
GLOSSARY OF TERMS

The following is a list of terms commonly used in the Pressure Sensitive Tape Industry. We hope it will aid in a clear understanding of the properties of flexible, cellular materials.

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 that is used for various reasons in tape backings; the primary characteristic is that of being more moisture resistant than cellophane.

ADHESION – 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 that will usefully hold two or more objects together solely by intimate surface contact.

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

ADHESIVE MASS – Sometimes used as another name for 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.

ASTM – American Society for Testing and Materials. The ASTM develops standards on characteristics and performance of materials.

BACKING – A relatively thin flexible material to which the adhesive is applied. Theoretically, any material that 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 the length and cross directions, usually a woven cloth.

BLEACHING – An erroneous term used to denote a condition of the surface under a tape that has remained the original surface color while the surrounding exposed 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 applied evenly 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.

CLOSED CELL – A flexible, cellular material consisting of a non-interconnecting cell structure.

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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.

COLD FLOW – The tendency 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.

COMPRESSION DEFLECTION – PSI required to compress a given material a stated percentage of its original thickness.

COMPRESSION SET – The amount of permanent set a sample has after being compressed a stated amount, at a specific temperature, for a given amount of time and recovery period.

CONFORMATILITY – 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 that has small “folds” in it, giving it high stretch. **CROSS-LINKED** – The development of 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 – Restoring –a means of correcting.

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 STAIN – See Latent Stain.

DENSITY – A material’s weight per unit volume.

DIELECTRIC STRENGTH – The voltage that 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.

DUROMETER – A meter used for measuring the hardness of cellular materials. The Shore 00 scale measures the hardness of sponge.

EDGE CURL – The peeling back or lifting of the outer edge of a tape after application. See Cupping.

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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.

EPDM – A rubber polymer consisting of ethylene, propylene and diene molecules. EPDM materials have ozone resistant properties.

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, homogeneous, nonfibrous synthetic webs.

FISHEYES – Relatively small deformations (pock marks) in the adhesive caused by the entrapment of air between layers in the roll. They 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 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 burn when exposed to flame but will not continue to burn after the flame is removed.

FLATBACK – Smooth paper backing.

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

FLUOROCARBON FILMS – A film with very high and low temperature limits, excellent electrical characteristics, and a very slippery, non-sticking surface. One example is Du Pont's Teflon™ (polytetrafluoroethylene).

FLUTING – Distortion of a roll of tape such that layers no longer form a circle.

FMVSS 302 – A Motor Vehicle Specification for flame spread. The rate of flame travel down a test sample must be less than four inches per minute.

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 crystalizing of the adhesive after application so that tape cannot be removed easily or cleanly.

GAPPING – Openings between layers of tape within a roll.

GHOSTING – See Offsetting.

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

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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 more than 50' per minute.

HOLDING POWER (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, that 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, that 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.

K-FACTOR – A measure of thermal conductivity or heat insulation. Lower values indicate a better insulating material.

KRAFT – A sulfate wood pulp paper. See Saturation.

LABEL STOCK – Pressure sensitive materials that 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 that function as one backing, for example, 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.

MASS – Sometimes used as another name for the adhesive.

METAL FOIL – Thin, flexible sheets of metal, such as aluminum 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.

MIL STD – Military standards that refer to specific physical properties of a given cellular material.

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

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NON-TOXIC – A material that is free of any toxic substances in its composition.

NONWOVEN – A manufactured sheet, web or batt of directionally or randomly oriented fibers, bonded by friction and/or cohesion and/or adhesion, excluding paper and products that are woven, knitted, tufted, stitch bonded incorporating binding yarns or filaments, or felted by wet milling.

NYLON – A strong plastic that can be used as a film with high oil and gas resistance or used as filament in strapping tapes, with high impact resistance.

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. If it occurs 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.

OPEN CELL – A flexible, cellular material consisting of an interconnecting cell structure.

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 required to break the bond between a tape and a surface when peeled back, usually at 180° at a standard rate and condition.

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

PINHOLE – A very small hole that 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 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 to exert a strong adhesive holding force toward such materials as paper, plastic, glass, wood, cement, and metals. They have a sufficiently cohesive holding elastic nature so that, despite their aggressive tackiness, they can be handled with 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., fly-papers), or merely because they adhere or cohere to a particular type of surface (e.g. self-sealing envelopes); terms other than “pressure sensitive” should be used in such cases to avoid confusion.

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PRESSURE SENSITIVE TAPE – A combination of a pressure sensitive adhesive and a backing.

PRIMING – Coating the backing on the adhesive side with a thin layer of adhesive-like material that 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 that has not fully hardened.

PSA – Pressure Sensitive Adhesive

PSI – Pounds per square inch.

PUCKERING – The uneven, nonflat 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 that allows it to adhere to a surface under very light pressure. It is determined by the ability of the adhesive to wet the surface contacted quickly.

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 that provides ease of unwind and prevents delamination or tearing.

RELEASE COAT TRANSFER – Particles of the release coat stick to the adhesive on unwind; 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.

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, actually may 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 that can be very effective release coating, or pressure sensitive adhesive capable of functioning effectively at extreme temperatures.

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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.

SPLITTING – See Delamination.

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 of the edge.

TEAR RESISTANT – The force to start a tear on a clean cut straight edge of material.

TELESCOPING – A sideways sliding of the tape layers, one over the other, such that the roll looks like a funnel or 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 that has been kept wet for a specified period of time. Measures ability of tape to function satisfactorily when exposed to moisture.

THERMAL CONDUCTIVITY – The measure of heat transmission through a cellular material. Determined by the base material, cell size, density and often water resistant properties.

THERMAL STABILITY – Percent of linear shrinkage when the material is exposed to a given high temperature for a given period of time.

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

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

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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 is said of any tape component that moves from its proper place to some other position during 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 read easily 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 that has been unwound from the roll and allowed to hang freely.

UL-94 – Underwriters Laboratory ratings for flame spread. Horizontal burn tests in which a flame is applied to the test sample for 60 seconds and removed. The UL-94 HFB rating states the test samples cannot have a burn rate exceeding one and a half inches per minute. The US-94 HF1 rating states that sample specimens must self-extinguish within two seconds after flame removal and not drip any flaming particles.

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 roll of tape, either within a roll or from roll to roll or from lot to lot.

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

UNROLLING – See Unwind.

UNWIND or UNWIND ADHESION (unrolling) – The force required to remove tape from the roll.

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 also can be colored. Its high stretch is due to the addition of a plasticizer.

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 soaked up by a tape and held. Measurement is weight change due to water absorbed by volume. Stated in either lb/ft² or percent of original weight.

WATER PENETRATION RATE (WPR) – The measure of a tape’s ability to resist the passage of water through the tape itself.

WATER VAPOR TRANSMISSION (WVT) – The weight of water vapor allowed through a tape within a specified time period.

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

WICKING – A term referring to excellent liquid absorption properties.