



Glossary of Terms Used in the Pressure Sensitive Adhesive Industry

90 OR 180 – DEGREE PEEL – Peel testing measure the amount of force needed to remove an adhesive from a specified substrate. The adhesive can be peeled from the substrate at either a 90 or a 180-degree angle. Adhesive with higher peel values are more difficult to remove than adhesive with lower peel values. Peel is measured in pounds of force per lineal inch on a 1.0 mil coated samples unless otherwise noted.

ABRASION RESISTANCE — The ability of a tape to withstand rubbing and still function satisfactorily.

ACCELERATED AGING — A means whereby the deterioration of a tape encountered in natural aging may be accelerated and reproduced in the laboratory.

ACCELERATED WEATHERING (weathering) — A means whereby the deterioration caused by outdoor exposure may be accelerated and reproduced in the laboratory.

ACETATE (cellulose acetate) — A transparent film which is used for various reasons in tape backings; the primary characteristic is that of being more moisture resistant than cellophane.

ACRYLIC — a synthetic polymer with excellent aging characteristics that can be used as either a single component adhesive or a coating or saturant, depending upon composition.

ADHESION — (pressure sensitive) A bond produced between a pressure-sensitive adhesive and a surface.

ADHESION BUILD-UP — An increase in the peel adhesion value of a pressure-sensitive tape after it has been allowed to dwell to the applied surface.

ADHESION TO BACKING — The bond produced by contact between a pressure-sensitive adhesive and the tape backing when one piece is applied to the back of another piece of the same tape.

ADHESIVE — Any material which will usefully hold two or more objects together solely by intimate surface contact.

ADHESIVE DEPOSIT — Adhesive which is pulled away from the tape and remains on the surface to which the tape was applied.

ADHESIVE FAILURE – When the adhesive is left entirely on the substrate that it is coated to, after it comes into contact with a different substrate. For example, when performing a loop tack test, after the initial touch of the coated stock to the stainless steel plate, all of the adhesive remains on the coated stock.

ADHESIVE MASS — Sometimes used as another name for the adhesive.

ADHESIVE RESIDUE — See adhesive deposit.

ADHESIVE TRANSFER — The transfer of adhesive from its normal position on the tape to the surface to which the tape was attached, either during unwind or removal.

BACKING — A relatively thin flexible material to which the adhesive is applied. Theoretically, any material which is reasonably flat, relatively thin, and flexible could be used as a tape backing.

BI-DIRECTIONAL — Related to strapping tapes, in which the reinforcing material consists of filaments in both strength and cross directions, usually a woven cloth.

BLEACHING — An erroneous term used to denote a corrosion of the surface under a tape which has remained the original surface color while the surrounding surface area has discolored.

BLEEDING — Penetration through the tape of a coloring liquid (paint, etc.) onto the surface to which the tape is applied.

BURSTING STRENGTH — The ability of a tape to resist damage when force is evenly applied perpendicularly to the surface of the tape.

CARRIER — Sometimes used to refer to the backing material, particularly in double-faced tapes.

CELLOPHANE (regenerated cellulose) — a thin transparent film manufactured from wood pulp.

COATED CLOTH — Fabric with a rubber or plastic back coating to give increased moisture resistance and longer wear.

COHESION (cohesive strength, internal bond) — The ability of the adhesive to resist splitting. Good cohesion is necessary for clean removal.

COHESIVE FAILURE — When the adhesive is left on both the substrate that it was coated to and the substrate that it comes into contact with, after it is removed from that substrate. For example, when performing a loop tack, after the initial touch of the coated stock to the stainless steel plate, the adhesive is left on both the coated stock and the stainless steel plate.

COLD-FLOW — The tendencies of a pressure-sensitive adhesive to act like a heavy viscous liquid over long periods of time. Such phenomena as oozing and increases in adhesion are the result of this characteristic.

COLOR — The particular color of a tape, when looking at the backing, regardless of the color of the adhesive.

COLOR STABILITY — The ability of a tape to retain its original color, particularly when exposed to light.

CONFORMABILITY — The ability of tape to fit snugly or make essentially complete contact with the surface of an irregular object without creasing or folding.

CREEP — A slow movement of the adhesive or backing under stress.

CREPED — Paper which has small "folds" in it, giving it high stretch.

CROSS-LINKED — The development of a three-dimensional structure in an adhesive, which is activated normally by heat. An improvement in shear resistance, high temperature resistance, and oil or solvent resistance will normally result.

CUPPING — A slightly U-shaped deformation of the tape (at right angles to the length) which usually appears after unwind tension is relaxed.

CURED — (See Cross-Linked)

CURLING — The tendency of a tape to curl back on itself when unwound from the roll and allowed to hang from the roll.

DEAD STRETCH — The net increase in length after tape has been elongated without breaking and allowed to recover.

DELAMINATION — A separation or splitting of the tape such as separation of the backing into two distinct layers, separation between laminations of a tape consisting of more than one backing, or the separation between filaments and backing of a filament reinforced tape.

DELAYED STRAIN — See Latent Stain.

DIELECTRIC STRENGTH — The voltage, which a tape will withstand without allowing passage of the current through it.

DISCOLORATION — See Stain. **DISHING** — See Telescoping.

DOUBLE-COATED — The adhesive is applied on both sides of the backing, which serves principally as a carrier for the adhesive.

EDGE CURL — The peeling back or lifting of the outer edge of a tape after application (see Cupping).

ELASTIC MEMORY — A tendency of some tape backings to attempt to return to their original length after being elongated.

ELECTROLYTIC CORROSION FACTOR — A measure of the tape's corrosive effect on a copper conductor. This is particularly important in selection of tapes for use as electrical insulation.

ELONGATION (stretch, ultimate elongation) — The distance a tape will stretch lengthwise before breaking, expressed as a percentage of original length. Elongation is not necessarily an indication of conformability.

FALL-OFF — Tape pulls completely away from the surface to which applied and drops off.

FEATHERING — A jagged, irregular paint line frequently characterized by small "feathers" of the top-coat projecting into the masked area.

FILAMENTS — Thin longitudinal "threads" of glass, polyester, nylon, or other high strength materials.

FILM — Uniform, homogenous, non-fibrous synthetic webs.

FISHEYES — Relatively small deformations (pock-marks) in the adhesive caused by the entrapment of air between-layers in the roll are not an indication of a quality defect.

FLAGGING — A peeling away from the surface of the end of a length of tape, particularly in a spiral-wrap application.

FLAKING— A condition sometimes occurring during the removal of masking tape, in which flakes or particles of paint break off of the tape backing.

FLAME RESISTANCE— The ability of a tape to withstand exposure to flame. Fireproof materials will not burn even when exposed to flame. Flame Resistant (fire retardant, self-extinguishing) materials will bum when exposed to flame, but will not continue to bum after the flame is removed.

FLATBACK— Smooth paper backing.

FLEXIBILITY — The ability of a tape to be freely bent or flexed.

FLUOROCARBON FILMS — A film with very high and low temperature limits, excellent electrical characteristics. Such as a very slippery, non-sticking surface. One example is DuPont's Teflon

FOAM — A soft, cushiony material formed by creating bubbles in base materials, such as natural or synthetic rubbers, or other elastomeric materials.

FREEZING — A hardening or resinifying of the adhesive after application, so that tape cannot be easily or cleanly removed.

GAPPING — Openings between layers of tape within a roll.

GHOSTING — See Off-setting.

GLOSS — An appearance characteristic of tape backings. Usually expressed by such terms as glossy, low gloss, matte, etc.

HEAT RESISTANCE — The ability of a tape to withstand exposure to specified temperatures after application to a surface. Clean removal after exposure may or may not be important depending on the intended function of the tape and the type of adhesive.

HIGH-SPEED UNWIND — Unwinding or dispensing of tapes at a relatively high rate of speed, usually over 50 feet per minute.

HOLDING TOWER (shear adhesion) — The ability of a tape to resist the static forces applied in the same plane as the backing. Usually expressed in time required for a given weight to cause a given amount of tape to come loose from a vertical panel.

HOLIDAY — A small defect, particularly in an electrical or pipe wrapping tape, which lowers the dielectric strength at the point of the defect below a certain desired minimum.

HOT MELT — (Pressure Sensitive Adhesive)—A pressure sensitive adhesive applied to the backing in a hot molten form which cools to form a conventional pressure sensitive adhesive.

IMPACT RESISTANCE (shock resistance) — The ability of a tape to resist sudden pulls or shocks as may sometimes be encountered by packages in transit.

INSULATION RESISTANCE — The ability of a tape to prevent the flow of current across its surface, usually measured on the backing.

INSULATING TAPE — Normally refers to tape used for electrical insulation.

KRAFT — A sulphate wood pulp paper. (See Saturation)

LABEL STOCK — Pressure-sensitive materials, which are usually printed, frequently die-cut, furnished in roll or sheet form with a liner, and intended for use as labels.

LAMINATION — A combination of two or more similar or dissimilar materials, which function as one backing, e.g. acetate and tissue in acetate fiber tapes.

LATENT STAIN — A stain in a surface to which tape has been applied, which does not become noticeable until some time after removal, usually after the surface has been exposed to sunlight or heat.

LIFTING — A situation where a section of tape has pulled away from the surface to which it has been applied.

LOOP TACK (pli) — The initial attraction or grab of an adhesive to a substrate without any external pressure. Measured in pounds per lineal inch.

MASS — Sometimes used as another name for the adhesive.

METAL FOIL — Thin, flexible sheets of metal such as aluminium and lead used as tape backings because of inherent properties such as weather-resistance, reflectivity, etc.

MIGRATION — The movement, over a long period of time, of an ingredient from one component to another when the two are in surface contact. May occur between tape components or between a tape and the surface to which it is applied. Some plastic films and foams contain plasticizers, which are apt to migrate into the tape adhesive, causing the adhesive to soften.

MULTIPLE COMPONENT ADHESIVE — A pressure sensitive adhesive containing one or more elastomers combined with resins and other components, which impart tack, adhesion, and other necessary properties.

NON-WOVEN MATERIALS — Paper "tissues" or synthetic (e.g. rayon) non-woven fabrics.

OFF-CORE — Layers of tape are in correct alignment, but tape is displaced sideways on core.

OFFSETTING — Occurs when a printed tape is unwound and some of the printing ink is picked off by the adhesive or migrates into the adhesive. It is in effect a delamination of the ink.

OOZING — A "squeezing out" of the adhesive from under the backing. When occurring when the tape is in roll form, the edges of the roll become tacky.

OPAQUENESS — The ability of a tape to prevent the transmission of light.

PAINT LINE — The line between a tape masked surface and a painted or otherwise treated surface.

PEAKING — Large singular upheavals in the outer layers of a roll of tape.

PEEL ADHESION — The force per unit width, expressed in oz/in. width, required to break the bond between a tape and a surface when peeled back usually at 180 degrees at a standard rate and condition.

PENETRATION RESISTANCE — The ability of a tape to resist slow puncture under pressure.

PINHOLE — A very small hole, which, may permit the passage of light, moisture or electrical current.

PLAIN CLOTH — Fabric woven from cotton, glass or other fibers, without further treatment.

POLYETHYLENE — A tough, stretchy film having very good low temperature characteristics.

POLYESTER — A strong film having good resistance to moisture, solvents, oils, caustics, and many other chemicals. It is usually transparent.

POLYPROPYLENE — A new cousin of polyethylene, with generally similar properties, but stronger and having a higher temperature resistance.

POLYVINYLIDENE CHLORIDE — A usually very thin transparent film with excellent resistance to acids, water and organic solvents.

PRESSURE-SENSITIVE — A term commonly used to designate a distinct category of adhesive tapes and adhesives which in dry (solvent free) form are aggressively and permanently tacky at room temperature and firmly adhere to a variety of dissimilar surfaces upon mere contact without the need of more than finger or hand pressure. They require no activation by water, solvent or heat in order to exert a strong adhesive holding force toward such materials as paper, plastic, glass, wood, cement and metals. They have a sufficiently cohesive holding and elastic nature so that, despite their aggressive tackiness, they can be handled with the fingers and removed from smooth surfaces without leaving a residue. General trade usage by leading tape manufacturers does not sanction extension of the term "pressure-sensitive" to embrace tapes and adhesives merely because they are sticky (e.g. flypapers), or merely because they adhere or cohere to a particular type of surface (e.g. self-sealing envelopes); and terms other than "pressure-sensitive" should be used in such cases to avoid confusion. **PRESSURE-SENSITIVE TAPE** — A combination of a pressure-sensitive adhesive with a backing.

PRIMING — Coating the backing on the adhesive side with a thin layer of adhesive-like material, which serves as a bonding agent between the adhesive, and the backing.

PRINTABILITY — The ability of a tape to accept and hold a printed legend, and especially to resist offset of the printing when rewound into a roll after printing.

PRINTING — The pattern of a tape left on a surface after tape has been removed. Most apt to occur when tape is applied to a freshly painted surface which has not fully hardened.

PUCKERING — The uneven, non-flat condition of masking paper to which tape has been applied.

QUICK STICK — {Tack. Finger Tack. Initial Adhesion. Wet Grab} — The property of a pressure sensitive adhesive which allows it to adhere to a surface under very light pressure, it is determined by the ability of the adhesive to quickly wet the surface contacted.

RECOVERY — The difference between ultimate elongation and dead stretch.

REINFORCEMENTS — A material added to a tape to provide additional strength.

RELEASE COATING (easy unwind treatment) — A coating applied to the backing on the side opposite the adhesive, which provides ease of unwind, and prevents delamination or tearing.

RELEASE COAT TRANSFER — Particles of the release coat sticking to the adhesive on unwind and the resulting tape will have little or no ability to stick.

RELEASE LINER — A web or sheet of material covering the adhesive side of a tape. It is removed prior to application. Most frequently found on double-coated tapes and label stocks.

REMOVAL — The act of pulling tape away from the surface to which it has been applied.

RESIDUE — See Adhesive Residue.

RESISTANCE TO WEATHER, SOLVENTS, ACIDS, ALKALIES, OILS, GREASES, ETC. — The ability of a tape to

resist exposure to varying conditions after application and to perform satisfactorily.

REVERSE STAIN — See Bleaching.

RIDGING — A mound-like swelling on the outer layers of a roll, lengthwise to the tape. Usually found on the more moisture sensitive materials, such as cellophane.

ROPE STOCK — A smooth paper made of hemp fiber for high tensile strength.

SAFT – Shear Adhesion Failure Temperature. The SAFT refers to the upper temperature limit at which an adhesive is able to support a certain amount of weight. Polymer degradation, incorrect raw material ratios and incorrect blending can affect the SAFT results. This is not a measure of the bond between the adhesive and a substrate, but a measure of the internal strength of the adhesive itself. Generally, as the shear strength of an adhesive system is increased, tack and adhesive performance will decrease. This is generally measured in Fahrenheit.

SATURATION (impregnation) — Adding materials (saturant) to the backing for improvement of physical properties, and resistance to various deleterious environments. The backing of paper tapes, for instance, may actually contain as much as 50% by weight of a rubber-based impregnant.

SEPARATING — See Gapping.

SHEAR ADHESION — See Holding Power.

SHRINKAGE — Reduction in any dimension of a tape.

SILICONE — A unique polymer system, which can be a very effective release coating, or pressure-sensitive adhesive capable of functioning effectively at extreme temperatures.

SINGLE-FACED — The adhesive is applied to one side of the backing only. Most pressure-sensitive tapes are of this type.

SIZED — Fabric, usually cotton, treated to give added stiffness and easier handling.

SLIP SHEET OR INTERLINER — A treated sheet used to cover the adhesive to facilitate handling.

SLIVERING — Tape tears or breaks into small pieces, either on unwind or removal from a surface.

SMOOTHNESS - The relative flatness of the tape backing.

SOFTENING POINT – The temperature at which an adhesive goes from a solid to a molten form. This is measured in Fahrenheit or Celsius.

SPLITTING — See Determination.

STAIN — A discoloration of a surface to which tape has been applied.

STAIN RESISTANCE — The ability of a tape to be applied to a surface without discoloring the surface.

STIFFNESS — The measure of a tape's flexibility and conformability.

STORAGE STABILITY (roll-aging resistance) — The ability of a tape to retain its original properties after storage.

STRINGINESS — A condition of the adhesive in which it feels very soft and mushy, and on close examination relatively long "legs" or "strings" of adhesive can be pulled out of the adhesive.

TACKY — The condition of the adhesive when it feels sticky or highly adhesive. Sometimes used to express the idea of pressure-sensitivity.

TEARING — Breaking or slivering of a tape during unwind.

TEAR RESISTANCE — The ability of a tape to resist tearing, after a tear has been started by cutting or nicking the edge.

TELESCOPING — A sideways sliding of the tape layers, one over the other, such that the roll looks like a funnel or a telescope.

TENSILE STRENGTH (breaking strength) — The force required to break a piece of tape by pulling on opposite ends of the piece.

Machine Direction Tensile. Tensile strength measured parallel to the length of the tape. Unless otherwise specified, tensile strengths are measured in the machine direction.

Cross direction tensile. Tensile strength measured at right angles to the length.

Wet tensile. Tensile strength of tape, which has been kept wet for a specified period of time. Measures ability of tape to function satisfactorily when exposed to moisture.

Tg – Glass Transition Temperature. The temperature at which an adhesive will become markedly less elastic and flexible. At temperatures below 0°C the adhesive will have more room temperature properties.

THERMOPLASTIC ADHESIVES — Adhesives which become softer as temperature increases, regardless of the number of heating cycles to which they are exposed.

THERMOSETTING ADHESIVES — Adhesives, which set up or harden on first exposure to heat, and remain set regardless of subsequent temperature cycles.

THICKNESS — (Caliper, Gauge) Distance from one surface of either a tape, backing or adhesive to the other, usually expressed in mils or thousandths of an inch. This is usually measured under slight pressure with a special gauge.

TRANSFER — Normally refers to "adhesive transfer," but sometimes said of any tape component which moves from its proper place to some other position during either unwind or removal.

TRANSPARENCY — The ability of a tape to allow transmission of light. A tape is rated as transparent if 10-point type can be easily read when the tape is applied directly over it.

TREATMENTS — (See Priming, Release Coating, Coloring, Saturation, Sizing)

TWISTING — The curling around the lengthwise axis of a length of tape which has been unwound from the roll and allowed to hang freely.

TxOVER – High Temperature Crossover. This is the temperature at which the adhesive loses its elastomeric properties and melts to a flow able liquid. This value is a stability indicator for high temperature applications. For example, the higher the txover number, generally, the more heat stable the product is.

ULTIMATE ADHESION — The maximum adhesion available from a pressure sensitive adhesive, determined by the force necessary to remove a strip of tape from a surface after an extended period of time.

UNIFORMITY — The consistency of a single type of tape, either within a roll, or from roll to roll, or from lot to lot.

UNPLASTICIZED VINYL OR UPVC — A tough durable plastic film, differing from PVC principally in that UPVC is not very stretchy.

UNROLLING — See Unwind.

UNWIND (Unrolling) — The force required to remove tape from the roll.

UNWIND ADHESION — See Unwind (Unrolling).

VINYL or PLASTICIZED POLYVINYL CHLORIDE (PVC) — A tough durable plastic film having excellent resistance to oils, chemicals and many solvents. It has excellent abrasion-resistance. It can also be colored. Its high stretch is due to the addition of a plasticizer.

VISCOSITY (cps) – A measurement of the resistance to flow of a material. The higher the viscosity reading at a certain temperature, the more the resistance to flow a product exhibits.

VOID — A bare uncoated area on either the adhesive or release coated side of the tape.

WATER ABSORPTION — The measure of the amount of water which will be soaked up by a tape and held.

WATER PENETRATION RATE (WPR) — The measure of a tape's ability to resist the passage of water through the tape itself expressed as g/100sq/in./24h.

WATER VAPOR TRANSMISSION (WVT) — The weight of water vapor transmission through a tape measured in gram/hundred square inches/24 hours.

WEAVING — A poorly wound roll of tape in which the individual layers of tape are not in alignment with the other layers.