

**ABRADING:** (1) Erosion by mechanical or particulate impact. (2) Surface preparation of concrete that is intended to roughen the surface profile of the concrete and remove foreign materials. Methods classified as abrading include mechanical abrasion, water blast cleaning, and abrasive blast cleaning. Abrading methods are defined in ASTM D 4259.

**ABRASION RESISTANCE:** The ability of a coating to resist being worn away and to maintain its original appearance and structure when subjected to rubbing, scraping, or wear.

**ABRASIVE:** (1) A material used for wearing away a surface by rubbing. (2) A fine, granulated material used for blast cleaning. Abrasive particles of controlled mesh sizes are propelled by compressed air, water, or centrifugal force to clean and roughen a surface. Blast cleaning abrasives often are simply referred to as metallic or non-metallic and as shot- or grit-like.

**ABRASIVE WHEELS:** Metallic wheels mounted on a rotary power tool, commonly used to grind welds, and remove weld spatter. They are also commonly used to remove rust and mill scale from localized areas.

**ACCELERATED WEATHERING:** Tests designed to simulate, but at the same time to intensify and accelerate, the destructive action of natural outdoor weathering on coating films. The tests involve exposure to artificially produced components of natural weather, e.g., light, heat, cold, water vapor, rain, ionic solutions, etc., which are arranged and repeated in a specific cycle. There is no universally accepted test, and different investigators have found widely different cycles to be useful.

**ACIDITY:** The extent to which a solution is acid, normally expressed as its pH value.

**ACRYLIC LATEX:** Aqueous dispersion, thermoplastic or thermosetting, of polymers or copolymers of acrylic acid, methacrylic acid, esters of these acids, or acrylonitrile.

**ACRYLIC RESIN:** A synthetic resin made from derivatives of acrylic acid.

**ACTIVATOR:** See CATALYST.

**ADHESION:** The degree of attraction between a coating and a substrate or between two coats of paint that are held together by chemical or mechanical forces or both. Adhesion often is called the “bonding strength” of a coating. Adhesion should not be confused with “cohesion,” which is the force holding a single coating layer together.

**ADHESION FAILURE:** A failure between two distinct coating layers or between the substrate and the first layer of coating. See ADHESION TEST, TENSILE (PULLOFF).

**ADHESION TEST, CROSSCUT:** Also called crosshatch test, a coatings adhesion test in which a crosshatch pattern is scribed onto the coated surface, then tape is applied and pulled off. Adhesion is assessed according to surface area from which flaking has occurred (ASTM D 3359). Adhesion measured by the crosscut test is referred to as the shear (or knife) adhesion.

**ADHESION TEST, TENSILE (PULL-OFF):** A method for testing the greatest perpendicular force which an area of coating can withstand before: **(1)** detaching from the surface (adhesion) or **(2)** fracturing within a layer of coating or substrate (cohesion). The method can also be used to determine whether a coating will remain intact at a particular applied tensile force. This standard test method is defined in ASTM D 4541.

**ADSORPTION:** Concentration of a substance at surface or interface of another substance.

**AEROSOL:** A container (usually a hand-held size) of coating material that is pressurized for spray (atomized) applications. Most often enamels and varnishes are sold in aerosol cans.

**AGING:** Storage of paints, varnishes, etc. (under defined conditions of temperature, relative humidity, etc.) in suitable containers, or as dry films of these materials, for the purpose of subsequent tests.

**AIR ABRASIVE BLAST CLEANING:** Also called abrasive air blast cleaning, a surface preparation method in which compressed air is used to propel abrasive particles against a surface to be cleaned. “Open blast cleaning” indicates that a localized containment does not surround the blast stream. “Closed blast cleaning” means that a localized containment does surround the blast stream.

**AIR CONTAMINANT:** Any substance of either man-made or natural origin in the ambient air, such as particulates (dust, fly ash, smoke, etc.) mists (other than water), fumes (gases), etc.

**AIR POLLUTANT:** Dust, fumes, mist smoke, and other particulate matter, vapor, gas or odorous substances.

**AIRLESS SPRAYING:** A coating application method that uses hydraulic pressure instead of air to atomize paint by forcing it through a spray nozzle with a small orifice at a pressure of 2,000 to 3,000 psi (14-21 MPa). The spray pattern and flow of paint are controlled by the size and shape of the orifice. The size of the orifice must be matched with the viscosity of the paint and the size of the material pump. This process is aided if the material is previously heated.

**ALCOHOLS:** A group of solvents of relatively high evaporation rate but with fairly low solvent strength. Methanol, ethanol and isopropyl alcohol are common alcohols.

**ALIPHATIC:** A class of organic hydrocarbon compounds composed of open chains. These include paraffins, olefins, etc.

**ALIPHATIC SOLVENTS:** Hydrocarbon solvents compounded primarily of paraffinic and cycloparaffinic (naphthenic) hydrocarbon compounds. Aromatic hydrocarbon content may range from less than 1% to about 35%.

**ALKALI:** An alkaline, or “basic” chemical substance such as lime or lye. Generally present in fresh cement, concrete, or plaster.

**ALKALI BURN:** A condition that occurs when the alkalinity in fresh masonry causes the breakdown of a paint's binder, resulting in color loss and overall deterioration of the paint film. Most likely to occur with vinyl-acrylic latex and oil-based paints applied to masonry surfaces that are less than a year old.

**ALKALINITY:** The extent to which a solution is alkaline (basic).

**ALKYD RESINS:** Synthetic resins formed by the condensation of polyhydric alcohols with polybasic acids. They may be regarded as complex esters. The most common polyhydric alcohol used is glycerol, and the most common polybasic acid is phthalic anhydride. Modified alkyds are those in which the polybasic acid is substituted in part by a monobasic acid, of which the vegetable oil fatty acids are typical.

**ALLIGATORING:** A scaly pattern that appears on paint due to the inability of the paint to bond to a glossy coating beneath it. It can also be due to the application of a hard coating over a soft primer, or (with oil-based paint) because the wood was recoated before the undercoat was dry.

**ALUMINUM PAINT:** A paint, usually solvent-based, that contains aluminum particles and provides a metallic appearance.

**AMBIENT CONDITIONS:** The weather conditions including: air temperature, relative humidity, dew point, wind velocity, and air temperature, which are monitored on the job site.

**AMINE:** An organic compound derived from ammonia by replacement of one or more hydrogen atoms with hydrocarbon radicals. It is used as a curing agent for epoxy resins.

**AMINE BLUSH:** Surface opalescence (blush) on epoxy films caused by reaction of amine co-reactant with carbon dioxide and water to form an amine carbamate.

**ANCHOR PATTERN:** The surface profile generated by abrasive blasting. The distance between peaks and valleys of the blast profile.

**ANODE:** The electrode of an electrolytic cell at which oxidation occurs. Electrons flow away from the anode in the external circuit. It is usually at the anode that corrosion occurs and metal ions enter solution. Contrast with CATHODE.

**ANODIZED:** Provided electrochemically with a protective or decorative oxide film.

**ANTI-CORROSIVE PAINT:** A paint designed to minimize rust or corrosion when applied directly to metal.

**APPLICATION:** Process by which surface coating compositions are transferred to a variety of surfaces, such as: brushing; spraying (cold or hot); dipping (simple immersion); roller coating; flushing; and spreading.

**APPLIED HIDING:** Refers not only to the opacity of the paint film, but also to its thickness and how smoothly it flows out. Must take into account how the paint is applied (brush, roller, spray, etc.).

**ARCHITECTURAL COATING:** Coating intended for on-site application to interior or exterior surfaces of residential, commercial, institutional, or industrial buildings – as opposed to factory applied (industrial) coatings. They are protective and decorative finishes applied at ambient temperatures.

**AROMATIC:** Hydrocarbon containing an unsaturated ring of carbon atoms, typified by the benzene ring structure. Xylene (xylol), toluene (toluol), and high-flash naphtha are aromatic solvents used in coatings.

**ASBESTOS:** A group of fibrous minerals which occur as small veins in the massive body of natural hydrous silicates of serpentine or amphibole and have heat-, fire-, and solvent-resistant properties. It was once used to reinforce coatings.

**ASPHALT:** Black to dark-brown solid or semisolid cementitious material which gradually liquefies when heated. The predominating constituents are bitumens, all of which occur in the solid or semi-solid form in nature or are obtained by refining petroleum, or which are combinations of the bitumens mentioned with each other or with petroleum or derivatives thereof.

**BACKER ROD:** An extruded foam rod that is typically placed in joints that are deeper than ½” (12.5 mm) to fill in some of the space before the sealant is applied. Foam backer rods come in a variety of diameters, ranging from 1/8” (3 mm) to ¾” (20mm).

**BANANA GAGE:** An elongated type of magnetic dry film thickness gage with a handle at one end and the probe at the other end. Between the handle and the probe is a positioning base and a thickness display dial.

**BARCOL HARDNESS:** Hardness value obtained by measuring the resistance to penetration of a sharp steel point under a spring load. The instrument, called the Barcol Impressor, gives a direct reading on a 0- 1 00 scale. The hardness value is often used as a measure of the degree of cure of plastics; not suitable for paints. Ibis standard test method is defined in ASTM D 2583.

**BAROMETRIC PRESSURE:** Atmospheric pressure, referenced in the US Weather Bureau Psychrometric Tables. Used to aid in the determination of relative humidity and dew point, based on the dry and wet bulb readings from the psychrometer.

**BARRIER COAT:** **(1)** A coating or coating system that protects an underlying substrate by minimizing or eliminating the penetration of moisture or vapors. **(2)** A coating used to separate a layer of paint from a surface to prevent chemical or physical interaction.

**BINDER:** **(1)** A component of paint that “binds” the pigment particles into a uniform, continuous paint film, and makes the paint adhere to the surface. The nature and amount of binder helps determine most of the paint’s performance properties-washability, toughness, adhesion, color retention, and durability. **(2)** In caulk, a component that “binds” the pigment particles into a homogeneous compound and makes the caulk adhere to the surface. Caulk’s main performance properties - durability, adhesion, and flexibility at low temperatures - are determined by the binder.

**BIOCIDE:** A biologically active paint and caulk additive designed to keep bacteria from spoiling the paint or caulk during storage; or to keep mildew from growing on the applied paint.

**BITUMINOUS COATING:** A coal tar or asphalt based coating material usually used in thick films.

**BLACK LIGHT:** Popular term for ultraviolet (UV) radiation without any visible radiation. Syn: ultraviolet (UV) radiation.

**BLAST POT:** A container that holds abrasive material until it is mixed with compressed air in air abrasive blast cleaning systems.

**BLASTING PRESSURE:** The pressure, usually expressed in pounds per square inch (PSI) or kilopascals (kPa), of an air and abrasive mixture as it passes through the nozzle of an abrasive blasting system.

**BLEACH SOLUTION:** A water solution of sodium hypochlorite, often called household bleach. It is a disinfectant and mildewcide used as a surface treatment for removing mildew and bacteria before painting.

**BLEACHING:** Loss of color, usually caused by exposure to sunlight.

**BLEEDING:** The migration of material from the substrate, causing discoloration of the paint.

**BLISTERING:** Formation of dome-shaped projections in paints or varnish films resulting from local loss of adhesion and lifting of the film from an underlying paint film (intercoat blistering) or the base substrate.

**BLOCK FILLER:** A thick, paint-like material used to smooth out very rough masonry surfaces like cinder block. It is generally brush-applied, then painted.

**BLOCK RESISTANCE:** The capability of a coating to resist sticking to itself when used on two surfaces that come into contact with each other, e.g. door and jamb; window sash and sill.

**BLOWDOWN:** The removal of dust from a surface by using a stream of clean compressed air.

**BLUSHING:** Film defect which appears as a milky opalescence as the film dries; can be a temporary or permanent condition. It is generally caused by rapid evaporation, moisture, or incompatibility.

**BONDING:** The attachment between a coating film and the underlying material to which it is applied.

**BOUNCE BACK:** The rebound of atomized paint, especially when applied by conventional air spray methods.

**BOXING:** Pouring paint from one container into another several times to assure that no unmixed material remains on the bottom and that the paint is uniformly mixed.

**BREATHE:** The passage of moisture vapor from the substrate through the dry paint film.

**BREATHING-TYPE COATING:** A coating that is sufficiently permeable to permit transmission of water vapor without detrimental effect to itself.

**BRIDGING:** The formation of a paint film over a depression.

**BRITTLENESS:** The lack of resistance to cracking or breaking of a paint film when bent or flexed.

**BRUSHOUT:** The application of paint on a small surface for testing.

**BUBBLING:** Film defect, temporary or permanent, in which bubbles of air or solvent vapor, or both, are present in the applied film.

**BUG HOLE:** Small regular or irregular cavity (also called blow hole), usually not exceeding 15 mm in diameter, resulting from entrapment of air bubbles in the surface of formed concrete during placement and consolidation.

**BUILD (OR FILM BUILD):** The thickness that a paint tends to be applied in, when using the normal application technique for that paint.

**BULKHEAD: (1)** An upright partition or wall separating compartments, as in a ship's hold. **(2)** Wall retaining soil along waterfront.

**BURNISHING:** The formation of shiny areas on a painted surface, as a result of rubbing or washing.

**CALCIUM CARBONATE:** A mined material ("chalk") that is used as an extender or filler for paint and chalk.

**CALIBRATE:** To check, adjust, or determine by comparison with a standard.

**CALIBRATION PLATES:** Precision plates used for calibrating magnetic dry film thickness gages. Most commonly used standard plates are from NIST.

**CALIBRATION SHIMS:** Small color coded shims, usually of plastic, of various thicknesses that are used for calibrating Type II (fixed probe) magnetic dry film thickness gages.

**CARCINOGEN:** A material that either causes cancer in humans, or, because it causes cancer in animals, is considered capable of causing cancer in humans.

**CATALYST:** A reaction promoter. A substance that induces, alters, or accelerates a chemical reaction. A true catalyst is unchanged by the reaction it creates. In the paint industry, catalysts (also called activators, accelerators, and promoters) are used to speed the curing or crosslinking of certain coatings. Curing agents and hardeners (which enter into chemical reactions) are also sometimes (incorrectly) referred to as catalysts.

**CATHODE:** The electrode of an electrolytic cell at which reduction is the principal reaction. (Electrons flow toward the cathode in the external circuit.) Typical cathodic processes are cations taking up electrons and being discharged, oxygen being reduced, and the reduction of an element or group of elements from a higher to a lower valence state. Contrast with ANODE.

**CATHODIC DISBONDING:** Mechanical lifting of a coating caused by hydrogen bubbles formed when cathodic protection is excessive.

**CATHODIC PROTECTION:** (1) Reduction of corrosion rate by shifting the corrosion potential of the electrode toward a less oxidizing potential by applying an external electromotive force. (2) Partial or complete protection of a metal from corrosion by making it a cathode, using either a galvanic or an impressed current.

**CAULKING COMPOUND:** A soft, plastic, putty-like material, consisting of pigment and vehicle, used for sealing joints in buildings and other structures where normal structural movement may occur, or for preventing leakage.

**CAUSTIC:** A strong base or alkaline material.

**CEMENTITIOUS COATINGS:** A coating containing portland cement as one of its components held on the surface by a binder.

**CENTRIFUGAL WHEELS:** Finned wheels on abrasive blasting equipment that pick up and hurl abrasive at high speeds onto the steel plates or shapes in a centrifugal blasting machine.

**CHALKING:** Deterioration of the surface of an exterior paint upon weathering into a faded, powdery substance. Chalking occurs when the paint's binder is degraded by harsh environmental conditions. Chalk should be removed prior to repainting.

**CHECKING:** Patterns of short, narrow breaks in the top layer of paint. Checking occurs when the paint loses its elasticity.

**CHEMICAL RESISTANCE:** The ability of a material to resist degradation by reaction with, dissolution by, or reduction of physical continuity from contact with a chemical agent or agents, thereby retaining its capacity to perform as a structural or aesthetic entity. The standard test method for chemical resistance of coatings is described in ASTM D 3912.

**CHROMATE:** One of a class of chemical compounds of chromium. Chromate pigments have been used as colored hiding pigments and/or inhibitive pigments. They are suspected to be carcinogens, so their use is being greatly reduced.

**CLARIFIER:** In pulp and papermaking, the clarifier is an active process tank which allows solids to settle out of solution while clean or clarified liquid is tapped off the top at an overflow weir. The solids or underflow is pumped from the bottom and returned further back in the process flow. The clarified liquid is pumped to the next processing step. Clarifiers resemble atmospheric storage tanks but have an active process step occurring within the vessel. In water and wastewater treatment, there are several clarifiers. In the primary clarifier, floating solids are removed from the top of influent water, and the heavy sediment is removed from the bottom of the clarifier. In the secondary clarifier, sometimes referred to as the flocculation basin, flocculation takes place.

**CLAY:** A white, mined mineral used as an extender - mostly in interior paints.

**CLEANERS:** A detergent, alkali, acid or similar contamination removing material, which is usually water borne.

**COALESCENCE:** The formation of a film of resinous or polymeric material when water evaporates from an emulsion or latex system, permitting contact and fusion of adjacent latex particles. Action of the joining of particles into a film as the volatile evaporates. [DAC, CED; reproduced with permission from the McGraw-Hill Companies, from the Dictionary of Architecture and Construction, C.M. Harris, Ed., 1975.1

**COALESCENT:** An organic solvent used in latex paints that acts as a plasticizer. It helps the binder form a continuous film when applied.

**COAT:** Paint, varnish or lacquer applied to a surface in a single application (one layer) to form an evenly distributed film when dry.

**COATING:** Generic term for paints, lacquer, enamels, etc. A liquid, liquifiable or mastic composition that has been converted to a solid protective, decorative, or functional adherent film after application as a thin layer

**COATING SYSTEM:** A number of coats separately applied in a predetermined order at suitable intervals to allow for drying or curing.

**COHESION:** Propensity of a single substance to adhere to itself-, the internal attraction of molecular particles toward each other; the ability to resist partition from the mass; internal adhesion; the force holding a single substance together.

**COHESION FAILURE:** A failure or break within a given coat or material (the coating breaks within itself). See ADHESION TEST, TENSILE (PULL-OFF).

**COLD-ROLLED STEEL:** Low-carbon, cold-reduced sheet steel.

**COLD WALL EFFECT:** In tank linings, a driving, permeating force assisting ionic passage through a coating to a metal in the direction from a hot liquid to a cold wall.

**COLOR FAST:** The ability to maintain color and not fade excessively under normal conditions.

**COLOR RETENTION:** The ability of a paint to keep its original color and resist fading. This term is generally applied to exterior paints.

**COLOR WHEEL:** A circular chart with wedge-shaped segments of different specific colors: used in color decorating.

**COLORANT:** A concentrated liquid or dry color that is added to a paint to obtain a chosen color.

**COMBUSTIBLE:** Refers to any liquid with a flash point at or above 100°F (37.5°C).

**COMPLIMENTARY COLORS:** Two colors directly opposite one another on the color wheel.

**CONDENSATION EXPOSURE:** An exposure where the surface is almost continuously exposed to saturated air, accompanied by very frequent or continuous condensation.

**CONDUCTIVE:** Able to conduct electricity or heat.

**CONSISTENCY:** The thickness or brushability of a paint.

**CONTACT THERMOMETER:** A magnetic thermometer which is placed directly onto the steel surface to determine surface temperature. See also NON-CONTACT THERMOMETER.

**CONTAINMENT:** **(1)** A method to limit dust, debris, paint chips, paint dust, spent abrasives, and overspray from contaminating the environment. The type, concentration, and toxicity of the contamination determines the extent of containment required. Typical types of containment systems include free-hanging enclosures, partial structure enclosures, and total structure enclosures with or without negative pressure. **(2)** Hermetically sealed portion within the reactor building of a nuclear power plant which contains the nuclear reactor.

**CONTRASTING COLORS:** Colors separated by a least three others on the color wheel.

**CORROSION:** The deterioration of metal by chemical or electrochemical reaction resulting from exposure to weathering, moisture, chemicals, or other agents in the environment in which it is placed.

**COSOLVENT:** A solvent, sometimes called a coupling agent, that allows the mixing of two immiscible liquids.

**COVERAGE:** The spread rate, which is usually expressed in sq. ft./gal. ( $m^2/l$ ). In pigmented coatings, it is generally related to hiding power. In clear coatings, it refers to the area coated at a desired film.

**CRACKING:** The splitting of a dry paint or varnish film, usually a result of aging or movement of the substrate. Also referred to as hair-line cracking, checking, crazing, or alligatoring.

**CRATERS:** The formation of small bowl shape depressions in paint films.

**CRAWLING:** Defect in which a wet paint film recedes from small areas of the surface, leaving them uncoated.

**CRAZING:** A network of checks or cracks appearing on a coated surface.

**CROSSLINKING:** Applied to polymer molecules, the setting up of chemical links between the molecular chains to form a three-dimensional or network polymer generally by covalent bonding.

**CURING:** **(1)** The process by which a coating changes from a liquid state into a dry, stable, solid protective film. Curing of a coating may involve chemical reaction with oxygen, moisture, or chemical additives, or the application of heat or radiation. **(2)** The maintenance of a satisfactory moisture content and temperature in concrete during its early stages so that desired properties may develop.

**CURING AGENT:** An additive component, sometimes called a hardener or (incorrectly) a catalyst, that helps a coating film or concrete cure by chemical reaction. Compare CATALYST.

**CURING COMPOUND:** A liquid that can be applied as a coating to the surface of newly placed concrete to retard the loss of water or, in the case of pigmented compounds, also to reflect heat so as to provide an opportunity for the concrete to develop its properties in a favorable temperature and moisture environment.

**CURTAINS:** Long horizontal runs in a coating film that occur on vertical surfaces when a coating is applied too heavily.

**CUSTOM COLOR:** Special colors that are made by adding colorant to paint or by intermixing paints of different colors. Permits the retailer to achieve a color selected by the consumer.

**CUTTING IN:** The painting of a surface adjacent to another surface that must not be painted. For example, painting the frame of a window but not the glass.

**DEAD FLAT:** Having no sheen or gloss.

**DECHLORINATION:** In wastewater treatment plants, treatment to reduce the chlorine level of the effluent water before it is discharged. This can be done by injecting the effluent with sulfur dioxide gas (at a 1: 1 ratio to the amount of chlorine injected previously) as it leaves the chlorine contact basins. Dechlorination is then completed by aerating the water either through a cascade system or air injection.

**DEFOAMERS:** Additives used to reduce or eliminate foam formed in a coating or coating constituent.

**DEGLOSSER:** A liquid chemical used to remove the gloss from a painted surface, to slightly roughen or give "tooth" to the substrate. This lends improved adhesion to the coating being applied.

**DEGREASER:** A chemical solution or compound designed to remove grease, oils and similar contaminants.

**DEIONIZED WATER:** Water which has been purified to remove mineral salts.

**DELAMINATION: (1)** The separation of a coat or coats of paint from the previous coat or from the substrate. Failure of a coating to adhere to the previous coating. **(2)** In the case of a concrete slab, a horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface; found most frequently in bridge decks and caused by the corrosion of reinforcing steel or freezing and thawing; similar to spalling, scaling, or peeling except that delamination affects large areas and can often only be detected by tapping.

**DETERGENT CLEANING:** Removing contamination from a surface using an aqueous solution of a surface active agent.

**DEW POINT:** The temperature at which moisture will condense.

**DIGESTER:** In pulp and papermaking, the digester is a large, cylindrical, vertical pressure vessel where the wood chips are steamed with the caustic cooking solutions to remove the lignin. In wastewater treatment, the digester is where organic matter in the sludge is decomposed by anaerobic bacteria, releasing a mixture of burnable gases.

**DILUENT:** A liquid that is blended into a coating, and can be used to reduce its viscosity. A diluent is not necessarily a solvent for the binder.

**DIRECT FOOD CONTACT SURFACE:** Any surface which is designed to be in direct contact with food for human consumption during any part of processing.

**DISBONDING:** Failure of a coating to adhere to a substrate to which it is applied. Intercoat disbanding is the failure of a coating to adhere to a previous coating layer or to the substrate to which it has been applied. Intracoat disbonding is the failure of a coating layer to cohere or hold itself together.

**DISCOLORATION:** Change in the color of a coating after application, normally caused by exposure to sunlight.

**DISPERSION:** Process of dispersing a dry powder (or pigments) in a liquid medium in such a way that the individual particles of the powder become separated from one another and are reasonably evenly distributed throughout the entire liquid medium.

**DRIER:** A chemical which promotes oxidation and subsequent drying of a paint film. Primarily used in oil base paints.

**DRY DUST-FREE:** Drying stage of paint film at which airborne dust particles won't adhere to it.

**DRY FALL:** A coating which is designed to dry rapidly so that the overspray can be easily removed from the surfaces below.

**DRY FILM THICKNESS (DFT):** Depth of cured film, usually expressed in mils (0.001 inch) or micrometers (millionths of a meter). Standard methods for measuring dry film thickness are defined in SSPC-PA 2, ASTM D 1005, ASTM D 1186, and ASTM D 1400.

**DRY FILM THICKNESS GAGE:** An instrument used to measure the dry film thickness of a coating.

**DRY FILM THICKNESS GAGE, DESTRUCTIVE:** Instrument used to destructively determine the dry film thickness as described in ASTM D 4138. It is capable of measuring the thickness of individual layers of paint.

**DRY FILM THICKNESS GAGE, EDDY CURRENT:** A type of dry film thickness gage that can be used to measure the thickness of non-conductive coatings on non-ferrous metal substrates.

**DRY FILM THICKNESS GAGE, MAGNETIC:** One of the different types of gages designed to determine the dry film thickness of coatings on a steel substrate. See BANANA GAGE or MAGNETIC PULL-OFF GAGE, TYPE 1.

**DRY SPRAY: (1)** A rough, powdery, non-coherent, discontinuous film produced when an atomized coating partially dries before reaching the surface. **(2)** Overspray or bounce back falling dry on unintended surfaces and producing an adherent, sand-like covering.

**DRYING:** Process by which coatings change from the liquid to the solid state, due to evaporation of the solvent, physico-chemical reactions of the binding medium, or a combination of these causes.

**DRYING TIME:** Time required for an applied film of coating to reach the desired stage of cure, hardness, or nontackiness.

**DRY-THROUGH:** Film is considered dry-through when no loosening, detachment, wrinkling, or other distortion of the film occurs when the thumb is borne downward while simultaneously turning the thumb through an angle of 90° in the plane of the film. The arm of the operator is kept in a straight line from the wrist to the shoulder and maximum pressure is exerted by the arm.

**DRY-TO-HANDLE TIME:** Time interval between application and ability to handle without damage.

**DRY-TO-RECOAT TIME:** Time interval between the application of the coating and its ability to receive the next coat satisfactorily.

**DRY-TO-TOUCH TIME:** Interval between the application and tack-free condition.

**DRYWALL:** Prefabricated cementitious construction material for walls of buildings or housing.

**DRYWALL COMPOUND:** A highly extended paste used to repair cracks, holes and other defects, and to smooth seams between pieces of drywall.

**DULLING:** A loss of gloss or sheen.

**DURABILITY:** A term indicating degree of permanency, used to describe individual properties, such as the durability of gloss, or general characteristics, such as the durability of a paint.

**EDGE FAILURE:** A type of coating adhesion failure in which undercutting (penetration of corrosion underneath the coating) occurs at an unprotected or incompletely protected edge,

**EFFERVESCENCE:** An effect in the film caused by rapid solvent release. This “boiling” of solvent causes a pinholed or cratered appearance reducing gloss.

**EFFLORESCENCE:** A deposit of salts, usually white, formed on a surface, the substance having emerged in solution from within either concrete or masonry and subsequently been precipitated by evaporation.

**ELASTOMERIC:** Rubberlike; relating to or having the properties of elastomers.

**ELCOMETER:** A trademark and brand name for a magnetic instrument for measuring dry film thickness of coatings applied to ferrous surfaces such as steel.

**ELECTROLYTE:** A substance that dissociates into ions in solution thereby becoming electrically conductive.

**ELECTROSTATIC SPRAYING:** A method of applying a spray coating in which charged particles of paint are attracted to a grounded, conductive substrate. The mist travels around corners of the substrate with the result that the article is coated more uniformly on all sides and edges with very little overspray and bounce back.

**ELONGATION:** A method of measuring coating flexibility; the increase in specimen length from the point of initial load application to the point of film rupture in a tension test. ASTM D 2370 covers the measurement of elongation as well as tensile strength and stiffness (modulus of elasticity) of organic coatings when tested as free films.

**EMULSION:** A mixture (usually milky-white) in which one liquid is dispersed (but not dissolved) in another. A latex paint or caulk binder is often referred to as an emulsion, even though it is a dispersion of solid polymer particles in a liquid (water). In Europe, latex paints are often referred to as “emulsion paints.”

**EMULSION PAINT:** Paint, the vehicle of which is an emulsion of binder in water. The binder may be oil, oleoresinous varnish, resin, or other emulsifiable binder. Not to be confused with a latex paint in which the vehicle is a latex.

**ENAMEL:** Technically, an enamel is a colored varnish, or high gloss paint. Generally, the term is used for high quality, dirt-resistant paints (generally for interior use) that may have a sheen level from satin to glossy. These coatings are used for more demanding applications as in kitchens, bathrooms, etc.

**ENCAPSULATION:** The process of enclosing a surface, especially of one containing hazardous materials, on all sides. Encapsulants include drywall, fiber-filled coatings, wood, or other materials.

**ENVIRONMENTAL PROTECTION AGENCY (EPA):** An agency of the federal government that has the responsibility of protecting the environment.

**EPOXY:** A synthetic resin, derived from petroleum products, that can be cured by a catalyst or used to upgrade other synthetic resins to form a harder, more chemical resistant film.

**EPOXY ESTERS:** An epoxy resin partially esterified with fatty acids, rosin, etc.; single package epoxy.

**EPOXY RESIN:** Cross-linking resins based on the reactivity of the epoxide group. One common type is the resin made from epichlorhydrin and bisphenol A. Aliphatic polyols such as glycerol may be used instead of the aromatic bisphenol A or bisphenol F.

**ESTER:** Compounds formed by the reaction of alcohols and organic acids.

**ETCHING:** The treatment of a surface with an acid in order to dissolve loose particles or provide a profile.

**EXPANSION JOINT:** **(1)** A separation provided between adjoining parts of a structure to allow movement where expansion is likely to exceed contraction; **(2)** A separation between pavement slabs on grade, filled with a compressible filler material; **(3)** An isolation joint intended to allow independent movement between adjoining parts.

**EXTENDER:** A low-hiding, inexpensive pigment that fills out and extends the high-hiding and colored pigments' capabilities, provides bulk to the paint, and can impact positively or negatively on many properties. Some common extenders are clay, calcium carbonate, and silica.

**FADING:** Lightening of the paint's color, usually caused by exposure to light, heat or the weather.

**FAN PATTERN:** The geometry of a spray pattern.

**FEATHER EDGING:** Reducing the thickness of the edge of a dry paint film, e.g., the edge of a damaged area, prior to repainting.

**FERROUS:** **(1)** A chemical compound that contains iron in the bivalent (2+) state. **(2)** Any metal alloy based primarily on iron.

**FIELD COAT:** The coat or coats applied at the site of erection or fabrication.

**FIELD PAINTING:** Surface preparation and painting operation of structural steel or other materials conducted at the project site.

**FIELD STANDARD:** A quality control reference product (e.g., surface) used for comparison to construction work at the job site.

**FILM FORMATION:** The paint's ability to form a continuous dry film. In a latex paint this process is the result of the water evaporating and the fusion of the binder particles.

**FILM INTEGRITY:** Continuity of a coating free of defects.

**FINGERING:** A broken spray pattern delivering heavier paint to one area than another.

**FINISH:** (1) Final coat in a paint system. (2) Sometimes refers to the entire coating system: the texture, color, and smoothness of a surface, and other properties affecting appearance. (3) The texture of a concrete surface after compaction and finishing operations have been performed.

**FISH EYES:** Paint defect that manifests itself by the crawling of wet paint into a recognized pattern resembling small “dimples” or “fish eyes.”

**FLAKING:** The detachment of pieces of the paint film itself either from its substrate or from paint previously applied. Flaking (scaling) is generally preceded by cracking, checking or blistering and is the result of loss of adhesion usually due to stress-strain factors.

**FLAMMABILITY:** Those characteristics of a material that pertain to its relative ease of ignition and relative ability to sustain combustion.

**FLAMMABLE:** Any substance easily ignited in the presence of a flame; any liquid having a flash point below 100°F (37.8°C).

**FLASH:** Uneven gloss or color resulting from an unsealed substrate or excessively high or low temperatures during drying.

**FLASH POINT:** The lowest temperature of a liquid at which it gives off sufficient vapor to form an ignitable mixture with the air near the surface of the liquid or within the vessel used. Materials with flash points below 100°F (37.5°C), such as most solvents and solvent-borne coatings are considered dangerous. The standard method for flash point is defined in ASTM D 3941.

**FLASH RUSTING:** Rusting that occurs on metal within minutes to a few hours after blast cleaning or other cleaning is complete. The speed with which flash rusting occurs may be indicative of salt contamination on the surface, high humidity, or both.

**FLASH-OFF TIME:** Time which must be allowed after the application of a paint film before baking in order that the initial solvents are released, which prevents bubbling.

**FLAT PAINT:** A paint with little or no sheen. Used mostly on interior walls and ceilings, and exterior wall areas.

**FLOW:** The ability of a coating to even out upon application, so that brush and roller marks are not visible.

**FLUID TIP:** The removable end of an air-spray gun from which the atomized paint is sprayed and in which the needle is seated. The fluid tip works in conjunction with the needle to regulate the flow of fluids before they are atomized.

**FORM RELEASE AGENT:** Compound such as petroleum oil, wax, and silicone applied to concrete forms to allow easy removal from poured concrete after it has cured.

**FULL COAT:** Application of a coating at a specified film thickness designed to achieve a desired effect.

**FUNGICIDE:** An ingredient used in some coatings and sealants to keep mildew and other fungi from growing on the surface.

**GALVANIC CORROSION:** Accelerated corrosion of a metal because of an electrical contact with a more noble metal or nonmetallic conductor in a corrosive electrolyte. The term “dissimilar metal corrosion” is sometimes used when appropriate.

**GALVANIC PROTECTION:** (1) The selective use of galvanic corrosion to protect one metal from deterioration by connecting it to another, more active (electrically negative), sacrificial metal.

**GALVANIC PROTECTION continued:** Both metals must be in contact with the same body of an electrolytic solution. Zinc, magnesium, or aluminum can be used as sacrificial metals for the galvanic protection of steel. (2) Protection of a metal in contact with an electrolytic solution from corrosion by the use of an impressed direct electrical current. (3) Protection of steel by zinc-rich coatings. See CATHODIC PROTECTION.

**GALVANIZED STEEL:** Cold rolled steel which has been coated with a thin layer of metallic zinc by hot dipping or electroplating.

**GALVANIZING:** Applying a zinc coating to steel by dipping it in molten zinc or by depositing zinc on the steel electrolytically or mechanically.

**GELLED:** A coating which has thickened to a jelly like consistency making it unusable.

**GENERIC:** Belonging to a particular family.

**GLAZING:** Glass, such as that used in doors and windows.

**GLAZING COMPOUND:** A caulk, sealant, or putty that is used to seal a glass pane into its frame.

**GLOSS:** The degree to which a surface reflects visual images. Gloss is a direct function of coating formulation and the amount and size of pigment particles in the coating, the more pigment particles and the larger the diameter, the lower is the gloss.

**GLOSS RETENTION:** The ability of a coating to maintain its gloss; pertains especially to exterior coatings.

**GRAIN:** The direction, size, arrangement or appearance of the fibers in wood or veneer.

**GRAIN RAISING:** The swelling and standing up of short, broken fibers of wood caused by absorbed liquids. Water is particularly inclined to produce this.

**GRIT:** (1) An angular material with sharp, irregular edges obtained from slag, steel, minerals, and various other materials for use as a blast cleaning abrasive. (2) Small, hard foreign particles sometimes found in paint and coating materials.

**GYPSUM:** Natural crystalline calcium sulfate used as an extender pigment in paint, and in the manufacture of gypsum wallboard and plaster of Paris.

**HAND TOOL CLEANING:** The use of manually operated impact, scraping, sanding, and brushing tools to remove loose paint, loose rust, and loose mill scale. Such tools include slag hammers, chipping hammers, scrapers, and wire brushes. The specification SSPC-SP 2, "Hand Tool Cleaning," is a consensus standard covering the procedures necessary for hand-tool cleaning of steel surfaces.

**HARDBOARD:** A generic term for any smooth, grainless panel manufactured primarily from compressed wood fibers. Used as an exterior siding.

**HARDENER:** An activator curing agent, catalyst or cross linking agent.

**HARDNESS:** The property of a coating that allows it to resist damage or abrasion.

**HARDWOOD:** Trees that have broad leaves (in contrast to conifer or softwoods). The term has no reference to the actual hardness of the wood. Examples are oak, maple, ash, beech, walnut, and hickory.

**HEAT RESISTANCE:** The ability of a coating to resist deterioration when exposed continuously or periodically to high temperatures at or below a given level, which depends on the binder type and other coating ingredients,

**HEAVY METAL:** Metallic element of high molecular weight, compounds of which are often toxic.

**HIDING POWER:** The ability of a coat of paint that has been properly applied to obscure (hide) a surface or a previous coating on the surface.

**HIGH SOLIDS COATING:** A coating with a high nonvolatile content. Sixty percent solids sometimes is used as a benchmark measurement, at or beyond which a coating is said to be high solids. Generally, a coating that contains at least 70% solids by volume. The term "higher solids," is more appropriate for coatings which have a higher percentage of solids than previous (conventional) formulations but still contain less than 70% solids by volume.

**HIGH-BUILD COATING:** Coatings that are applied in thicknesses (minimum 5 mils) greater than those normally associated with paint films and thinner than those normally applied with a trowel.

**HOLIDAY:** Application defect whereby a small area is left uncoated. Synonyms: miss, skip, void, discontinuity, vacation.

**HOLIDAY DETECTOR, HIGH VOLTAGE TYPE:** Also called a spark tester, an instrument for detecting holidays in a nonconductive coating applied over a conductive substrate. A spark test instrument applies a voltage to the surface with a probe that creates a spark whenever a holiday, pinhole, or other defect is found. The spark triggers an alarm or light on the instrument. The voltage used depends on the coating type and thickness.

**HOLIDAY DETECTOR, LOW VOLTAGE WET SPONGE TYPE:** An instrument that uses 5 - 90 volts DC to detect holidays in coating. It is typically used for films of less than 20 mils (510 micrometers) dry film thickness.

**HOLIDAY TEST:** Test for detecting small areas of paint film that are incompletely coated (holidays). Standard methods for holiday testing are defined in ASTM D 5162, ASTM D 4787 and NACE RP0188-90.

**HONEYCOMB:** Voids left in concrete due to failure of the mortar to effectively fill the spaces among coarse aggregate particles.

**HUE:** The basis of a color, e.g. whether it is a red or green. Lighter or darker variations are still the same hue. Thus, a light red and a deep red are of the same hue.

**HYDROBLASTING:** A cleaning process in which pressurized water is directed through a nozzle to impact a surface. The term hydroblasting is used generically to describe cleaning with water without abrasives from low pressure water cleaning to ultra-high pressure water jetting.

**HYDROCARBON:** Extracts from petroleum such as gasoline, lubricating oils, solvents, etc.

**HYDROCARBON SOLVENT:** Aliphatic, aromatic, or cyclic (cycloparaffinic, naphthenic) solvent containing only carbon and hydrogen.

**HYDROCHLORIC ACID:** An aqueous solution of hydrogen chloride gas. Dissolves many metals, forming chlorides and liberating hydrogen. Used extensively in industry for numerous purposes including the surface preparation of concrete. See MURIATIC ACID.

**HYDROJETTING:** A generic term describing the process in which pressurized water is directed through a nozzle to impact a surface. See also HYDROBLASTING and WATER JETTING.

**HYDROPHILIC:** A substance which absorbs or has an affinity for water, water loving.

**HYDROPHOBIC:** A substance which does not absorb or exhibit an affinity for water.

**IMMERSION SERVICE:** Use of a coating under water or other liquid; in this service, the coating frequently is called a lining.

**IMPACT RESISTANCE:** Ability of a coating to resist a sudden blow; ability to resist deformation from impact.

**INCIDENTAL FOOD CONTACT SURFACE:** Any surface which is in such close proximity to food process areas as to at times be contacted by the food.

**INCOMPATABILITY:** Unsuitable for use together because of undesirable chemical or physical effects.

**INDUCTION TIME:** Sometimes called sweat-in time, the time interval that must elapse after mixing the components of multicomponent paint before application can begin.

**INDUSTRIAL ENVIRONMENT:** Atmospheric exposures that include urban communities, manufacturing centers, and industrial plants (but would not include heavy industrial environments such as coke plants, which fall under chemical environments). The atmosphere contains a considerable amount of gas containing sulfur and industrial fumes that increase the rate of corrosion and adversely affect the paint life.

**INDUSTRIAL MAINTENANCE PAINTS:** High performance coatings formulated for resistance to heavy abrasion, water immersion, chemicals, corrosion, temperature, electrical current or solvents.

**INERT:** Chemically inactive; resistant to corrosion.

**INERT PIGMENT:** A nonreactive pigment, filler or extender.

**INHIBITIVE PIGMENT:** A pigment that when formulated into a coating provides active corrosion inhibition to a metal substrate or inhibits some other undesirable effect.

**INHIBITIVE PRIMER:** Primer containing inhibitive pigment or other material.

**INHIBITOR:** **(1)** General term for compounds or materials that slow down or stop an undesired chemical reaction, such as oxidation, corrosion, drying, skinning, mildew growth, etc. **(2)** In wet cleaning methods for steel, a material that can be added to the water or applied as a rinse to prevent flash rusting.

**INORGANIC:** Matter other than animal or vegetable. For example, minerals and salt.

**INORGANIC ZINC:** A coating based on a silicate resin and pigmented with metallic zinc which has excellent resistance to organic solvents and general weathering.

**INSOLUBLE:** The inability to be dissolved.

**INTERCOAT:** A layer of paint that is “sandwiched” between two others. Also refers to something occurring between coats, as in “intercoat adhesion”.

**INTERCOAT ADHESION:** The ability of one coat of paint to adhere to the next.

**ION:** An atom or group of atoms possessing a positive or negative electric charge as a result of having lost or gained an electron.

**IRON OXIDE:** An oxide of iron. The natural occurring state of steel.

**ISOCYANATE:** A compound containing one or more of the chemical group  $-N=C=O$ . Isocyanates comprise one major component of two-component polyurethane coatings. When the isocyanate groups are crosslinked with a hydroxyl-containing material (polyol), a polyurethane polymer is formed.

**ISOPROPYL ALCOHOL (IPA):** A volatile, flammable liquid used as a solvent commonly known as rubbing alcohol.

**JOB SPECIFICATION:** Written, legal document, usually part of a contract, that precisely describes an item of work that is to be accomplished.

**JOINT:** The gap or space created when two building materials come together, such as where two pieces of molding join or where the bathtub and shower wall meet.

**KETONE:** An organic compound with a carbonyl group attached to two carbon atoms. Usually indicates a strong, fast evaporating solvent.

**LACQUER:** Coating based on synthetic thermoplastic film-forming material which is dissolved in organic solvent. Dries by solvent evaporation.

**LAITANCE:** A accumulation of fine particles, loosely bonded, on the surface of fresh concrete, caused by the upward movement of water.

**LAMINATIONS:** Relatively large surface flakes, scales, or layers that are formed on steel during the rolling process.

**LAP:** Region where a coat of paint extends over an adjacent fresh coat. The painter's objective is to effect this juncture without visible lap marks.

**LATEX:** Stable dispersion of a polymeric substance in an essentially aqueous medium. After polymerization a latex is a solid dispersed in water and therefore, technically speaking, it is not an emulsion. However, latex and emulsion are often used synonymously in the paint industry. The particle sizes range from 0.1 to 0.7 microns and form a mixture which is milky in appearance.

**LATEX PAINT:** A paint containing a stable aqueous dispersion of synthetic resin, produced by emulsion polymerization, as the principal constituent of the binder.

**LEAD:** A heavy metal. Lead compounds have been used extensively in the past as hiding pigments and/or inhibitive pigments. Lead is hazardous to health if breathed or swallowed. It is especially hazardous to children, causing mental retardation as well as many other effects. It is also hazardous to workers generating lead-containing dust. Residential use of lead-containing paint pigments has been eliminated in the United States, and industrial use has been greatly reduced.

**LEAFING:** The action of particles of certain metallic and other pigments in the form of thin flat flakes in aligning themselves with or floating on or near the surface of the vehicle.

**LEVELING:** A coating's ability to flow out on a surface so that brush or roller marks or other irregularities produced during application are not apparent.

**LEVELING AGENT:** Chemical added to coating to increase the ability of the wet film to settle to a uniform thickness.

**LIFTING:** Softening and raising or wrinkling of a previous coat by the application of an additional coating, often caused by the solvents.

**LITMUS TEST:** The use of litmus paper or pH paper to measure the acidity or alkalinity (pH) of a water solution.

**LONG OIL ALKYD:** An alkyd resin containing more than 60% of oil as a modifying agent.

**MAGNETIC PULL-OFF GAGE, TYPE 1:** A dry film thickness gage that uses a type of spring balance to pull a small permanent magnet from the surface of the painted steel. The magnetic force holding to the surface varies inversely as a non-linear function of the distance between magnet and steel, i.e., the thickness of the dry paint film (plus any other films present). Type I refers to the gage's designation in SSPC-PA 2.

**MAINTENANCE PAINTS:** Coatings used to maintain manufacturing plants, offices, stores and other commercial structures, hospitals and nursing homes, schools and universities, government and public buildings, and both building and nonbuilding requirements in such areas as public utilities, railroads, roads, and highways; and including industrial paint, other than the original coating, the primary function of which is protection. Residential maintenance is excluded.

**MASTIC:** (1) A high-build coating. (2) An adhesive material.

**MATERIAL SAFETY DATA SHEET (MSDS):** OSHA's established guidelines for the descriptive data that should be concisely provided on a data sheet to serve as the basis for written hazard-communication programs. The thrust of the law is to have those who make, distribute, and use hazardous materials be responsible for effective communication.

**METHYL ETHYL KETONE (MEK):** A low-boiling strong solvent, similar to acetone but less volatile.

**MICROMETER:** (1) One millionth of a meter, abbreviated as pm. Also sometimes called a micron. Coating thickness often is expressed in micrometers; 25.4 micrometers = 1 mil. (2) A stationary or hand-held instrument used to measure thickness of free (unattached films).

**MICRON:** A micrometer or one millionth of a meter.

**MIL:** One thousandth (0.001) of an inch. 1 mil = 25.4 micrometers. The thickness of a coating on a surface is often expressed in mils or in micrometers.

**MILDEW RESISTANCE:** A coating's ability to resist the growth of mildew (fungus growth) on its surface. Mildew can cause discoloration and ultimate decomposition of a coating's binding medium.

**MILDEWCIDE:** A chemical agent, often included in exterior paints and caulks, that discourages mildew growth on the paint surface.

**MILL SCALE:** The heavy, bluish oxide layer formed during hot fabrication or heat treatment of steel and other metals.

**MINERAL SPIRITS:** A refined petroleum distillate having a low aromatic hydrocarbon content and low solubility; suitable for thinning of alkyd coatings.

**MISCIBLE:** Capable of mixing or blending uniformly.

**MIST COAT:** Also called a fog coat, a thin coat applied as a mist of spray and used as a tack coat or adhesive coat.

**MIXING RATIO:** The ratio, usually by volume, of mixed components for a thermosetting coating specified by the supplier for complete curing into the desired film.

**MOISTURE METER:** Instrument used for determining water (moisture) content of materials such as wood or concrete.

**MOISTURE RESISTANCE:** The ability of a coating to resist swelling, blistering or other damage caused by moisture.

**MOTTLED:** Spots of different tones and colors next to each other resulting in a blotchy effect on the coating film.

**MUD CRACKING:** A paint failure that looks like cracked mud. It normally is caused by applying the paint in excessive thickness.

**MURIATIC ACID:** Concentrated hydrochloric acid often diluted and used for etching concrete.

**NACE:** National Association of Corrosion Engineers.

**NAIL HEAD RUSTING:** The rusting of the exposed head of iron nails. It can show through and discolor the coating covering it.

**NAP:** The fibers on a paint roller cover.

**NAPHTHA:** A petroleum distillate solvent used mainly by professional painters to thin oil-based coatings and to clean up.

**NEUTRAL:** A liquid which is neither acid nor alkali such as water; pH7.

**NEUTRAL COLORS:** White, off-white, light beige and grey - colors that generally go well with all other colors.

**NON-CONDUCTIVE:** A surface or material that will not conduct electricity.

**NON-FERROUS:** A term used to designate metals or alloys that do not contain iron; example; brass, aluminum magnesium.

**NONVOLATILE MATTER (NVM):** Of a coating, the solid material remaining after the volatiles have been driven from the film under specified test conditions. The total percentage volatile present is obtained by subtracting the nonvolatile content from 100. Synonyms: nonvolatile content, solids, total solids.

**OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA):** An agency of the federal government that sets workplace health and safety standards for U.S. employees.

**OIL PAINT:** A paint that contains drying oil, oil varnish, or oil-modified resin as the basic vehicle ingredient. The common (but technically incorrect) definition is any paint soluble in organic solvents.

**OLEORESINOUS VEHICLE:** A vehicle prepared by the addition of a resin to a drying oil. These two components may or may not be further processed to obtain specified properties. Alkyd resins are sometimes, but not generally, included in this category.

**OPACITY:** The degree to which a material obscures a substrate, as opposed to the transparency, which is the degree to which a material does not obscure a substrate.

**ORANGE PEEL:** A coating film defect with the textured look of an orange peel.

**ORGANIC:** Designation of any chemical compound containing carbon.

**ORGANIC SOLVENT:** Liquid organic material including diluents and thinners that is used as a dissolver, viscosity reducer, or cleaning agent.

**ORGANIC ZINC:** A zinc rich coating utilizing an organic resin such as an epoxy.

**OSMOSIS:** The diffusion of liquid through a paint film or other such membrane.

**OSMOTIC BLISTERING:** Formation on paint films of raised areas (blisters) containing water. This occurs by water diffusion through the film to dissolve underlying solvents or salts. The diffusion is caused by a difference in pressure or concentration between the metal-coating interface and the exposed film.

**OVERBLAST:** Areas where abrasive blasting has impinged on surfaces that were not intended to be blasted.

**OVERSPRAY:** (1) Atomized paint particles that deflect from or miss the surface being sprayed. (2) Spray particles that are not wet enough to fuse when they reach the surface being sprayed. As a result, overspray may contaminate property beyond the surface being sprayed.

**OXIDATION:** (1) In coatings, the introduction of oxygen into a molecule, thereby producing a cured film. [Paint/ Coatings dictionary] Alkyds and drying oil-based coatings cure by oxidation. Oxidation can also destroy a film. (2) Corrosion of metals and degradation of other substances caused by oxygen in the air.

**PASSIVATE:** To make a surface such as steel inert or unreactive, usually by chemical means.

**PERMEABILITY:** The degree to which a membrane or coating film will allow the passage or penetration of a liquid or gas.

**pH:** The negative logarithm of the hydrogen ion concentration, in mol/liter. Measure of the acidity or alkalinity of an aqueous solution. pH = 7 represents neutrality, i.e., the solution is neither acid nor alkaline. pH values from 0 to 7 are acidic, the lower the pH value, the higher the degree of acidity; pH values from 7 to 14 represent alkalinity. The higher the pH value above 7, the greater the degree of alkalinity.

**PHENOLIC:** A synthetic resin used for heat or water resistance.

**PHOSPHATING:** Pretreatment of steel and certain other metal surfaces by chemical solutions containing metal phosphates and phosphoric acid as the main ingredients, to form a thin, inert, adherent, corrosion-inhibiting phosphate layer which serves as a good base for subsequent paint coats.

**PICKLING:** The treatment of steel for the removal of rust and mill scale by immersion in a hot acid solution containing an inhibitor.

**PIGMENT VOLUME CONCENTRATION (PVC):** Ratio of the volume of pigment to the volume of total nonvolatile material (i.e., pigment and binder) present in a coating. The figure is usually expressed as a percentage.

**PINHOLE:** A holiday or discontinuity in a coating film approximately the size of a pin point, and extending entirely through the applied film, normally caused by solvent bubbling, moisture, or foreign particles.

**PITTING:** (1) Localized corrosion of a metal surface, confined to a point or small area, that takes the form of cavities. (2) In concrete, pitting is localized disintegration, such as a popout.

**PLURAL COMPONENT SPRAYING:** A paint application method that automatically proportions and mixes two or more components of a paint material in the process of delivering them to the spray gun. Plural component spray equipment is used to apply coatings with a pot life that is too short to permit mixing and application by conventional air and airless spray equipment.

**POLYESTER RESIN:** A group of synthetic resins which contain repeating ester groups. A special type of modified alkyd resin.

**POLYMER:** A plastic-like material produced from chemical "monomers" which in turn have been produced from alcohols and petrochemicals. Certain polymers are used as latex paint and caulk binders. The binder's polymer particles are small in size and carried in water. The binder polymer particles and water mix is known as an emulsion or as "latex."

**POLYMERIZATION:** A chemical reaction in which two or more small molecules combine to form large molecules containing repeated structural units.

**POLYURETHANE:** An exceptionally hard, wear resistant coating made by the reaction of polyols with a multi-functional isocyanate.

**POLYURETHANE VARNISH:** A clear coating that is based on a modified alkyd resin.

**POLYVINYL ACETATE:** A binder most widely used in interior latex wall paints.

**POROSITY:** **(1)** Small interconnected voids, such as in concrete, which allow fluids to penetrate an otherwise impervious material. **(2)** The ratio, usually expressed as a percentage of the volume of voids in a material to the total volume of the material including the voids.

**POT LIFE:** The length of time a paint material is useful after its original package is opened or a catalyst or other curing agent is added.

**POTABLE WATER:** Water that is fit for human consumption; mainly drinking water.

**POWDER COATING:** **(1)** A 100% solids coating applied as a dry powder which, when baked at a sufficiently high temperature, melts out to form a continuous film. For thermosetting materials, a chemical reaction, either condensation or addition polymerization, also takes place. This fused film has the uniformity, color, toughness, and other properties generally associated with protective and decorative coatings. **(2)** A coatings application method which utilizes a solid binder and pigment. The solid binder melts upon heating and results in a pigmented coating upon cooling.

**POWER WASHING:** The use of pressurized water (typically less than 5000 psi [34 MPa]) with or without chemical additives, detergents, etc., to remove contamination and debris from a surface.

**PRACTICAL COVERAGE:** The spreading rate of a paint calculated at the recommended dry film thickness and assuming 15% material loss.

**PRE-JOB CONFERENCE:** Conference held before construction work is started to permit the contractor, owner, and other concerned parties to come to a common understanding of all work requirements.

**PRESERVATIVE:** A substance used to prevent the growth of microorganisms in or on an organic base. It is also an additive used in latex paint to prevent spoilage.

**PRIMARY CONTAINMENT:** **(1)** The main method of containing a stored product, e.g., a steel storage tank. **(2)** That portion of a nuclear power plant reactor building housing the nuclear reactor, a Class I area.

**PRIMARY COLORS:** Colors that cannot be produced by mixing any two other colors. They are: red, yellow, and blue.

**PRIMER:** First full coat of paint applied to a surface when a multicoat system is being used. Primers provide adhesion to a new substrate (wood, metal, masonry, or concrete), protect the substrate, and aid in the adhesion of additional coats of paint. The type and condition of the substrate and the painting system specified for a job affect the selection of the primer. Primers for steel work contain special anti-corrosive pigments.

**PRIMER-SEALER:** A priming system that minimizes or prevents the penetration of the topcoat into the substrate.

**PSYCHROMETER:** An instrument used to measure the wet and dry bulb temperatures of air. With the aid of psychrometric tables, these measurements can be used to determine the dew point and relative humidity of the air.

**PVA:** Polyvinyl acetate. A binder used in water-based paints.

**PVC:** Pigment Volume Concentration. The ratio of the volume of pigment to the volume of total non-volatile material (i.e. pigment and binder) present in a paint. The figure is usually expressed as a percentage. Higher percentage figures (e.g. 40% - 75%) are associated with flat paints; and lower figures (e.g. 10% - 25%) with gloss and semigloss paints. (PVC has a second meaning: polyvinyl chloride, the major component of vinyl plastic.)

**QUV:** An accelerated testing device designed to evaluate the fading properties of a coating by exposure to high intensity, ultraviolet light.

**REDUCERS:** Solvents or thinners added to a coating, varnish, resin, latex or emulsion for the purpose of lowering its viscosity and/or nonvolatile content.

**REFLECTANCE:** The ability of a coating film to reflect or return the light that falls upon its surface.

**RELATIVE HUMIDITY:** The ratio of the actual pressure of existing water vapor to the maximum possible (saturation) pressure of water vapor in the atmosphere at the same temperature, expressed as a percentage.

**RELEASE AGENTS:** Materials used to prevent bonding of concrete to a surface.

**REPLICA TAPE:** A specially constructed tape (e.g., Testex PRESS-0-FILM) used to measure surface profile. The tape is pressed against the surface to produce an impression of the surface profile; then, the impression in the tape is measured with a micrometer. The use of replica tape is described in ASTM D 4417 and NACE RP0287.

**RESIN:** General term applied to a wide variety of more or less transparent and fusible products, which may be natural or synthetic. They vary widely in color. Higher molecular weight synthetic resins are more generally referred to as polymers. In a broad sense, this term is used to designate any polymer that is a basic binder material for coatings and plastics.

**RESPIRATOR:** (1) A device that supplies oxygen or a mixture of oxygen and carbon dioxide for breathing, used especially in artificial respiration. (2) A screenlike device worn over the mouth or nose or both to protect the respiratory tract. Synonym: inhalator. There are quite a variety of respirators, ranging from disposable dust masks to self-contained breathing apparatus. All have specific uses and limitations.

**RUST BLOOM:** The first sign of rust on newly cleaned steel, indicated by slight surface discoloration.

**RUST GRADE:** In visual standards, the initial condition of unpainted steel before surface preparation. SSPC-Vis 1, a visual standard for the surface preparation of steel, outlines the following four rust grades: (1) RUST GRADE A- the steel surface is completely covered with adherent mill scale; little or no rust is visible. (2) RUST GRADE B- The steel surface is covered with both mill scale and rust. (3) RUST GRADE C- The steel surface is completely covered with rust; little or no pitting is visible. (4) RUST GRADE D- the steel surface is completely covered with rust; pitting is visible.

**SACRIFICIAL PROTECTION:** (1) The use of a metallic coating, such as galvanizing or zinc-rich paint, to protect steel. In the presence of an electrolyte, such as salt water, a galvanic cell is set up and the metallic coating corrodes instead of the steel. [DAC; reproduced with permission from the McGraw-Hill Companies, from the Dictionary of Architecture and Construction, C.M. Harris, Ed., 1975.] (2) The use of metal anodes that are slowly consumed to protect immersed or buried metals.

**SAG RESISTANCE:** The ability of a wet paint film to resist the downward flow that results in an uneven film with thick edges and runs.

**SAGGING:** (1) A coating surface irregularity caused by the downward flow of wet paint that produces an uneven film with a thick lower edge. (2) Subsidence of shotcrete, plaster, or the like, due generally to excessive water in the mixture: also called sloughing.

**SALT FOG RESISTANCE:** Resistance to deterioration during salt spray testing.

**SALT SPRAY TEST:** Test used to evaluate the resistance of coated metals or alloys to corrosion. It consists of a fine mist or fog of common salt (sodium chloride) solution sprayed on the surface. The test is described in ASTM B 117.

**SAPONIFICATION:** Alkaline hydrolysis of fats, drying oils, or other esters whereby a soap is formed. Saponified paint may become sticky and discolored. In severe cases, the film may be completely liquefied by saponification. Loss of adhesion may occur as a saponified layer develops next to the substrate.

**SCRUB RESISTANCE:** The ability of a coating to resist being worn away or to maintain its original appearance when rubbed repeatedly with an abrasive material. Typically, the rubbing procedure can employ a brush, sponge, or cloth, wetted with an abrasive soap solution, in which case it is more accurately referred to as wet scrub resistance. Syn: Wet abrasion resistance.

**SEALING COMPOUND:** A liquid that is applied as a coating to the surface of hardened concrete to either prevent or decrease the penetration of liquid or gaseous media, e.g., water, aggressive solutions, and carbon dioxide, during service exposure.

**SECONDARY CONTAINMENT:** A second or backup containment vessel surrounding a primary containment vessel. Under 40 CFR 264.193, the EPA lists requirements for lining secondary containment vessels so that they meet the standards for impermeability and for containing the liquid in the primary containment vessel should a leak or spill occur.

**SELF-CLEANING:** Certain exterior paints that are designed to chalk relatively quickly to maintain a white, clean appearance.

**SELF-LEVELING:** The ability of a wet coating to form a uniformly flat or level surface.

**SELF-PRIMING:** A paint that can be used, perhaps in different consistencies, both to prime and to coat a painted surface.

**SEMIGLOSS FINISH:** A paint with a gloss level between high gloss and eggshell/satin.

**SEMI-TRANSPARENT STAIN:** Stain that alters the natural color of the wood, yet allows the grain and texture to show through. The term is generally applied to exterior products, but technically applies also to interior wiping stains used for trim, furniture and floors.

**SETTING UP:** Conversion of a liquid paint during storage to a gel-like or pseudosolid condition. The process is usually reversible by agitation and thinning but may be permanent when chemically reactive pigments or highly polymerized media are involved. The thickening which occurs when paint stands in an open can. The increasing viscosity of a paint film.

**SETTLING:** The sinking of pigments, extenders or other solid matter in a paint standing in a container, with a consequent accumulation of the bottom of the can.

**SET-TO-TOUCH TIME:** The time required for the coating to reach a point where the adhesion to an external object is less than the internal cohesion of the film.

**SHADE:** A shade is created when gray is added to a color. It is a darker variant of a color.

**SHEEN:** A moderately low degree of gloss; gloss with poor distinctness-of-image reflectance. Characteristic where a coating appears to be flat when viewed near to the perpendicular, but appears to be glossy when viewed from a low or grazing angle.

**SHELF LIFE:** The amount of time a coating or other material remains in usable condition during normal storage.

**SHOP COAT:** One or more coats applied in a shop or plant prior to shipment to the site of erection or fabrication, where the field or finishing coat is applied.

**SHOT BLASTING:** Abrasive blasting with round iron shot, or any material which retains its spherical shape, for peening purposes.

**SKINNING:** The formation of a solid membrane on the top of a liquid, caused by partial curing or drying of the coating during storage.

**SKIP WELDS:** Welds on metal components that are intermittent rather than continuous.

**SOLIDS:** Nonvolatile matter in a coating composition, i.e., the ingredients of a coating composition that, after drying, are left behind and constitute the dry film.

**SOLIDS BY VOLUME (%):** The percentage of the total volume occupied by nonvolatile compounds.

**SOLIDS BY WEIGHT:** The percentage of the total weight occupied by nonvolatile compounds.

**SOLUBLE:** The ability of a material to be dissolved in a liquid.

**SOLVENT:** A liquid in which another substance may dissolve.

**SOLVENT RESISTANCE:** The ability of a coating to resist solvent attack, solution or disfigurement.

**SOUND RUSTED SUBSTRATE:** A rusted substrate cleaned of all loose rust and other loose materials, but not cleaned to bare metal.

**SPACKLING COMPOUND:** A powder mixed with water or a ready-mix compound that is primarily used to fill large cracks in walls. It dries hard and can be sanded and painted, but does not tolerate much movement in the substrate.

**SPALLING:** **(1)** The chipping or fragmenting of a surface or surface coating, such as occurs due to differential thermal expansion or contraction. **(2)** In concrete, the development of spalls (fragments) usually in the shape of a flake, detached from a larger mass by a blow, by the action of weather, by pressure, or by expansion within the larger mass.

**SPAR VARNISH:** Exterior varnish with good water resistance and the capability to resist weathering. Named for its original use on the spars of ships.

**SPATTER:** Droplets of paint that spin or mist off the roller as paint is being applied.

**SPECIFICATION:** A set of instructions detailing the plan for coating of a project; a list of criteria for a coating.

**SPONGE PAINTING (SPONGING):** Interior painting technique in which natural sea sponges are used to apply the final coat of paint.

**SPOT-BLAST:** Localized high-pressure cleaning as used in surface preparation for maintenance painting.

**SPOT-PRIME:** To apply a primer to those areas where paint has been removed or stripped to the original surface.

## Glossary

## Spray Pattern – Surface Preparation

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**SPRAY PATTERN:** Shape of the area where atomized paint is deposited during air or airless spray application.

**SPREAD RATE:** Coverage, usually at the specified dry film thickness.

**SQUARING UP:** A field term often used where production blasting and painting is conducted on a large area that will require several days for completion. An area (e.g., 1,000 sq. ft.) is chosen each day, using natural partitions as far as possible, that can be readily blasted, inspected, and primed (squared up) that day. The term may also be used to describe the application of topcoats on subsequent days according to a selected time schedule.

**SSPC:** Society for Protective Coatings (formerly - Steel Structures Painting Council).

**STAIN:** A partly transparent coating that can color wood without obscuring the grain. Also refers to materials which soil the surface of a coating.

**STAIN BLEED-THROUGH:** This occurs when the tannin found in certain types of wood (such as cedar, redwood and mahogany) seeps through and discolors the paint.

**STENCILING:** A method of applying a design by brushing or sponging paint through a cutout overlay placed on the surface.

**STONING:** Smoothing (as an irregular concrete surface) with an abrasive tool (stone).

**STRIPING:** Painting the edges of a surface or welds to give them extra protection. Striping is done before priming or before the application of a full coat of paint.

**STRIPPING:** Removing oil paint, varnish, etc., by using paint remover, sandpaper, heat gun, or other scraping tools. Also, the removal of wallpaper.

**STYRENE-BUTADIENE:** A synthetic latex similar to synthetic rubber; used for certain types of latex paint.

**SUBSTRATE:** Any surface to which a coating or sealant is applied.

**SURFACE CONDITIONER:** Chemical material that prepares a surface to receive a coating or other material.

**SURFACE PREPARATION:** Any method of treating a surface to prepare it for coating. Surface preparation methods include washing with water, detergent solution, or solvent; cleaning with hand or power tools; water washing or jetting with or without abrasive; or abrasive blast cleaning. SSPC and NACE International have a number of written and visual standards describing the surface preparation of steel surfaces prior to painting.

**SURFACE PROFILE:** Contour of a blast-cleaned surface on a plane perpendicular to the surface. For steel, surface profile is the roughened surface that results from abrasive blast cleaning or power tool cleaning to bare metal, also call the anchor pattern. For wood and concrete, surface profile is simply the texture of the cleaned surface. Surface profile of steel is classified by its depth and its texture (rounded or angular). Surface profile depth is defined as the average peak-to-valley height of the roughness and typically ranges from less than 1 mil up to 5 mils (25 to 127 micrometers).

**SURFACE PROFILE COMPARATOR:** An instrument used to determine the profile of a blast cleaned surface by visual or tactile comparison of the surface with a series of reference surfaces of known profile depths.

**SURFACER:** Pigmented composition for filling depressions in order to obtain a smooth, uniform surface before applying the finish coat

**SURFACTANTS:** Contracted from “surface-active agents,” these are additives which reduce surface tension and may form micelles and thereby improve wetting (wetting agents); help disperse pigments (see disperants); inhibit foam (see defoamers); or emulsify (see emulsifier). Conventionally, they are classified as to their charge; anionic (negative), cationic (positive), nonionic (no charge), or amphoteric (both positive or negative).

**SURFACTANT LEACHING:** Also called water-spotting and weeping. It is often a tan-colored, glossy residue that can form on the surface when exterior latex paint is applied under conditions that are cool and damp, that result in slow dry of the paint. May not readily wash off, but generally will weather off within a month’s time.

**SYNTHETIC:** A man-made substance, rather than one that occurs naturally.

**TABER ABRASER:** An instrument used to measure abrasion resistance.

**TACK CLOTH:** A fabric impregnated with a tacky substance (such as a slow-drying varnish) that is used to remove dust from a surface after sanding or rubbing down, and prior to further painting. It should be stored in an airtight container to preserve its tackiness.

**TACK-FREE:** Absence of tack or stickiness in an applied coating. Freedom from tack of a coating after suitable drying time.

**TACKY:** The stage in the paint’s drying process at which the film is sticky when lightly touched.

**TAILS:** Finger-like spray pattern produced by improper gun or coating material adjustment.

**TALC:** A white extender pigment used in paint; magnesium silicate. The base for talcum powder.

**TAPE TIME:** The drying time of a coating required prior to masking sections for lettering or striping after which tape will not distort the finish.

**THERMOPLASTIC:** A material that becomes soft when heated and hard when cooled without undergoing chemical change. While the material is soft, it can be reformed or molded. As used in the coatings industry today, the original meaning of the term thermoplastic has changed somewhat. It is now used to classify coating types according to how the resins cure, and the solubility of the cured film. The term thermoplastic is virtually synonymous with the term non-convertible.

**THERMOSETTING:** A material that permanently sets when subjected to heat, catalysts, ultraviolet light, or chemical reaction, and cannot be softened and reformed by reheating. As used in the coatings industry today, the original meaning of the term thermosetting has changed. It is now used to classify coating types according to how the resins cure, and the solubility of the cured film. Thus, the terms thermosetting is virtually synonymous with the term convertible.

**THINNER:** **(1)** The portion of a paint, varnish, lacquer, or printing ink, or related product that volatilizes during the drying process. **(2)** Any volatile liquid used for reducing the viscosity of coating compositions or components; may consist of a simple solvent or diluent or a mixture of solvents and diluents.

**THIXOTROPIC:** Having a gel consistency that becomes liquid when stirred or brushed to permit application but returning to its original consistency upon standing. Thixotropic paints are less likely to drip from a brush than other types and can be applied in rather thicker films without running or sagging.

**THROUGH-DRYING:** Uniform drying throughout the film as opposed to bottom-drying or top-drying.

**TIE-COAT:** A paint specifically formulated to provide a transition from a primer or undercoat to a finish coat. Tiecoats may be used to seal the surface of a zinc-rich primer, to bond generically different types of coating, or to improve the adhesion of a succeeding coating.

**TINT:** A tint is created when white is added to a color.

**TITANIUM DIOXIDE, TiO<sub>2</sub>:** An expensive, high opacity, bright white pigment that is used as a prime pigment in paints, both latex and solvent.

**TOLUENE:** An aromatic solvent with a high boiling range and low flash point classified as a strong solvent.

**TONE:** A tone is created when black is added to a color.

**TOOTH:** Anchoring profile of a substrate that enhances adhesion of a coating created mechanically or by the use of solvents.

**TOP COAT:** The last coating material applied in a coating system, specifically formulated for aesthetic and/or environmental resistance. Also referred to as finish coat.

**TOUCH UP:** Application of paint on small areas of painted surfaces to repair mars, scratches and places where the coating has deteriorated, in order to restore the finish.

**TOXICITY:** Characteristic of a solid waste which is shown to contain specified contaminants, including lead and chromium, at a concentration equal to or greater than the regulatory level, using a standard test method known as the Toxicity Characteristic Leaching Procedure.

**TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP):** A standard test used to determine if a solid waste is considered a hazardous waste by virtue of its toxicity. It is intended to simulate the leaching of toxic constituents that would take place in a landfill.

**TRADE SALES PAINTS:** Coatings applied on-site at ambient conditions by the consumer using application methods such as brushing or roller coating.

**TRANSPARENT:** Material that allows light to permeate it without diffusion or scattering; clear.

**TRIADIC COLOR SCHEME:** A color scheme using any three colors that are equidistant on the color wheel.

**TRISODIUM PHOSPHATE (TSP):** A cleaning compound based on an alkaline material. Because it contains phosphate, it may be banned in certain geographical areas.

**TWO-COMPARTMENT COATING:** Cross-linking systems that must be stored in separate containers before use. Otherwise they would react and form a useless gel.

**TWO-PACK :** A coating which is supplied in two parts and must be mixed in the correct portions before use in order to cure.

**TUNG OIL:** A fast-drying oil obtained from the nut of the tung tree; also known as chinawood oil. Generally used in fine wood finishing and in spar varnishes.

**TURPENTINE:** A colorless, volatile oil distilled from pine trees. Used as a thinner and cleaning solvent in the past, has since been replaced by mineral spirits or white spirits.

**ULTRAVIOLET ABSORBER:** A substance that absorbs UV radiation, and reduces or delays damaging UV effects to the coating or substrate.

**ULTRAVIOLET RADIATION (UV):** The portion of the radiant energy of the sun's spectrum that causes damage to coatings and sealants and to the surface of unprotected wood.

**ULTRAVIOLET RESISTANCE:** The ability of a coating and sealant to remain undamaged when subjected to UV radiation, as from direct sunlight.

**UNDERCOAT, UNDERCOATER:** A coat of paint, generally pigmented, that provides improved adhesion and/or maximized gloss and uniformity when used on new wood or over a primer.

**UNDERCUTTING:** The penetration of a coating and the spread of delamination or corrosion from a break or pinhole in the film or from unprotected edges.

**URETHANE COATINGS:** Coating vehicles containing a polyisocyanate monomer reacted in such a manner as to yield polymers containing any ratio, proportion or combination of urethane linkages, active isocyanate groups or polyisocyanate monomer. The reaction products may contain excess isocyanate groups available for further reaction at the time of application or may contain essentially no free isocyanate as supplied.

**URETHANE-MODIFIED ALKYD:** An alkyd that has been chemically modified for improved flexibility and chemical resistance.

**U.S. GALLON:** Equal to four liquid quarts, eight liquid pints, 231 cubic inches, or 3.785 liters. It weights 8.33 pounds (3.78 kg.)

**VACUUM BLASTING:** Abrasive blast cleaning using a vacuum shroud to capture dust, debris, and other materials while they are being generated and prevent them from escaping into the environment.

**VALUE:** The lightness or darkness of a color, i.e. light blues, medium blues and dark blues have different values.

**VAPOR BARRIER:** A moisture-impervious layer which prevents the passage of water into a material or structure.

**VAPOR TRANSMISSION RATE:** The rate moisture passes through a material or coating.

**VARNISH:** A liquid composition that is converted to a transparent solid film after being applied in a thin layer.

**VARNISH STAIN:** A varnish that has a transparent color added. It usually has less penetrating power than a true stain.

**VEHICLE:** The liquid portion of paint, in which the pigment is dispersed; is composed of binder and thinner.

**VINYL:** A clear, synthetic resin used in some water-based paints, particularly interior flats, and some caulks.

**VISCOSITY:** The quality or property of a fluid (i.e., paint) that causes it to resist flow. A high viscosity coating is thick; a low viscosity coating is thin.

**VISCOSITY CUP:** A laboratory or field instrument for measuring the viscosity of a liquid by timing the liquid's flow through an opening in the bottom of a small open bowl.

**VOC-COMPLIANT:** Conforming to VOC regulations. See VOLATILE ORGANIC COMPOUND.

**VOIDS:** Holidays or holes in a coating.

**VOLATILE:** (1) Easily evaporated. (2) Any liquid that evaporates quickly.

**VOLATILE ORGANIC COMPOUND (VOC):** (1) Any organic compound that reacts in the atmosphere with nitrogen oxides in the presence of heat and sunlight to form ozone. (2) Any organic compound (other than those designated by EPA as having negligible photochemical reactivity) that is emitted into the atmosphere during the application or curing of a coating. It is detected by reference methods such as EPA Method 24 or ASTM D 2369.

**VOLUME SOLIDS:** The volume of the solid components (pigment plus binder) of a paint or caulk, divided by its total volume, expressed as a percent. High volume solids provide a thicker dry film, resulting in improved hiding and high durability. A top quality oil-based paint will typically have volume solids of 45% - 65%, while quality latex paints are generally in the 35% - 45% range. A top-quality acrylic sealant will have volume solids of 70% - 80%.

**WASHABILITY:** Ease with which the dirt can be removed from a paint surface by washing; also refers to the ability of the coating to withstand washing without removal or substantial damage.

**WATER-BORNE COATINGS:** Paint, the vehicle of which is a water emulsion, water dispersion, or ingredients that react chemically with water.

**WATER JETTING:** Water jetting is the use of standard jetting water at high or ultrahigh pressure (pressures above 69 MPa/10,000 psi) to prepare a surface for recoating high pressure water jetting is cleaning performed at pressures from 69 to 170 MPa (10,000 to 25,000 psi). Ultrahigh pressure water jetting is cleaning performed at pressures above 170 MPa (25,000 psi).

**WATER LINE:** In general, a waterline is the interface between a body of water and the atmosphere, which typically varies with the level of water. On ships, waterlines are formed on the hull by the water at different levels of draft.

**WATER TRAP:** A structural feature in which liquid (such as rainwater) may accumulate from the environment.

**WEATHERING:** Behavior of paint films when exposed to natural weather or accelerated weathering equipment, characterized by changes in color, texture, strength, chemical composition, or other properties.

**WEATHERING TOPCOATS:** Exterior finishes designed to resist deterioration from ultraviolet light, rain, and other natural destructive elements in the atmosphere.

**WELD SPATTER:** Beads of metal produced during the welding process that adhere to the surface near the weld.

**WET FILM THICKNESS (WFT):** Thickness of the liquid coating film immediately after application.

**WET FILM THICKNESS GAGE, NOTCH TYPE:** Gage with one or more faces cut in a series of notches that is used to determine coating wet film thickness as described in ASTM D 4414.

**WET SANDBLASTING:** The incorporation of water into the sandblasting operation in order to minimize dust.

**WET-ON-WET COATING:** Technique of painting whereby further coats are applied before the previous coats have dried, and the composite film then dries as a whole. The process requires specially formulated paints.

**WETTING:** Power a vehicle possesses of spreading uniformly and rapidly over the surface of pigment particles. A vehicle with good wetting properties assists in the grinding or dispersion of pigments and the ability to wet the surface to which the finished coating is applied. **(2)** The ability of a coating to come into close contact on surfaces over which it is applied.

**WHITE RUST:** White corrosion products (zinc hydroxide and zinc oxide) on zinc coated surfaces.

**WRINKLING:** A distortion in a paint film appearing as ripples.

**XYLENE:** An aromatic solvent used in the manufacture of paints. It also is used widely as a thinner and cleanup solvent. The flash point of xylene is about 80°F (27°C).

**ZINC:** A hard, metallic element with a bluish tinge. Zinc or its compounds are used as reinforcing pigments and corrosion resistant pigments. Zinc dust is used in zinc-rich coatings to provide galvanic protection of steel. It is also the basis for galvanizing and sprayed zinc coatings.

**ZINC DUST:** Finely divided zinc metal used as a pigment in protective paints for iron and steel.

**ZINC OXIDE:** A fine, white pigment used in paint for mildew resistance and film reinforcing properties. Although not commonly considered an anti-corrosive pigment, it does add anti-corrosive properties to steel primers.

**ZINC-RICH:** High in zinc dust content; a generic type of coating described in SSPC Paint 20.

**ZINC-RICH PRIMER:** Anti-corrosive primer for iron and steel incorporating zinc dust in a concentration sufficient to give electrical conductivity in the dried film, thus enabling the zinc metal to corrode preferentially to the substrate, i.e., to give galvanic protection.