C.
- Chalking - A result of weathering of a paint film. Characterized by loose pigment particles on the surface of the paint. Chalking makes a paint "self-cleaning" by washing off in rain and carrying dirt with it. Chalking of white in tints causes colors to appear faded.
- Check - A small crack.
- Chinawood Oil - A common natural oil used in the manufacture of varnishes. Fast drying, good water resistance, poor color retention, excellent durability when properly compounded. Sometimes referred to as tung oil. Derived from the tung nut. The fastest drying vegetable oil.

(5) Carbide & Carbon Chem. Corp.

- Chlorinated Rubber** - A chlorinated rubber used as a binder in lacquers. Very alkali resistant. "Parlon". (6)
- Chrome Oxide Green** - A green pigment, good alkali resistance. Very durable but little used because of expense and low tinting strength. Commercially pure Cr_2O_3 .
- Chrome Yellow** - Widely used yellow pigment. Alkali-sensitive but good durability. Darkens on exterior use. Lead Chromate. Sometimes co-precipitated with lead sulfate or lead oxide to give various shades. Lead content makes it toxic if ingested.
- Clean** - A bright clear color. Also clean as after washing or cleaning.
- Cleaner** - Material used to clean a substrate.
- Clear** - A paint containing no pigment or only transparent pigments.
- "Clorox"** - A bleach. An aqueous solution of NaOCl (sodium hypochlorite).
- Clouding** - The formation or presence of a haze in a liquid or in a film.
- Coalesce** - The fusion of polymer particles to a continuous film, usually under the influence of surface tension, solvents or heat.
- Coating** - The act of applying paint or the actual film left on the substrate by a paint. A paint film.
- Cobalt** - A metal component of some driers. Commonly cobalt naphthenate. Imparts rapid surface drying characteristics.

(6) Hercules Chemical Co.

- Cocoanut Oil** - A natural vegetable oil used in the manufacture of alkyd resins. Non-drying. Good color retention and durability. Derived from the cocoanut.
- Cohesion** - The internal strength of a film.
- Color** - The appearance of a material as red, blue, green, etc. The wave length of light emitted, transmitted, or reflected by an object determines its color. The color of an object depends on the light source in which it is observed. Not all people perceive color alike.
- Color Retention** - The permanence of a color under a set of conditions.
- Compatibility** - The ability of two or more materials to mix together and to form a homogeneous mixture.
- Concrete** - A construction material requiring special paints able to withstand alkali and moisture.
- Concentration** - The amount of any substance in a solution. Usually shown as percent by weight.
- Condensation** - A change from a vapor to a liquid on a cold surface. A type of polymerization characterized by the reaction of two or more monomers to form a polymer plus some other product, usually water.
- Consistency** - The fluidity or viscosity of a system.
- Co-polymer** - A polymer made from two monomers.
- Copper** - A reddish colored metal. Used in the manufacture of flake pigments and driers.
- Coverage** - The amount of area a volume of paint will cover at a certain thickness. Usually expressed as square feet per gallon at 1 mil dry film thickness. $1604 \times \% \text{ solids by volume} = \text{Sq. Ft. per gal. at 1 mil.}$

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| Corrosion | - Degradation of a metallic substrate by chemical agents in its environment. |
| Co-solvent | - See latent solvent. |
| Crawling | - A wet film defect which results in the paint film pulling away from the substrate or not wetting certain areas of the substrate leaving those spots uncoated. |
| Crosslink | - A chemical reaction of the binder which results in an increase in molecular weight and gives hard, solvent resistant films. |
| Crazing | - A film failure which results in surface distortion or fine cracking. |
| Critical Pigment Volume (CPVC) | - That concentration of a pigment in a film at which there is just enough binder to fill the voids between particles. Above and below its CPVC, a film differs greatly in its physical properties. |
| Curing | - The chemical reaction which takes place in the drying of paints that dry by a chemical change. |
| Curtain Coating | - A method of applying paint by passing a substrate through a curtain of paint. The Burkle and the Steineman are curtain coaters. |
| Degradation | - The gradual or rapid disintegration of a paint film. |
| Degreasing | - Cleaning a substrate (usually metallic) by removing greases, oils and other surface contaminants. |
| Dehydration | - The removal of water. |
| Dehydrated Castor Oil | - A modified castor oil. A drying oil. Commonly used in the manufacture of alkyd resins. Good color retention. |

Density	- The weight of any material per unit of volume. Commonly grams per milliliter. Water = 1 gm/ml.
Detearing	- The removal of the bead or drips along the lower edge of a part coated by dipping.
Di-	- A prefix meaning two.
Diacetone Alcohol	- A solvent for paint. Slow evaporating. Medium to high price.
Diatomaceous Earth	- A common extender pigment. Basically Silica. An earth deposit of fossilized diatoms.
Dibutyl Phthalate	- A plasticizer for lacquers. DBP.
Dilatency	- A condition in which particles in a vehicle are so closely packed that resistance to flow increases rapidly as shear rate is increased.
Diluent	- A liquid, not a true solvent, used to lower the cost of a paint thinner system. Generally cheap hydrocarbons.
Dirty	- A color which is not bright and clean. A color which appears greyish. Also a condition requiring cleaning.
Dilution Ratio	- The amount of a diluent which can be added to any true solvent when the mixture is used to dissolve a certain weight of a polymer. Limits are determined by dissolving the polymer in the solvent and then adding diluent until gelation or kick-out occurs.
Diocetyl Phthalate	- A commonly used plasticizer. DOP

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| Dipentene | - A very slow-evaporating hydrocarbon used to control flow and skinning in certain types of finishes. |
| Dipping | - To apply paint to an article by immersing the article in a container of the paint and then withdrawing the article and allowing the excess paint to drain from the part. |
| Dispersing Agent | - A surfactant used to promote and stabilize the dispersion of particles in a vehicle. An anti-flocculant. |
| Dispersion | - The act of distributing solid particles uniformly throughout a liquid. Commonly the dispersion of pigments in a vehicle. Does not imply the fracturing of individual particles, only their distribution. Also, a mill base. |
| Distillation Range | - The boiling range of a liquid. |
| Doctor Blade | - An apparatus used to apply paint in a very uniform film thickness. |
| Drier | - A catalyst added to a paint to speed up the cure or dry. |
| Dry | - The change from a liquid to a solid which takes place after a paint is deposited on a surface. Included is the evaporation of the solvents and any chemical changes that occur. |
| Dry Bulking Value | - Approximate volume of a pound of dry pigment, including air voids. |
| Drying Oil | - A liquid (commonly a vegetable oil) that will change to a solid under normal atmospheric conditions when spread out in a thin film. Commonly triglycerides. Cure is by oxidation. |
| Durability | - Length of life. Usually applies to a paint used for exterior purposes. |

- Electrostatic Spraying** - The application of paint by high-voltage atomization. Different types: Ransburg, DeVilbiss. Paint particles given an electric charge are attracted to a grounded metal piece. Very little overspray.
- Emulsion** - A suspension of fine polymer particles in water. Dispersed particles may be binder, pigments or other ingredients. Emulsions can be made by certain polymerization techniques or by certain processes. The polymer particles coalesce to a continuous film as the emulsion coating dries.
- Enamel** - Usually a pigmented gloss paint. A paint which chemically reacts to heat, light, oxygen, etc. to form a tough film through crosslinking.
- Epoxy** - A class of resins characterized by good chemical resistance. These resins all contain oxirane oxygen. A typical resin would be a copolymer of bis-Phenol A and Epichlorohydrin.
- Ester Gum** - A hard brittle resin used in lacquers. The glycerol ester of rosin.
- Ester** - A chemical compound. Technically the combination of an organic acid and an alcohol. Characterized by the suffix -ate i.e., acrylate, an acrylic ester.
- Ethers** - A class of organic compounds. Certain ones are used as solvents.
- Ethyl Acetate** - An ester solvent, fast evaporating. Commonly used in lacquers. Medium price.
- Ethyl Alcohol** - A solvent, co-solvent or diluent. Fast evaporating. Cheap. Commonly called alcohol. Whiskey is a mixture of ethyl alcohol, water and certain other ingredients.

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| Evaporation | - The change from liquid to a gas. Commonly, when solvents leave a wet paint film, they do so by evaporation. |
| Evaporation Rate | - The speed with which any liquid evaporates. Generally the rate is expressed as a number related to the evaporation rate of butyl acetate which is assigned the number 1 or 100. |
| Extender Pigment | - An inert, usually colorless, and semi-transparent pigment used to control viscosity settling resistance, brushability, gloss, film strength and other properties of a paint. |
| Exterior | - The outside. Usually refers to an area not protected from the weather or not in an enclosed area such as a building. |
| Fading | - Loss of color. |
| Fatty Acid | - An acid derived from a natural oil. |
| Feather edge | - To bevel the edge of a damaged spot in a paint film to ready it for repair. The beveled edge itself. |
| Ferrite Yellow | - A commonly used, durable, yellowish-brown pigment. Very durable, light-fast and alkali-resistant. Hydrated iron oxide. |
| Filler | - Commonly, a heavily pigmented paint used to fill imperfections or pores in a substrate. |
| Fineness | - The largest dimension size of the individual pigment particles in a dispersion, measured in mils. |

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| Film | - A very thin continuous sheet of material. Paint forms a film on the surface to which it is applied. |
| Film Former | - The polymeric portion of the vehicle. |
| Flag | - The split end of a bristle in a paint brush. |
| Flaking | - A paint failure characterized by large pieces of the paint falling from the substrate. |
| Flash or Flash Time | - Time allowed for solvent to evaporate from a film before baking. |
| Flash Point | - Lowest temperature at which a liquid in an open vessel will ignite. Interstate Commerce Commission (ICC) regulations govern shipment of low flash point material on various types of carriers. |
| Flat | - Lacking in gloss. |
| Flexibility | - The ability of a paint film to withstand dimensional changes from bending or stretching. |
| Floating | - Same as flooding except the color of the surface is uniform. |
| Flocculation | - Formation of clusters of pigment particles. Can cause changes in flow, gloss, color and settling. |
| Flooding | - The phenomenon that occurs when color (pigments) accumulates at the surface of a wet paint film in a non-uniform pattern. |
| Flow | - The leveling characteristics of a wet paint film. Also, the ability of a liquid to run evenly from a surface and to leave a smooth film behind. |

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| Flow-Coating | - The application of paint to an article by pouring an excess of paint on the article and allowing the excess to drain from the work. Requires a paint with good flow. |
| Foots | - Sludge formed in a container of a clear oil or resin on aging. |
| Frosting | - The formation of a surface haze or distortion in a drying paint film. Often caused by gas fumes or acid in the bake oven. Usually a fine wrinkling of the surface. |
| Fungicide | - An additive for paint used to prevent the growth of mold or fungus in the container or on a dry paint film. |
| Gallon Weight | - The weight in pounds of one gallon of material. A density term. For pigments it refers to the solid pigment with no voids. |
| Gas-Proofing | - The modification, usually by heat, of tung oil to prevent the frosting or hazing of the film formed by paints made from this oil. |
| Gelation | - The development of insoluble polymers in resins, paints, or other polymer solutions. Characterized by a jellylike appearance; cannot be used. Normally irreversible. Cross-linking usually results in gelation of a resin solution. |
| Gloss | - A term used to describe the shine, sheen or luster of a dried film. Measured by determining the percentage of light reflected from a surface at specified angles. 20°, 60° and 85° from vertical are used for high, medium, and low gloss products respectively. |

- Grinding**
- Term used to describe the dispersion of pigment in a vehicle. Does not imply reduction in particle size, only dispersion of the particles uniformly throughout the system. Methods of grinding vary. Examples - Ball milling, roller milling, sand grinder, etc.
- Gum**
- A solid resinous material which can be dissolved and which will form a film when the solution is spread on a surface and the solvent is allowed to evaporate. Usually a yellow or amber or clear solid. Also an ingredient of varnishes.
- Hardness**
- That quality of a dry paint film which gives the film resistance to surface damage or deformation. Hard to measure accurately or to separate from such other properties as adhesion, toughness, mar resistance, etc.
- Haze**
- The development of a cloud in a film or in a clear liquid.
- Hiding Power**
- The ability of a paint film to obscure the substrate to which it is applied. May be measured while the paint is still wet or after it has dried, and these measurements may differ. Measured by determining the minimum thickness at which a film will completely obscure a black and white pattern.
- Hold-Out**
- Resistance of a coating to soaking into the substrate. See Strike-in.
- Holiday**
- An area which was accidentally missed when a surface was painted.
- Hot-Melt**
- Generally an adhesive. A polymer applied to a substrate in its molten state. Dries by cooling to solid.

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| House Paint | - A pigmented paint designed to be applied in the field to the exterior surfaces of residential buildings. Commonly sold over the counter to the consumer. |
| Hue | - The characteristic by which one color differs from another such as red, blue, green, etc. |
| Humidity | - The amount of water vapor in the atmosphere. Relative humidity is the % water vapor in the air at a given temperature compared to the total which could be held by the atmosphere at that temperature. |
| Hydrocarbon | - A compound which contains only carbon and hydrogen. Commonly applies to solvents, either aliphatic or aromatic in nature. |
| Hydrometer | - An instrument to measure the specific gravity (density) of a liquid. |
| Induction Heating | - The development of heat in a substrate by the application of an electromagnetic field to that substrate. The substrate must be a conductor of electricity. |
| Infrared Baking | - Drying a paint film by the heat developed by an infrared source. |
| Infrared Light | - That portion of the spectrum responsible for most of the heating effects of the sun's light; 8000-100,000 angstrom units. |
| Inhibitor | - An additive to a paint which slows up some process, e.g., gelling, skinning, yellowing, etc. |
| Inorganic Compounds | - Compounds that do not contain carbon. |

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| Iodine Number | - A method of measuring the drying potential of an oil or other reactive system. High numbers indicate fast drying potential. Actually determines amount of unsaturation. |
| Iron | - A metallic substrate which requires painting to prevent corrosion. Also found as a component of driers and pigments. |
| Iron Blue | - A widely used blue pigment. Alkali sensitive. Durable. Made by oxidizing the ferrous ferrocyanide formed by precipitating a solution of a soluble ferrocyanide salt with iron sulfate. |
| Iron Oxide Red | - A widely used red pigment. Durable. Very alkali resistant. Cheap. Mainly ferric oxide. |
| Isophorone | - A very slow evaporating solvent. Expensive. Toxic. |
| Isopropyl Alcohol | - A solvent, co-solvent or diluent. Cheap, fast evaporating. Used mainly in lacquers. Rubbing alcohol. Isopropanol. |
| Kauri Butanol Value | - A measure of the solvent power of a hydrocarbon. High numbers indicate high solvent power. |
| Ketones | - A class of organic liquids. Very useful in the paint industry due to their high solvent power. Characterized by the suffix "-one". |
| Krebs Unit | - A measure of viscosity. Commonly used for those liquids which are thixotropic. Measured on the Stormer Viscometer. |

- Lacquer** - A paint which dries by solvent evaporation only. Usually it has been applied to acrylic and nitrocellulose types, but the term has a broad meaning.
- Latent solvent** - A liquid which will not ordinarily dissolve a solid, but which develops solvency when it is mixed with another liquid.
- Latex** - An emulsion. A dispersion of a polymer in water.
- Lead** - A metal commonly used in the manufacture of driers and pigments. All lead compounds are extremely toxic. Lead driers promote through dry.
- Leafing** - The orientation of metal flake pigments in a paint film which results in a bright metallic appearance and a concentration of the particles at the surface of the film.
- Lifting** - The attack by the solvents in a topcoat on the undercoat which results in distortion or wrinkling of the undercoat.
- Lightness** - The whiteness of a paint. Measured by the amount of light reflected by a surface. A perfect white is one which reflects 100% of the light in the visible spectrum.
- Light Fastness** - The ability of a paint to resist color changes caused by light.
- Linseed Oil** - A vegetable oil widely used in the manufacture of alkyd resins and also as a binder by itself. A good drying oil. Forms durable coatings. Yellows on exposure to heat or if sheltered from sunlight.

Livering	- Gelation.
Lucite®	- Du Pont's trademark for acrylics.
Luster	- Gloss or sheen.
Magnesium	- A very light, strong metal used mainly by the aircraft industry. Difficult to paint. Requires special surface preparation.
Manganese	- A metal component of driers. Manganese driers are used mainly for baking products.
Massstone	- The predominant or undiluted color a pigment produces.
Melamine	- A crosslinking agent used to harden alkyd resins and other film formers in baking finishes. High quality. Durable. Light-fast. Commonly the polymer produced by reacting melamine formaldehyde and then butylating the product.
Methacrylate	- A class of acrylic polymers.
Methyl alcohol	- A very low-boiling, toxic alcohol. Very little use in the paint industry. Wood alcohol. Methanol.
MEK	- Methyl ethyl ketone. A good solvent used mainly for lacquers. Fast evaporating. Almost the solvent power of acetone with a slower evaporation rate.
Mica	- An extender pigment. Essentially silicates of aluminum. The pigment particles are flakes.

MIBK	- Methyl isobutyl ketone. A good solvent used for a variety of resins. Medium fast evaporation rate.
Mildew	- The fungus growth which appears on substrates in warm, humid areas.
Milori Blue	- An Iron Blue - Durable blue pigment. Bleached by alkalis.
Mil	- One thousandth of an inch.
Mills	- Equipment used to disperse pigments. Ball or pebble mill - grinds by the action of large balls or pebbles impacting on the pigment groups. Roller mill - grinds by the shearing action between two counter-rotating steel rolls. Sand mill grinds by the shearing action developed between moving particles of sand.
Mill Base	- A concentrated dispersion of pigment in vehicle. Used to tint paint or to make paint. Product of grinding or dispersion.
Mixer	- Any container containing an agitator of some type.
Molecule	- The smallest possible unit or amount of any substance which retains all the characteristics of that substance.
Monastral®	- Du Pont Trademark for very durable, brilliant, lightfast, alkali-resistant organic pigments. Phthalocyanine greens or blues, and quanaacridone reds.
Moisture	- Water vapor or liquid.
Monomer	- A chemical compound, usually simple, capable of reacting with itself or other monomers to form polymers.
Mottling	- A film defect appearing as blotches or surface imperfections.

- Naphtha
 - A solvent or diluent. Low solvency hydrocarbon. Very cheap. Limited use where good solvency is required.
- Nitrocellulose
 - See cellulose nitrate.
- Non-Drying Oil
 - A liquid (usually a vegetable oil) which will not dry under normal atmospheric conditions, even when driers are added, but which will react with other polymers to form a film.
- Oils
 - Vegetable oils, such as linseed, castor and coconut oils. Obtained from various natural sources. A relatively viscous liquid which has an oily or slippery feel. Technically, the reaction product of a fatty or long-chain acid and glycerol, a poly-alcohol. Used as modifiers for alkyd resins, as paint vehicles, as varnish constituents, as plasticizers, etc.
- Oil Absorption
 - The amount of oil it takes to mix with a given pigment to yield a certain viscosity mixture. A measure of the surface area and void volume of a pigment.
- Oil Length
 - The amount of oil in a varnish. Expressed as gallons of oil per 100 pounds of gum.
- Orange Peel
 - A textured pattern developed in a film as a result of solvent formulation or application conditions and associated with poor flow. Desirable in appliance finishes because it simulates porcelain. Undesirable in most other uses.
- Organic Coating
 - See Paint.
- Organic Compound
 - Any compound containing the element carbon.
- Organosol
 - A suspension of fine polymer particles in a liquid carrier, usually a hydrocarbon solvent which does not dissolve or fully solvate the particles.

- Oven - A piece of equipment used to bake finishes.
- Oxidation - The chemical combination of oxygen and the vehicle of a paint which leads to drying. Also, the destructive combination of oxygen with a dry paint film leading to degradation. Also, the combination of oxygen and a metal; for example, rusting.
- Oxygenated Solvent - A solvent containing carbon hydrogen and oxygen such as alcohols, esters, ethers.
- Paint - An all inclusive term for pigmented organic coatings. Lacquers, enamels, primers, surfacers, sealers, etc. are all paints. Sometimes used to include clear finishes such as varnish. Organic coatings is a more inclusive term embracing all the above plus waxes, polishes, water repellents, adhesive coatings, etc.
- Parlon (7) - Chlorinated Rubber.
- Particle Size - The size of the pigment particles either as powder or in a dispersion. Measured in mils or microns.
- Particle Size Distribution - A measure of the amount of particles of various sizes in a pigment or formulation.
- Pastel - A light color. One containing a lot of white. A tint. Off White.
- P/B - Pigment-to-binder ratio. The ratio of the weight of pigment to the weight of binder in a paint. Expressed as pounds of pigment per 100 pounds of binder.
- pH - A measure of the acidity of a substance in aqueous solution. 7 is neutral. Below 7 is acid and above 7 is basic. The scale is from 0 (strongly acid) to 14 (strongly alkaline).
- Peeling - The loss of adhesion of a paint film which results in large pieces of film splitting away from the surface.

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| Phenolic | - A class of resins. Characterized by very good chemical resistance, but poor color. |
| Phenylmercury Compounds | - A class of materials used as fungicides. Very toxic but effective. |
| Phosphoric Acid | - An acid commonly used as a catalyst to speed up the cure of some baking finishes, usually alkyd/nitrogen resin or epoxy/phenolic combinations. |
| Phthalic Anhydride | - A white solid used in the manufacture of alkyd resins and other polyesters. It is a dibasic acid. |
| Phthalocyanine Pigments | - See "Monastral". |
| Pigment | - An insoluble solid having a small particle size. Used to impart color and other properties to paint. Pigments may be colored, semi-transparent, black, white or colorless. They may be organic or inorganic. They are incorporated into paint systems by a dispersion process. |
| Pinholing | - Holes left in a paint film by bubbles. |
| Pitting | - The appearance of holes or pits in a paint film while it is wet. Related to crawling and poor wetting. |
| Plasticizer | - A material which is added to a paint system to make the film more flexible. An internal plasticizer is a component of the polymer molecule itself. An external plasticizer mixes with the polymer, but is not part of it. |
| Plastisol | - A suspension of fine polymer particles in a non-volatile carrier, usually a plasticizer. Similar to organosol except that the carrier is not volatile. |

Poise	- A measure of viscosity. 100 centipoises = 1 Poise.
Polar	- Solvents or other organic materials which have strongly electronegative and electropositive areas in the molecule. Hydrocarbons are non-polar and oxygenated solvents are usually polar. Materials that are polar have high dielectric constants.
Poly-	- A prefix meaning many. Also implies repetition many times.
Polyester	- A polymer formed from the reaction of a di- or polycarboxylic acid and a diol- or a polyol.
Polymer	- A chain or network of repeating units combined chemically. Formed from monomers by polymerization. For example: Polyvinyl acetate is a polymer formed by the hooking together of many vinyl acetate units. Vinyl acetate is a monomer.
Polymerization	- The formation of a polymer from monomers. There are two types of polymerization - addition and condensation.
Popping	- Fine blisters in the film formed during application or cure by trapped gases rupturing the film.
Primer	- The first coat of paint applied to a substrate. Often different from the following coats and often the most important coat for such things as corrosion resistance, adhesion, blister resistance, etc.
Printing	- Permanent impression left in a film by something pressing on the film.

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| Putty | - A plastic, heavily pigmented material used to fill holes or to smooth out a rough surface. Often made of linseed oil and calcium carbonate. Glazing material used to hold glass in window frames. |
| PVA or PVAc | - Poly-vinyl acetate. |
| PVC | - Pigment volume content - The percent by volume of pigment in the total volume of solid material in a paint. |
| PVCI | - Polyvinyl chloride resin. |
| Px | - Designates pyroxylin, nitrocellulose, or cellulose nitrate. |
| "Ransburg" (8) | - A method of applying paint electrostatically. |
| Reduce | - To lower the viscosity of a paint by the addition of solvent or thinner. |
| Resin | - A solid or semi-solid material, usually polymeric, which deposits a film and is the actual film forming ingredient in paint. See gum. Solutions of polymers are often called resins, but the term actually applies only to the film-forming solids, not to the solution. |
| Retarder | - A solvent added to a paint to slow the evaporation rate. |
| Roller Coater | - A machine for applying paint by means of a roll which transfers paint from a reservoir to the surface to be painted. |
| Rosin | - A natural gum obtained from pine trees. |

(8) The Ransburg Co.

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| Rust | - The corrosion product which forms on iron or steel when exposed to moisture and oxygen. |
| Rutile | - One of the two crystal forms of Titanium Dioxide pigment - Non-chalking or relatively so. Anatase TiO_2 chalks more freely. |
| Safflower Oil | - A vegetable oil similar to linseed oil in its uses and characteristics, but more resistant to yellowing. |
| Sagging | - Excessive flow on a vertical surface resulting in drips and other imperfections on the painted surface. Occurs not only when the paint is wet, but also during baking in certain types of paints. Also called curtaining. |
| Sandblasting | - A method of cleaning metal, usually steel, by means of an air blast containing an abrasive. |
| Sanding | - Smoothing or cleaning a surface with an abrasive coated paper or cloth. |
| Saponification | - The separation of esters into their components, usually by alkaline attack. A destructive process when it occurs in a paint film. |
| Sealer | - A coat of paint, usually very thin, put on a substrate to perform a special function which cannot be done by the normal types of paints being used. Implies protecting the substrate from subsequent coats of paint or protecting paint from something in the substrate. Also a coat used to promote hold-out of topcoats. |
| Seeding | - The development of tiny insoluble particles in a container of paint which results in a rough or gritty film. Seed may be composed of gelled resin or soap crystals, with or without pigment inclusions. |

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| Semi-gloss | - An intermediate gloss level between high and low gloss. |
| Settling | - Gravity separation of one or more components from a paint and the resulting layer of material on the bottom of a container. |
| Sheen | - The gloss or flatness of a film when viewed at a low angle. |
| Shellac | - A natural gum useful in the manufacture of certain types of paint, chiefly lacquers and sealers. Also the alcohol solution of this gum, widely used to coat floors. Shellac is a hard brittle gum secreted by the lac insect. |
| Silking | - Parallel hair like lines in a paint film resulting from the draining off of excess paint in a dip or flowcoating process. A result of poor flow and differential pigment separation. |
| Skinning | - The development of a solid layer on the top of the liquid in a container of paint. |
| Soap | - The product formed by the reaction of a fatty acid and a base or by the saponification of oil-containing polymers by a base or an alkaline substrate. |
| Solids, weight | - The percent, on a weight basis, of non-volatile material in a paint. |
| Solids, volume | - The percent, on a volume basis, of the non-volatile material in a paint. |

Solvency	- The measure of the ability of a liquid to dissolve a solid. Measured by the viscosity of a solution at a certain concentration of solid resin. The same solvent may have different solvency for different resins. The same as solvent power.
Solvent	- A liquid which will dissolve resins or gums or other binder constituents. Usually an organic liquid.
Soya Oil	- A vegetable oil used in the manufacture of alkyd resins. Cheap and durable. Fair yellowing resistance. A drying oil.
Spar Varnish	- A clear varnish for exterior exposure, particularly for use on boats and other marine end uses where a clear for wood is desired.
Specific Gravity	- The ratio of the weight in air of a specific volume of a substance compared to the weight of an equal volume of water. Similar to Density for practical purposes.
Spectrophotometer	- An instrument to measure color. Compares the reflectance of a test sample to the reflectance of an MgO (magnesium oxide) standard at all points of the visible spectrum.
Spewing	- Migration of a component of a paint film to a surface, either top or bottom.
Spray	- Application of paint by spraying. Paint is atomized in a spray gun and the stream of atomized paint is directed at the part to be painted. Atomization may be by high pressure air, by high pressure steam, or by high fluid pressure. Atomization may also be by electrical means in an electrostatic process.

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| Stabilizer | - Anything added to paint to retard degradation, by heat, light, moisture or other harmful factors. |
| Steel | - A ferrous metal which must be painted to prevent corrosion. |
| Strength | - The opacity and/or tinting power of a pigment. The measure of the ability of a pigment to hide or to color. |
| Strike-in | - Tendency of a coating to soak into the substrate and "disappear". Low gloss spots over porous areas. |
| Styrene | - A useful monomer which polymerizes readily. Low cost and colorless. Vinyl benzene. Used to make plastic articles and polyester finishes. Limited exterior durability. |
| Substrate | - The type of material which is to be coated, as wood, steel, aluminum, paper, etc. |
| Surfacer | - A heavily-pigmented paint designed to be applied to a substrate for the purpose of smoothing or unifying the surface for subsequent coats of paint. |
| Surfactant | - Surface active materials which tend to concentrate at pigment-vehicle, coating-substrate, or coating-air interfaces exerting significant effects on the properties and performance of the coating. They are often effective in minute amounts. |
| Tack | - The stickiness of a paint film or an adhesive. The time it takes for an air drying paint to reach a tack-free stage is a common measure of drying speed. |
| Talc | - An extender pigment. Essentially magnesium silicate. |

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| Tall Oil Fatty Acid (TOFA) | - A fatty acid obtained as a by product in the production of wood pulp from pine trees. Useful in the manufacture of alkyd resins. Similar to soya oil in properties when made into an alkyd resin. "Tall" is the Swedish word for pine. |
| Tensile Strength | - A measure of the force required to break a film by stretching it. |
| Thickener | - Any material used to increase the body of a coating. |
| Thinner | - One or a mixture of several solvents or diluents used to reduce the viscosity of paint or to lower the solids. Often used to mean the same as solvent or diluent. |
| Thermoplastic | - A polymer or other solid material which becomes soft or fluid when it is heated. Molecular weight does not change when the film is formed. |
| Thermosetting | - A polymer or other solid which will not soften when it is heated. Thermosetting implies cross-linking and an increase in molecular weight during cure. |
| Thixotropy | - The development of high viscosity or apparent gelation in a standing liquid, which is reversed by applying a shearing force. |
| Tint | - A very light color; usually a pastel. To add color to another color or to white. |
| Tinting Strength | - The ability of a pigment to change the color of a paint to which it is added. Some pigments have high tinting strength and only a little is necessary to make a large change in color. Others have low tinting strength. |

- Titanium Dioxide** - A white pigment. Most generally useful white pigment. Has the greatest hiding power of all white pigments. Non-toxic and non-reactive.
- Toluene** - A solvent or a diluent or a co-solvent. A fast-evaporating high-solvency aromatic hydrocarbon. Widely used. Common name is toluol. Chemically similar to xylene and benzene.
- Topcoat** - The final layer of paint applied to a substrate. Several coats of topcoat may be applied in some cases.
- Trade Sales Paint** - Any paint which is designed to be sold to the consumer in a retail outlet.
- Traffic Paint** - Paint designed to be used on highways and streets to guide and control traffic.
- Trichloroethylene** - A solvent used to degrease and clean metal substrates for painting.
- Tumbling** - A method of applying paint by placing a number of small parts in a barrel along with a small amount of paint and then rotating the barrel until the paint is spread uniformly over all the parts.
- Tung Oil** - See Chinawood Oil.
- Turpentine** - A solvent obtained from the distillate of the exudation of pine trees. Largely replaced by petroleum derivatives now.
- Ultraviolet Light** - That portion of the spectrum which is largely responsible for the degradation of paints. Invisible to the eye. "Black Light". 2000-4000 Angstrom Units.

- Undercoat
 - A first coat; primer, sealer, or surfacer.
- Undertone
 - The color of a pigment which shows up when that pigment is mixed with a lot of white pigment. For example, blues may be red-toned, or green-toned.
- Urea-Formaldehyde
 - A hard, colorless polymer used mainly to modify alkyd resins. A nitrogen resin made from urea, formaldehyde and butanol. Cures on heating.
- Varnish
 - A clear resin solution made by heating a mixture of a hard gum and a vegetable oil and then dissolving the product formed in a suitable organic solvent.
- Vehicle
 - All of a paint except the pigment. This includes solvents, diluents, resins, gums, driers, etc. The liquid portion of a paint.
- Veiling
 - Same as webbing.
- Vinyl
 - A class of monomers which can be combined to form vinyl polymers. Also the class of polymers formed from vinyl monomers. Usually these polymers are tough, very flexible, and can be durable if properly pigmented. Vinyl polymers are addition polymers, widely used to make chemical resistant finishes, tough plastic articles, phonograph records and floor tiles.
- Viscosity
 - The resistance to flow in a liquid. The fluidity of a liquid, i.e., water has a low viscosity and molasses a very high viscosity. Viscosity is measured by allowing a specified amount of liquid to flow through an orifice and measuring the time it takes for this amount to flow. There are also other methods of measurement. The unit of viscosity is the poise.

VM & P Naphtha	- A fast evaporating, low solvency aliphatic hydrocarbon solvent. VM & P = varnish makers' and painters'.
Wax	- A slippery solid sometimes added to paints to impart slip or mar resistance. Also specially prepared material designed to shine or improve a surface. Waxes are usually paraffinic or esters of long chain fatty acids with long chain alcohols.
Weathering	- The changes caused in a paint film by the natural forces such as sunlight, rain, dust, wind, etc.
Weatherometer	- A machine designed to simulate and accelerate the effects of weathering.
Webbing	- The formation of webs and strings of paint during spraying. Caused by too high mol. wt. or too fast evaporating solvents. Veiling.
Wet Bulking Value	- Gallons of solid pigment per pound. Reciprocal of gallon weight.
Wetting	- The process by which a liquid completely covers the surface of the solids with which it is in contact.
Wetting Agent	- A surfactant used to promote wetting, usually by lowering surface tension of the vehicle.
Whiting	- Calcium carbonate pigment.
Wood	- A substrate for paint. Difficult to coat because of its dimensional instability, its susceptibility to rot and its variable density and surface.
Wrinkle	- The pattern formed on the surface of a paint film by improperly formulated or by specially formulated coatings. The appearance of tiny ridges or folds in the film.

- Xylene
 - A solvent or diluent. An aromatic hydrocarbon. High solvency for a hydrocarbon and medium evaporation rate. Very useful. Commonly Xylol. Chemically similar to toluene and benzene.
- Yellowing
 - A discoloration to the yellow. Sometimes caused by smoke, grease, certain gases but, more commonly, sunlight, or lack of light, i.e., in the dark.
- Zahn Cup
 - An efflux type of viscometer. Measures the time required for a volume of paint to flow through a standard sized hole.
- Zinc
 - A difficult metallic substrate to paint due to its reactivity. A constituent of a drier. A metallic pigment used to provide corrosion resistance on ferrous substrates.
- Zinc Chromate
 - A yellow, rust-preventing pigment useful on steel.
- Zinc Oxide
 - A white pigment. Used to inhibit mold or mildew on paint films. Care must be taken in its use due to the embrittling action of this pigment in many vehicles.