APPENDIX II
DEFINITIONS RELATING TO PLASTICS

There are numerous terms which are peculiar to the plastics industry. Following are definitions of some of the most common terms used in this handbook (see chapter V, paragraph E) or which will be found in researching plastics data through most sources:

Ablative Plastics. -This description applies to a material which absorbs heat (while part of it is being consumed by heat) through a decomposition process known as pyrolysis, which takes place in the near surface layer exposed to heat.

Acetal Resins—The molecular structure of the polymer is that of a linear acetal, consisting of unbranched polyoxymethylene chains.

Acrylic Ester—An ester of acrylic acid, or of a structural derivative of acrylic acid, e.g., methyl methacrylate.

Acrylic Resin—A synthetic resin prepared from acrylic acid or from a derivative of acrylic acid.

Acrylonitrile—A monomer with the structure (CH_2:CHCH). It is most useful in copolymers. Its copolymer with butadiene is nitrile rubber, and several copolymers with styrene exist that are tougher than polystyrene. It is also used as a synthetic fiber and as a chemical intermediate.

Acrylonitrile-Bu tadiene-Styrene (abbreviated ABS)—Acrylonitrile and styrene liquids and butadiene gas are polymerized together in a variety of ratios to produce the family of ABS resins.

Aliphatic Hydrocarbons-Saturated hydrocarbons having an open chain structure. Familiar examples gasoline and propane.

Alkyd Resin—Polyester resins made with some fatty acid as a modifier.

Alloy—Composite material made up by blending polymers or copolymers with other polymers or elastomers under selected conditions, e.g., styrene-acrylonitrile copolymer resins blended with butadiene-acrylonitrile rubbers.

Allyl Resin—A synthetic resin formed by the polymerization of chemical compounds containing the group CH-CH-CH_2-. The principal commercial allyl resin is a casting material that yields allyl carbonate polymer.

Alpha-Cellulose—A very pure cellulose prepared by special chemical treatment.

Aromatic Hydrocarbons-Hydrocarbons derived from or characterized by presence of unsaturated resonant ring structures.

Biodegradables—Those plastics which, because of their chemical structure, are susceptible to being assimilated by microorganisms such as fungi and bacteria through enzyme action. This mechanism requires heat, oxygen and moisture.

Blown Tubing-A thermoplastic film which is produced by extruding a tube, applying a slight internal pressure to the tube to expand it while still molten and subsequent cooling to set the tube. The tube is then flattened through guides and wound up flat on rolls. The size of blown tubing is determined by the flat width in inches as wound rather than by the diameter as in the case of rigid types of tubing.

Bushing (Extrusion)—The outer ring of any type of a circular tubing or pipe die which forms the outer surface of the tube or pipe.

Caprolactam—A cyclic amidetype compound, containing 6 carbon atoms. When the ring is opened, caprolactam is polymerizable into a nylon resin known as type-6 nylon or polycaprolactam.

Casein—A protein material precipitated from skimmed milk by the action of either rennet or dilute acid.

Rennet casein finds its main application in the manufacture of plastics. Acid casein is a raw material used in a number of industries including the manufacture of adhesives.

Cast-(1) To form a "plastic" object by pouring a fluid monomer-polymer solution into an open mold where it finishes polymerizing. (2) Forming plastic film and sheet by pouring the liquid resin onto a moving belt or by precipitation in a chemical bath.

Catalyst—A substance which markedly speeds up the cure of a compound when added in minor quantity as compared to the amounts of primary reactants.

Cellular Plastics-See Foamed Plastics.

Celluloid—A thermoplastic material made by the intimate blending of cellulose nitrate with camphor. Alcohol is normally employed as a volatible solvent to assist plasticization, and is subsequently removed.

Cellulose—A natural high polymeric carbohydrate found in most plants; the main constituent of dried woods, jute, flax, hemp, ramie, etc. Cotton is almost pure cellulose.

Cellulose Acetate—An acetic acid ester of cellulose. It is obtained by the action,' under rigidly controlled conditions, of acetic acid and acetic anhydride on purified cellulose usually obtained from cotton linters. All three available hydroxyl groups in each glucose unit of the cellulose can be acetylated but in the material normally used for plastics it is usual to acetylate fully and then to lower the acetyl value (expressed as acetic acid) to 52-56 percent by partial hydrolysis. When compounded with suitable plasticizers it gives a tough thermoplastic material.

Cellulose Acetate Butyrate—An ester of cellulose made by the action of a mixture of acetic and butyric acids and their anhydrides on purified cellulose.

It is used in the manufacture of plastics which are similar in general properties to cellulose acetate but are tougher and have better moisture and dimensional stability.

Cellulose Ester—A derivative of cellulose in which the free hydroxyl groups attached to the cellulose chain have been replaced wholly or in part by acidic groups, e.g., nitrate, acetate, or stearate groups. Esterification is effected by the use of a mixture of an acid with its anhydride in the presence of a catalyst, such as sulfuric acid. Mixed esters of cellulose, e.g., cellulose acetate butyrate, are prepared by the use of mixed acids and mixed anhydrides. Esters and mixed esters, a wide range of which is known, differ in their comparability with plasticizers, in molding properties, and in physical characteristics.

These esters and mixed esters are used in the manufacture of thermoplastic molding compositions.

Cellulose *Nitrate* (Nitrocellulose)—A nitric acid ester of cellulose manufactured by the action of a mixture of sulfuric acid and nitric acid on cellulose, such as purified cotton linters. The type of cellulose nitrate used for celluloid manufacture usually contains 10.8-11.1 percent of nitrogen. The latter figure is the nitrogen content of the dinitrate.

cellulose Propionate—An ester of cellulose made by the action of propionic acid and its anhydride on purified cellulose. It is used as the basis of a thermoplastic molding material.

Centrifuge Casting-A method of forming thermoplastic resins in which the granular resin is placed in a rotatable container, heated to a molten condition by the transfer of heat through the walls of the container, and rotated such that the centrifugal force induced will force the molten resin to conform to the configuration of the interior surface of the container. Used to fabricate large diameter pipes and similar cylindrical items.

Chlorinated Polyether—The polymer is obtained from pentaerythritol by preparing a chlorinated oxetane and polymerizing it to a polyether by means of opening the ring structure.

Condensation—A chemical reaction in which two or more molecules combine with the separation of water or some other simple substance. If a polymer is formed, the condensation process is called polycondensation. See also Polymerization.

Condensation Resin—A resin formed by polycondensation, e.g., the alkyd, phenolaldehyde, and urea formaldehyde resins.

Copolymer—See Polymer.

Decorative Sheet—A laminated plastic sheet used for decorative purposes in which the color and/or surface pattern is an integral part of the sheet.

Degradable—Plastics, which will environmentally decompose to a powder or liquid form through biodegradation, volubility and photodegradation mechanisms.

Dielectric—Insulating material. In radio frequency preheating, dielectric may refer specifically to the material which is being heated.

Dimensional Stability—Ability of a plastic part to retain the precise shape in which it was molded, fabricated, or cast.

Elastomer—A material which at room temperature stretches under low stress to at least twice its length and snaps back to the original length upon release of stress. See also Rubber.

Epoxy Resins-Based in ethylene oxide, its derivatives or homologs, epoxy resins form straight-chain thermoplastics and thermosetting resins, e.g., by the condensation of bisphenol and epichlorohydrin.

Ester—The reaction product of an alcohol and an acid.

Expanded Plastics-See Foamed Plastics.

Fiber-This term usually refera to relatively short lengths of very small cross-sections" of various materials. Fibers can be made by chopping filaments (converting). Staple fibers may be ½ to a few inches in length and usually 1 to 5 denier.

Filament—A variety of fiber characterized by extreme length, which permits its use in yarn with little or no twist and usually without the spinning operation required for fibers.

Film—An optional term for sheeting having a nominal thickness not greater than 0.010 inch.

Flake—Used to denote the dry, unplasticized base of celluloisic plastics.

Flame Retarded Resin—A resin which is compounded with *certain* chemicals to reduce or eliminate its tendency to burn. For polyethylene and

similar resins, chemicals such as antimony trioxide and chlorinated paraffins are useful.

Flexibilizer—An additive that makes a resin or rubber more flexible, i.e., less stiff. Also a plasticizer.

Foamed Plastics—Resins in sponge form. The sponge may be flexible or rigid, the cells closed or interconnected, the density anything from that of the solid parent resin down to, in some cases, 2 pounds per cubic foot. Compressive strength of rigid foams is fair, making them useful as materials for sandwich structures. Both types are good heat barriers.

Furan Resins-Dark colored, thermosetting resins available primarily as liquids ranging from low viscosity polymers to thick, heavy syrups.

Granular Structure-Nonuniform appearance of finished plastic material due to retention of, or incomplete fusion of, particles of composition, either within the mass or on the surface.

High-Pressure Laminates—Laminates molded and cured at pressures not lower than 1000 p.s.i. and more commonly in the range of 1200 to 2000 p.s.i.

Honeycomb—Manufactured product consisting of sheet metal or a resin impregnated sheet material (paper, fibrous glass, etc.) which has been formed into hexagonal-shaped cells. Used as core material for sandwich constructions.

Hydrogenation—Chemical process whereby hydrogen is introduced into a compound.

Hydrolysis-Chemical decomposition of a substance involving the addition of water.

Hydroscopic-Tending to absorb moisture.

Impact Resistance-Relative susceptibility of plastics to fracture by shock, e.g., as indicated by the energy expended by a standard pendulum type impact machine in breaking a standard specimen in one blow.

Inhibitor—A substance that slows down chemical reaction. Inhibitors are sometimes used in certain types of monomers and resins to prolong storage life.

Insulation-A coating of a dielectric or essentially nonconducting material whose purpose it is to prevent the transmission of electricity.

Ion Exchange Resins—Small granular or bead-like particles containing acidic or basic groupa, which will trade ions with salts in solutions. Generally used for softening and purifying water.

Isocyanate Resins-Most applications for this resin are based on its combination with polyols (e.g., Polyesters, polyethers, etc.). During this reaction, the reactants are joined through the formation of the urethane linkage-and hence this field of technology is generally known as urethane chemistry.

Lacquer—Solution of natural or synthetic resins, etc., in readily evaporating solvents, which is used as a protective coating.

Laminated Plastics-(Synthetic Resin-Bonded Laminate, Laminate)—A plastics material consisting of superimposed layers of a synthetic resin-impregnated or -coated filler which have been bonded together, usually by means of heat and pressure, to form a single piece.

Marcromolecule—The large ("giant") molecules which make up the high polymers.

Melamine Formaldehyde Resin—Classified as a synthetic resin derived from the reaction of melamine (2,4,6-triamino-l,3,5, triazine) with formaldehyde or its polymers.

Melt Index—The amount, in grams, of a thermoplastic resin which can be forced through a 0.0825 inch orifice when subjected to 2160 grams force in 10 minutes at 190°C.

Metalizing—Applying a thin coating of metal to a nonmetallic surface. May be done by chemical deposition or by exposing the surface to vaporized metal in a vacuum chamber.

Monofilament (Monofil)—A single filament of indefinite length. Monofilament are generally produced by extrusion. Their outstanding uses are in the fabrication of bristles, surgical sutures, fishing leaders, tennis-racquet strings, screen materials, ropes and nets; the finer monofilament are woven and knitted on textile machinery.

Monomer—A relatively simple compound which can react to form a polymer. See also Polymer.

Nonpolar—Having no concentrations of electrical charge on a molecular scale, thus, incapable of significant dielectric loss. Examples among resins are polystyrene and polyethylene.

Nonrigid Plastic—A nonrigid plastic is one which has a stiffness or apparent modulus of elasticity of not over 50,000 p.s.i. at 25°C. when determined according to ASTM test procedure D747-43 T.

Novolac—A phenolic-aldehyde resin which, unless a source of methylene groups is added, remains permanently thermoplastic. See also Resinoid and Thermoplastic.

Nylon—The generic name for all synthetic fiber-forming polyamides; they can be formed into monofilaments and yarns characterized by great toughness, strength and elasticity, high melting point, and good resistance to water and chemicals.

Organosol—A vinyl or nylon dispersion, the liquid phase of which contains one or more organic solvents. See also Plastisol.

Parison—The hollow plastic tube from which a container, toy, etc. is blow molded.

Phenolic Resin—A synthetic resin produced by the condensation of an aromatic alcohol with an aldehyde, particularly of phenol with formaldehyde.

Photodegradation—The breaking down of a plastic molecular structure by absorption" of ultraviolet energy. The plastic absorbs high photon energy which breaks the bond between carbon and hydrogen, forming oxygen-reactive free radicals which promote decomposition.

Plastic—One of many high-polymeric substances, including both natural and synthetic products, but excluding the rubbers. At some stage in its manufacture every plastic is capable of flowing, under heat and pressure, if necessary, into the desired final shape. Made of plastic; capable of flow under pressure or tensile stress.

Plasticate—To soften by heating or kneading. Synonyms are: plastify, flux, and, (imprecisely) plasticize.

Plasticity-The quality of being able to be shaped by plastic flow.

Plasticize—To soften a material and make it plastic or moldable, either by means of a plasticizer or the application of heat.

Plasticizer-Chemical agent added to plastic compositions to make them softer and more flexible.

Plastics Tooling-Tools, e.g., dies, jigs, fixtures, etc., for the metal forming trades constructed of plastics, generally laminates or casting materials.

Plastigel—A plastisol exhibiting gel-like flow properties.

Plastisols—Mixtures of resins and plasticizers which can be molded, cast, or converted to continuous films by the application of heat. If the mixtures contain volatile thinners also, they are known as Organosols.

Plastometer—An instrument for determining the flow properties of a thermoplastic resin by forcing the molten resin through a die or orifice of specific size at a specific temperature and pressure.

Polyamide—A polymer in which the structural units are linked by amide or thioamide groupings. Many polyamides are fiber-forming.

Polyblends—Colloquial term generally used in the styrene field-c) apply to mechanical mixtures of polystyrene and rubber.

Polycarbonate Resins-Polymers derived from the direct reaction between aromatic and aliphatic dihydroxy compounds with phosgene or by the ester exchange reaction with appropriate phosgene-derived precursors.

Polyester—A resin formed by the reaction between a dibasic acid and dihydroxy alcohol, both organic. Modification with multifunctional acids and/or bases and some unsaturated reactants permit cross-linking to thermosetting resins. Polyesters modified with fatty acids are called Alkyds.

Polyethylene (Polythene)—A thermoplastic material composed of polymers of ethylene. It is normally a translucent, tough, waxy solid which is unaffected by water and by a large range of chemicals. It is a particularly good insulating material with low power factor and low dielectric constant, high resistivity, and high dielectric strength.

Polyisobutylene-The polymerization product of isobutylene. It varies in consistency from a viscous liquid to a rubber-like solid with corresponding variation in molecular weight from 1,000 to 400,000.

Polymer—A high molecular-weight organic compound, natural or synthetic, whose structure can be represented by a repeated small unit, the mer; e.g., polyethylene, rubber, cellulose. Synthetic polymers are formed by addition or condensation polymerization of monomers. If two or more monomers are involved, a copolymer is obtained. Some polymers are elastomers, some plastics.

Polymerization-A chemical reaction in which the molecules of a monomer are linked together to form large molecules whose molecular weight is a multiple of that of the original substance. When two or more monomers are involved, the process is called copolymerization or heteropolymerization. See also Condensation and Polymer.

Polymethyl Methacrylate—A thermoplastic material composed of polymers of methyl methacrylate. It is a transparent solid with exceptional optical properties and good resistance to water. It is obtainable in the form of sheets, granules, solutions, and emulsions. It is extensively used for aircraft domes, lighting fixtures, decorative articles, etc. It is also used in optical instruments and surgical appliances.

Polypropylene-A tough, lightweight rigid plastic made by the polymerization of high-purity propylene gas in the presence of an organometallic catalyst at relatively low pressures and temperatures.

Polystyrene—A water-white thermoplastic produced by the polymerization of styrene (vinyl benzene). The electric insulating properties of polystyrene are outstandingIy good and the material is relatively unaffected by moisture. In particular the power loss factor is extremely low over the frequency range 10^3-10^5 c.p.s.

Polyvinyl Acetate-A thermoplastic material composed of polymers of vinyl acetate in the form of a colorless solid. It is obtainable in the form of granules, solutions, latices, and pastes, and is used extensively in adhesives, for paper and fabric coatings, and in bases for inks and lacquers.

Polyvinyl A lcohol—A thermoplastic material composed of polymers of the hypothetical vinyl alcohol. Usually a colorless solid, insoluble in most organic solvents and oils, but soluble in water when the content of hydroxy groups in the polymer is sufficiently high.

The product is normally granular. It is obtained by the partial hydrolysis or by the complete hydrolysis of polyvinyl esters, usually by the complete hydrolysis of polyvinyl acetate. It is mainly used for adhesives and coatings.

Polyvinyl Butyral—A thermoplastic material derived from a polyvinyl ester in which some or all of the acid groups have been replaced by hydroxyl groups and some or all of these hydroxyl groups replaced by butyral groups by reaction with butyraldhyde. It is a colorless, flexible, tough solid. It is used primarily in interlayers for laminated safety glass.

Polyvinyl Chloride (PVC)—A thermoplastic material composed of polymers of vinyl chloride; a colorless solid with outstanding resistance to water, alcohols, and concentrated acids and alkalies. It is obtainable in the form of granules, solutions, latices, and pastes. Compounded with plasticizers it yields a flexible material superior to rubber in aging properties. It is widely used for cable and wire coverings, in chemical plants, and in the manufacture of protective garments.

Polyvinyl Chloride Acetate—A thermoplastic material composed of copolymers of vinyl chloride and vinyl acetate; a colorless solid with good resistance to water, concentrated acids and alkalies.

It is obtainable in the form of granules, solutions, and emulsions. Compounded with plasticizers it yields a flexible material superior to rubber in aging properties. It is widely used for cable and wire coverings, in chemical plants, and in protective garments.

Polyvinylidene Chloride-A thermoplastic material composed of polymers of vinylidene chloride (1,1-dichloroethylene). It is a white powder with softening temperature at 185-200 'C. The material is also supplied as a copolymer with acrylonitrile or vinyl chloride, giving products which range from the soft flexible type to the rigid type. Also known as saran.

Prepreg-A term generally used in reinforced plastics to mean the reinforcing material containing or combined with the full complement of resin before molding.

Pulp-A form of cellulose obtained from wood or other vegetable matter by prolonged cooking with chemicals.

Resiliency-Ability to quickly regain an original shape after being strained or distorted.

Resin—Any of a class of solid or semi-solid organic products of natural or synthetic origin, generally of high molecular weight with no definite melting point. Most resins are polymers.

Resinoid—Any of the class of thermosetting synthetic resins, either in their initial temporarily fusible state or in their final infusible state.

Rigid PVC—Polyvinyl chloride or a polyvinyl chloride/acetate copolymer characterized by a relatively high degree of hardness; it may be formulated with or without a small percentage of plasticizer.

Rigid Resin—One having modulus high enough to be of practical importance, e.g., 10,000 p.s.i. or greater.

Rosin—A resin obtained as a residue in the distillation of crude turpentine from the sap of the pine tree (gum rosin) or from an extract of the stumps and other parts of the tree (wood rosin).

Rubber—An elastomer capable of rapid elastic recovery after being stretched to at least twice its length at temperatures from 0°F to 150°F. at any humidity. Specifically, Hevea or natural rubber, the standard of comparison for elastomers.

Scrap—Any product of a molding operation that is not part of the primary product. In compression molding, this includes flash, culls, runners, and is not reusable as a molding compound. Injection molding and extrusion scrap (runners, rejected parts, sprues, etc.) can usually be reground and remolded.

Sheet (Thermoplastic)—A flat section of a thermoplastic resin with the length considerably greater than the width and 10 roils or greater in thickness.

Shot—The yield from one complete molding cycle, including scrap.

Silicone—One of the family of polymeric materials in which the recurring chemical group contains silicon and oxygen atoms as links in the main chain. At present these compounds are derived from silica (sand) and methyl chloride. The various forms obtainable are characterized by their resistance to heat.

Sintering—In forming articles from fusible powders, e.g., nylon, the process of holding the pressed-powder article at a temperature just below its melting point for about % hour, Particles are fused (sintered) together, but the mass, as a whole, does not melt.

Sizing—The process of applying a material to a surface to fill pores and thus reduce the absorption of the subsequently applied adhesive or coating or to otherwise modify the surface. Also, the surface treatment applied to glass fiber used in reinforced

plastics. The material used is sometimes called "size."

Volubility—Plastics that become completely soluble in water forming nontoxic homogeneous solutions. The degree of solubility varies considerably with plastic formulation, temperature, solvent concentration and solvent.

SolDent—Any substance, usually a liquid, which dissolves other substances.

Stabilizer—An ingredient used in the formulation of some plastics, especially elastomers, to assist in maintaining the physical and chemcial properties of the compounded materials at their initial values throughout the processing and service life of the material.

Stereospecific Plastics—Implies a specific or definite order of arrangement of molecules in space. This ordered regularity of the molecules in contrast to the branched or random arrangement found in other plastics permits close packing of the molecules and leads to high crystallinity (i.e., as a polypropylene).

Tenacity (gpd)—The term generally used in yarn manufacture and textile engineering to denote the strength of a yarn or of a filament for its given size. Numerically it is the grams of breaking force per denier unit of yarn or filament size; grams per denier, gpd. The yarn is usually pulled at the rate of 12 inches *per* minute. Tenacity equals breaking strength (gins) divided by denier.

Tensile Strength—The pulling stress, in p.s.i., required to break a given specimen. Area used in computing strength is usually the original, rather than the necked-down area.

Thermal Conductivity—Ability of a material to conduct heat; physical constant for quantity of heat that passes through unit cube of a substance in unit of time when difference in temperature of two faces is 1°.

Thermoforming-Any process of forming thermoplastic sheet which consists of heating the sheet and pulling it down onto a mold surface.

Thermoforms—The product which results from a thermoforming operation.

Thermoplastic-Capable of being repeatedly softened by heat and hardened by cooling—a material that will repeatedly soften when heated and harden when cooled. Typical of the thermoplastics family are the styrene polymers and copolymers, acrylics, cellulosics, polyethylene, vinyls, nylons, and the various fluorocarbon materials.

Thermoset—A material that will undergo or has undergone a chemical reaction by the action of heat, catalysts, ultra-violet light, etc., leading to a relatively infusible state. Typical of the plastics in the thermosetting family are the aminos (melamine and urea), most polyesters, alkyds, epoxies, and phenolics.

Thixotropic—Said of materials that are gel-like at rest but fluid when agitated. Liquids containing suspended solids are apt to be thixotropic. Thixotropy is desirable in paints.

Transfer Molding—A method of molding thermosetting materials, in which the plastic is first softened by heat and pressure in a transfer chamber, then forced by high pressure through suitable sprues, runners, and gates into closed mold for final curing.

Ultrasonic Sealing—A film sealing method in which sealing is accomplished through the application of vibratory mechanical pressure at ultrasonic frequencies (20 to 40 kc.). Electrical energy is converted to ultrasonic vibrations through the use of either a magnetostrictive or piezoelectric transducer. The vibratory pressures at the film interface in the sealing area develop localized heat losses which melt the plastic surfaces effecting the seal.

Unsaturated Compounds-Any compound having more than one bond between two adjacent atoms, usually carbon atom, and capable of adding other atoms at that point to reduce it to a single bond.

Urea Formaldehyde Resin (Urea Resin)—A synthetic resin derived from the reaction of urea (carbamide) with formaldehyde or its polymers.

Urethane—See description under Isocyanate Resins.

Vacuum Forming—Method of sheet forming in which the plastic sheet is clamped in a stationary frame, heated, and drawn down by a vacuum into a mold. In a loose sense, it is sometimes used to refer to all sheet forming techniques, including drape forming, involving the use of vacuum and stationary molds.

Vacuum Metalizing—Process in which surfaces are thinly coated with metal by exposing them to the vapor of metal that haa *been* evaporated under vacuum (one millionth of normal atmospheric pressure).

Vinyl Resin—A synthetic resin formed by the polymerization of chemical compounds containing the group $CH^2=CH$ –. In particular, polyvinyl chloride, acetate, alcohol, and butyral, are referred to (though most addition polymers are within the above definition, it is seldom applied to any but the ones listed).

Viscosity-Internal friction or resistance to flow of a liquid. The constant ratio of shearing stress to rate of shear. In liquids for which this ratio is a function of stress, the term "apparent viscosity" is defined as this ratio.

Welding—Joining thermoplastic pieces by one of several heat-softening processes. In hot-gas welding, the material is heated by a jet of hot air or inert gas directed from a welding "torch" onto the area of contact of the surfaces which are being welded. Welding operations to which this method is applied normally require the use of a filler rod. In spin-welding, the heat is generated by friction. Welding also includes heat sealing and the terms are synonymous in some foreign countries, including Britain.

Wet Strength—The strength of paper when saturated with water, especially used in discussions of processes whereby the strength of paper is increased by the addition, in manufacture, of plastics resins. Also, the strength of an adhesive joint determined immediately after removal from a liquid in which it has been immersed under specified conditions of time, temperature and pressure.

Working Life—The period of time during which a liquid resin or adhesive, after mixing with catalyst, solvent, or other compounding ingredients, remains usable.