Adhesive Tape 101

PRESSURE SENSITIVE TAPE BASICS

A PUBLICATION OF TACON

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More than Tape...

WHAT IS A

Pressure Sensitive Adhesive?

Pressure Sensitive Adhesives (PSA) are a distinct category of self-adhesive tapes, which in dry form are aggressive and permanently tacky at room temperature. PSA's will adhere to a variety of substrates with light pressure (finger pressure) with no phase change (liquid to solid).

- The key point that differentiates a pressure sensitive adhesive from other types of adhesives is that no activation by water, solvent or heat is required.

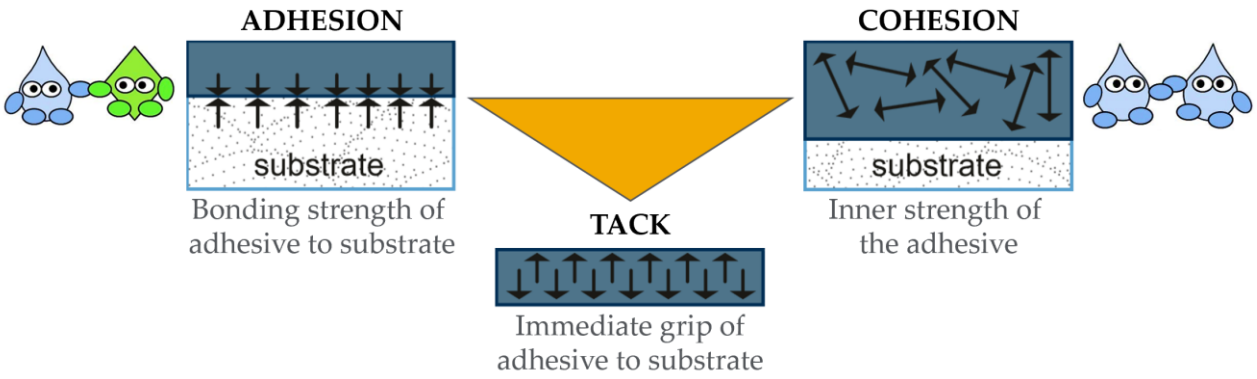
- The bond is the result of 'attraction' between the adhesive and the substrate(s); not of a chemical reaction between them.

THE ELEMENTS OF A

Pressure Sensitive Adhesive

Pressure Sensitive Adhesives (PSA's) function as a result of three separate properties, which balance one another (meaning that it is impossible to have a tape with 100% of each):

ADHESION – COHESION - TACK



ADVANTAGES OF

Pressure Sensitive Adhesive

1. Hi-Performance Bond
   - Providing structural strength that can replace mechanical fasteners (e.g. rivets, bolts…)
   - Uniform material loading
   - No mechanical weakness
   - No corrosion

2. Design Flexibility
   - Use lighter, thinner materials
   - Eliminating visible mechanical fasteners for cosmetic superiority
   - Bonding dissimilar materials without incompatibility concerns

3. Production Flexibility
   - Eliminating the need for bonding 'both' substrates together at the same time and location (providing optimum manufacturing flexibility)
   - Shortening assembly time

HOW TO SELECT

The right adhesive?

While searching for the right adhesive tape for your specific application you need to consider several critical points. A couple important thing you need to consider when choosing any adhesive tape. Below we have listed 9 questions to ask yourself during the decision-making and development process.

1. What materials will I be bonding together?
2. Is the material a High Surface Energy or a Low Surface Energy?
3. Will I bond to a rough or smooth surface?
4. Do I need a temporary or permanent bonding?
5. Will the connection be used outdoors or indoors?
6. What type of temperatures will the product be exposed to?
7. Does the product need to be moisture or solvent resistant?
8. Does the product need to be ultraviolet or chemical resistant?
9. Will the product be subject to any unusual loads or stresses?

Knowing the answers to these questions can help you to make the right decision when choosing your adhesive tape product. Please note that every application is unique. You may have other demands such as peel or shear adhesion or **custom converting options**. From innovative design to final production, our knowledgeable team will help design an adhesive tape solution and a production process customized to meet your adhesive tape needs and reduce your manufacturing costs.

HOW TO PREPARE

the surface?

Most substrates are best prepared by cleaning with a 50:50 mixture of isopropyl alcohol (IPA) and water* prior to applying Adhesive Tapes. However, there are exceptions! Exceptions to this general procedure that may require additional surface preparation include:

•**Heavy Oils:** A degreaser or solvent-based cleaner may be required to remove heavy oil or grease from a surface and should be followed by cleaning with IPA/water.

•**Abrasion:** Abrading a surface, followed by cleaning with IPA/water, can remove heavy dirt or oxidation and can increase surface area to improve adhesion.

•**Adhesion Promoters:** Priming a surface can significantly improve initial and ultimate adhesion to many materials such as plastics and paints.

•**Porous Surfaces:** Most porous and fibered materials such as wood, particleboard, concrete etc. need to be sealed to provide a unified surface.

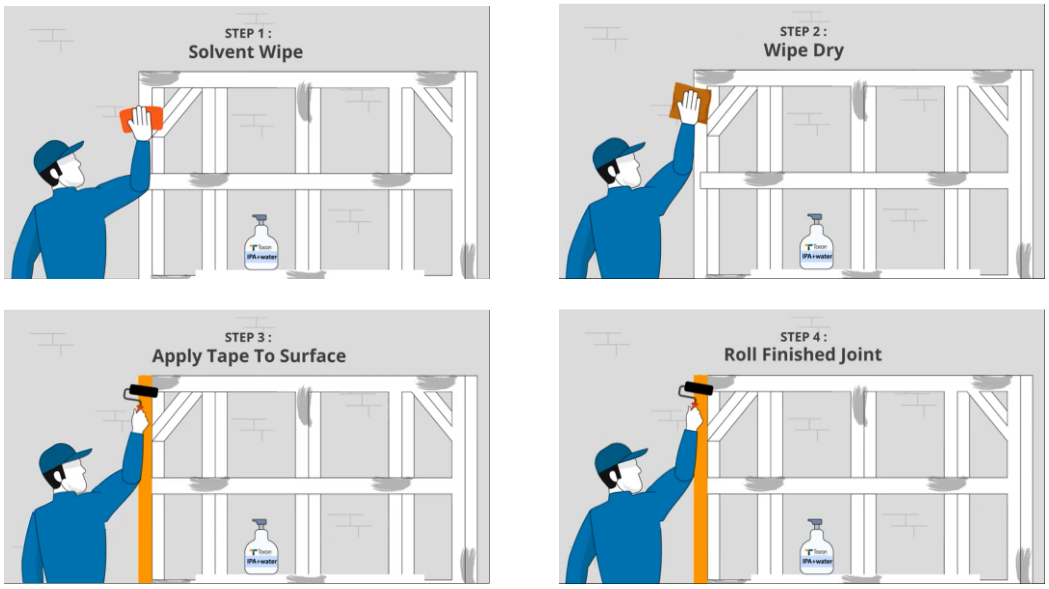
•**Unique Materials:** Special surface preparation may be needed for glass and glass-like materials, copper and copper containing metals and plastics or rubber that contain components that migrate (e.g. plasticizers).

HOW TO PREPARE

the surface?

General Procedure

To obtain optimum adhesion with adhesive tapes, the bonding surfaces must be well unified, clean and dry. Typical surface cleaning solvents are IPA/water mixture (rubbing alcohol) or heptane. Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure develops better adhesive contact and helps improve bond strength. Generally, this means that the tape should experience at least 15 psi (100 kPa) in roll down or platen pressure.



Watch video

GLOSSARY

of adhesive tape

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- ABRASION RESISTANCE – The resistance of a tape to rubbing or wearing away by friction (and still function satisfactorily).
- ACCELERATED AGING – Procedures for subjecting PSA's to special environmental conditions in order to predict the course of natural aging in a much shorter period.
- ACRYLIC – A synthetic polymer with excellent aging characteristics that can be used as single component adhesive, coating or saturant (depending upon composition.
- ACETATE FILM – A transparent film, used for various reasons as a tape backing (more moisture resistant than cellophane).
- ADHERE – Holding surfaces together by forces between them.
- ADHEREND – A substrate which is held to another substrate by an adhesive.
- ADHESION – The attraction between a pressure sensitive adhesive and a surface.
- ADHESIVE FAILURE – The separation of adhesive either from backing or from the substrate, caused by lack of adhesion.
- ADHESION TO BACKING – The resultant bond when one piece of tape is applied to the back of another piece of the same tape.
- ADHESIVE RESIDUE – Adhesive remaining on the surface when the tape is pulled away.
- 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.
- ANCHORAGE – The specific adhesion of a PSA to a face material or an anchor coat.

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- BACKING – A relatively thin flexible material to which the adhesive is applied. The backing also reinforces the PSA tape and improves handling and processing properties.
- BACKSCORING – Cutting the bottom release liner in such a way as to aid in the dispensing or applying of the product.
- BALONEY SLITTING – This process uses standard length log rolls, cutting through both tape and core roll after roll. This method allows for quicker change-over to different tapes and enables the converter to produce smaller quantities of a certain size than rewind slitting.
- BI-DIRECTIONAL – Related to strapping tapes, in which the reinforcing material consists of filaments in both the length and the cross directions, usually a woven cloth.
- BLEEDING – Penetrating of the adhesive through the tape onto the surface to which the tape is applied.
- BREAKING FORCE – Force required to bring adhesive to point of failure.
- BURSTEN STRENGTH – The ability of a tape to resist damage when a force is applied evenly and perpendicularly to the surface of a tape.
- BUTYL – A synthetic rubber of the polybutene type, exhibiting very low permeability to gases.

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of adhesive tape

CALIPER – A thickness measured under specific conditions.

CARRIER – The material upon the adhesive has been coated to produce a tape (~ backing material, particularly in double-sided tapes).

CLEAVAGE – Force required to pull apart two rigid substrates.

CATALYST – A chemical product to accelerate a chemical reaction without becoming part of the final product.

CLOSED SIDE ADHESIVE – The surface of the adhesive on a double sided tape, which normally remains in contact with the release liner on unwinding.

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

COATING WEIGHT – The weight of a coating per unit area.

COCKLING – A term to describe the wrinkling of a liner due to water absorption.

COHESION – The ability of the adhesive to resist splitting (~ internal strength of the adhesive).

COHESIVE FAILURE – When the adhesive bond to the substrate and carrier/other substrate is stronger than the internal strength of the adhesive, the adhesive will split.

CONDITIONING – The process of subjecting material to specific temperatures and relative humidity conditions for a stipulated period of time.

CONDUCTIVE ADHESIVE – Adhesive with metal/carbon content, providing electrical conductivity.

CONFORMABILITY – The ability of an adhesive tape to fit and make contact with an irregular surface without creasing or folding.

CONVERTER – Person or company that modifies products to enhance their value and final usage.

CORE – The inner cylinder of cardboard or plastic, on which the tape is wound.

CORONA TREATMENT – A surface treatment which improves adhesion by increasing the critical surface tension through the use of an electrical field.

CRAZING – A surface effect on material, characterized by multitudinous minute cracks.

CREEP – The dimensional change with time of the adhesive or backing under stress, caused by the initial instantaneous elastic or rapid deformation.

CREPED – Paper that has a meander design to give it (high) stretch.

CROSS-LINKED – The development of a 3D-structure within an adhesive, which is activated (normally) by heat. This offers improvements in cohesive strength, shear resistance, temperature resistance and oil/solvent resistance.

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

CUTS – The number of rolls slit from a master roll.

GLOSSARY

of adhesive tape

- DEAD STRETCH – The increase of length of a piece of tape after it has been stretched without breaking and allowed to recover.:
- DELAMINATION – A separation or splitting of the tape from its carrier, the backing into two distinct layers or between two laminated layers.
- DIE-CUTTING – Process by which any shape, pattern or design can be cut out of various PSA's, using customer-made dies.
- DIELECTRIC STRENGTH – The voltage that a tape withstands without passage of current through it.
- DIFFERENTIAL ADHESIVE – A double sided tape with a different adhesion between the faced side and unfaced side.
- DIFFERENTIAL RELEASE – A release liner with each surface providing different release characteristics/values.
- DIMENSIONAL STABILITY – The property of a material that enables it to resist length -, width – or thickness changes under varying conditions of temperature, moisture or other influences.
- DISHING – A sideways sliding of the layers in a roll of tape – one over the other – such that the roll looks like a dish or telescope.
- DOCTOR BLADE/BAR – A regulating scraper blade/bar that controls the amount of adhesive dispensed onto the spreading rollers or directly onto the surface/carrier being coated.
- DOUBLE COATED TAPE – A pressure sensitive adhesive consisting of a carrier with adhesive coated on both sides.
- DRAWDOWN – Small hand-prepared sample.
- DRY EDGE – A lack of coating on the edge of the web.
- DUROMETER – A meter used for measuring the hardness of materials.
- DYNAMIC SHEAR – A test method which refers to a shock loading in the same plain as the surface with the adhesive bond.
- DYNAMIC TENSILE – A test method which refers to a shock loading perpendicular to the surface with the adhesive bond.

- EDGE CURL – The peeling back of lifter of the outer edge of a tape after application.
- ELASTOMER – An elastic, polymeric substance (e.g. natural or synthetic rubber).
- ELECTRICAL STRENGTH – The voltage at which breakdown of the tape occurs under the prescribed conditions of a test, divided by the distance apart of the two electrodes between which the voltage is applied.
- ELONGATION – The amount a tape is able to stretch without breaking, expressed in a percentage.
- EMULSION – Adhesive material suspended in water
- EXTENDED LINER – Refers to the liner width extending beyond the actual adhesive tape didth, for easy liner removal (~ finger lift liner).
- EXTRUSION – Material – under pressure – which is forced through the opening of a die in order to obtain a desired cross sectional shape.

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- FEATHERING – A jagged, irregular point line frequently characterized by small 'feathers' of the top-coat projecting into the masked area.
- FILAMENTS – Longitudinal 'threads' of glass, polyester, nylon or oter high-strength materials.
- FILM – Uniform, homogeneous, non-fibrous synthetic webs.
- FINGER LIFT – A product which has a liner that overlaps at an edge allowing easier removal of the liner without touching the adhesive face.
- FISHEYES – Small deformations in the adhesive, caused by the entrapment of air or surface wetting problems during coating.
- FLAGGED ROLLS – Used to identify a bod spot in the roll for internal processing (or possibly a splice).
- FLAGGING – Peeling away from the surface at the end of a length of tape, particularly in a spiral-wound application.
- FLAKING – A condition sometimes occurring during removal of masking tape in which flakes or particles of paint flake away from the tape backing.
- FLAME RESISTANCE – The ability of a tape to withstand exposure to flame. Flame-resistant materials will burn when exposed to a naked flame, but will not continue to burn after removing the flame.
- FLAME TREATMENT – Method for modifying the surface of a substrate to provide better anchorage of an adhesive to a non polar backing by flame.
- 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 very slippery, non-sticking surface (e.g. DuPont's Teflon).
- FLUTING – Distortion of a roll of tape in which the layers no longer form a circle.
- FOAM – A soft, cushiony material formed by creating bubbles in the base materials, such as natural -, synthetic rubbers and elastomeric materials.

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- GAPPING – Opening between layers of tape within a roll.
- GASKET – A device used to retain fluids under pressure or seal out foreign matter. Normally refers to a static seal.
- GASKETING TAPE – Gasket materials include natural & synthetic rubber, thermoplastic rubber, silicone rubber, films, plastic, vinyl, woven/non-woven fabrics, cork/rubber and chipboard materials. Name brands include Neoprene, EPDM, PORON, Nomex, Mylar, Kapton…
- GLASSINE LINER – A strong, hard quality glazed paper with silicone release coating on one or both sides, which is good for die-cutting.
- GLASS TRANSITION TEMPERATURE (Tg) – The temperature at which the adhesive becomes brittle. It is important that the application temperature is distinctly above the Tg of the adhesive.

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- GRAVURE – A consistent method of applying low coat weights of adhesive.
- GREEN STRENGTH – Uncured adhesion between plied or spliced surfaces.
- GLOSS – A light reflection characteristic of tape backings, usually expressed by such terms as glossy, low gloss, matter…

- HAND TEARABILITY – Property of tapes which allows manual cutting or tearing without the use of additional equipment like a knife, scissors or dispenser. Both liner and backing must be tearable.
- HARD ADHESIVE – Highly cohesive PSA tapes.
- HARDNESS, SHORE A – The durometer hardness, measured on a Shore 'A' gauge. Higher numbers indicate harder material.
- HEAT RESISTANCE – The property of a material that inhibits the occurrence of physical or chemical changes by exposure to high temperatures.
- HEAT SEAL ADHESIVE – Requires heat to produce flow and possibly cure.
- HIGH-DENSITY POLYETHYLENE (HDPE) – A polyethylene resin/film with a density from 0,940 to 0,965 g/cm³. It is harder, more opaque plastic able to withstand higher temperatures.
- HIGH-SPEED UNWIND – Unwinding or dispensing of tapes at a relatively high rate of speed, usually over 15 meters/minute.
- HOLDING POWER – The ability of a tape to withstand stationary forces.
- HOT-MELT PSA – A pressure sensitive adhesive, applied to the backing in a hot molten form, that cools to form a conventional PSA.
- HYDROCOLLOID – Complex polymeric structures with the combined properties of adhesion and absorbency, making them ideal for wound care applications.
- HYGROSCOPIC – A tendency of some materials to readily absorb moisture from the atmosphere.

- IMPACT RESISTANCE – The ability of a tape to resist sudden impacts, pulls or shocks.
- INSULATING TAPE – Tape used for electrical insulation.
- INSULATION RESISTANCE – The ability of a tape to prevent the flow of electrical current across its surface, usually measured on the backing.

JUMBO – Manufactured product (roll tape) of machine web size with a large diameter consisting of many meters in length (~ parent roll).

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- KEY – The bond between the adhesive and the carrier or backing.
- KEY COAT – The bonding agent or process used to provide the required bond strength between the adhesive and the tape carrier.
- KEY FAILURE – This is when the adhesive fails to adhere to and removes cleanly from the carrier.
- KISS-CUTTING – Die-cutting process by which only the actual usable part remains on the liner; all waste (matrix) around the die-cuts is removed to allow for easy removal.
- KRAFT LINER – A sulphate wood pulp paper with a silicone release coating.

- 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.
- LAMINATING – Joining/combining of several layers of varying materials to function as one layer.
- LAP JOINT – A joint made by lapping one material over another to provide a mated area that can be joined with an adhesive.
- LATHE SLITTING – A process in converting product in a log format into rolls. This method of slitting allows the versatility of different widths and is used for low volume conversion.
- LATENT STAIN – A stain in a surface to which tape has been applied, which does not become noticeable until sometime after the tape is removed, usually after the surface has been exposed to sunlight or heat.
- LAY FLAT – A material with good non-curling characteristics.
- LIFTING – A situation where a section of tape has pulled away from the surface to which it has been applied.
- LINER – A removable covering, usually applied to a tape surface.
- LINER RELEASE – Separation of the liner from the pressure sensitive adhesive immediately before it is applied to the substrate.
- LOW-DENSITY POLYETHYLENE (LDPE) – A polyethylene resin/film with a density from 0,910 to 0,940 g/cm³. It is weaker than HDPE, with a lower tensile strength and a higher resilience.
- LOW TACK TAPE – A pressure sensitive tape with a low adhesion and tack.

- MANDREL – A spindle placed inside a core for rewinding or slitting purposes. The spindle often has an air bladder along its length to hold the core in place.
- MATERIAL SPLICE – An area where tape has been used to attach two rolls of material together to form one continuous web.
- MASTER ROLL – A full width roll that has finished the primary manufacturing process and is usually untrimmed.
- MATRIX – Scrap material that is left after die-cutting a pattern.

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- METAL FOIL – Thin, flexible sheets of metal (e.g. copper, aluminium…) used as tape backing, because of inherent properties such as weather resistance, reflectivity…
- MIGRATION – The molecular movement, over a long period of time, of an ingredient from one surface to another when both are in contact. Migration may occur between tape components and the surfaced to which applied.
- MONOMER – A simple compound which can react to form a polymer.

- NATURAL AGING – The change in a material that occurs when it is exposed to normal environmental conditions.
- NATURAL RUBBER – Component of adhesives, not inherently self-adhesive. Resins ('tackifiers') need to be added to achieve self adhesive properties.
- NON-ORIENTED – A material that has yet to be stretched or expanded to its maximum size.
- NON-POLAR SUBSTRATES – Critical surfaces to adhere to due to low surface energy. The lower the surface energy, the lower the molecular attraction to the adhesive. Typical materials are PE, PP, PS, EVA and many powder surfaces.
- NON-WOVEN – Paper and polymer fibre based backing material for PSA tapes.

- OFF-CORE – A roll of tape in which the layers are in correct alignment, but the tape is displaced sideways on the core.
- OFFSETTING – The movement of a component of a tape (usually the adhesive) from its backing. This transfer may occur during unwinding of tape or on removal of the tape from a substrate.
- OOZING – A 'squeezing out' of the adhesive from under the backing. It is occurs when the tape is in roll form, the edges of the roll become tacky.
- OPACITY – The ability of a tape to prevent the transmission of light.
- OPEN SIDE (ADHESIVE) – That surface of the adhesive on a double sided tape, which is exposed on normal unwinding or separation.
- OUTGASSING – The release of volatile components under heat or vacuum.
- OVERLAMINATING – Application of a clear film to a label stock for the purpose of protection or to enhance graphic quality.
- OVER-RUN – A quantity of material in excess of the amount ordered.

- PANCAKE-WOUND ROLLS – Most typical supply form for pressure sensitive tapes. Each layer of the tape is directly on top of the last one.
- PEAKING – Large singular upheavals in the outer layers of a roll of tape.

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- PEEL ADHESION – The force per unit width, required to break the bond between a tape and a surface when peeled back at 180° at a standard rate and condition.
- PENETRATION RESISTANCE –The ability of a tape to resist slow puncture under pressure.
- PERFORATING – Hole-punching the release liner, usually between kiss-cut parts.
- PERMANENT BOND – This bond holds the substrates indefinitely.
- PHENOLIC – Substance created from the reaction of phenol and aldehyde to produce a resin.
- PLAIN CLOTH – Fabric woven from cotton, glass or other fibers without further treatment.
- PLASTICIZER – A material incorporated into a resin formulation to increase its flexibility.
- PLASTISOL – A liquid consisting of polymer blend, pigments, additives…
- POLAR SUBSTRATE – Uncritical surfaces to adhere to due to high surface energy. The high molecular attraction between adhesive and substrate leads to increased adhesion. Most common materials are PET, PC, PVC, ABS, aluminium, steel, glass…
- POLYAMIDE (PA) – A thermoplastic (~ known as Nylon) which has a high strength & is very resistant to wear and abrasion. It also has a good puncture resistance, a good heat resistance and a low gas permeability.
- POLYCARBONATE (PC) – A high-clarity film combining the versatility of acetate with the durability of polyester. It is intended for interior use and may be used in many applications previously processed with polyester or similar films.
- POLYCOATED LINER – Kraft paper coated with PE to increase moisture resistance, then coated on one side or both with a silicone release coating. These liners have a lower temperature resistance.
- POLYESTER (PET) – A strong film having good resistance to moisture, solvents, oils and many other chemicals. It is usually transparent.
- POLYETHYLENE (PE) – A tough, stretchy plastic film having very good low-temperature characteristics.
- POLYMER – A substance with molecules consisting of one or more structural units repeated any number of times.
- POLYPROPYLENE (PP) – A cousin of polyethylene, with generally similar properties, but it is stronger and has a higher temperature resistance.
- POLYURETHANE FOAM (PUR) – Closed cell foam with adhesive on two sides, used in permanent bonding applications to replace mechanical fasteners, epoxies and screws.
- PRESSURE SENSITIVE – A term used to describe an adhesive tape which in dry (solvent free) form is aggressive and permanently tacky at room temperature when applied using light pressure to the substrate. It requires no activation by water, solvent or heat to exert a strong adhesive holding force to a substrate.
- PRESSURE SENSITIVE TAPE – A combination of a pressure sensitive adhesive and a backing.
- PRIMER – A primer is used to increase the bond of the adhesive to the backing. The use of a primer assists in keeping the adhesive on the backing when a tape is removed.
- 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.

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- POROSITY – The surface density of a substrate. The property of adhesive absorption by the substrate.
- POLYTETRAFLUORETHYLENE (PTFE) – PTFE is known for exceptional resistance to high temperatures, chemical reaction, corrosion and stress-cracking. DuPont's Teflon is the registered trademark name for it.
- POLYVINYLCHLORIDE (PVC) – Polar substrate, used as a backing available in varying degrees of hardness. Suitable for electrical insulation applications and cable harnessing applications.

- REINFORCEMENTS – A material added to a tape to provide additional strength.
- RELEASE – The force required to remove the release liner from the stock at a specified speed angle.
- RELEASE COATING – A coating applied to the backing on the side opposite the adhesive that provides ease of unwind and prevents delamination or tearing. Without a release coating, the tape would adhere to its own back and would not unwind.
- RELEASE COAT TRANSER – Particles of the release coat stick to the adhesive on unwind; the resulting tape will have little or no ability to stick.
- RELEASE LINER – Siliconized paper or film coated on one or both sides that protects the adhesive until use. The liner is removed and discarded before application. Most frequently found on double-coated tapes and labels.
- REMOVABILITY – The ability to remove the tape from the substrate without damaging or contaminating the substrate under specified conditions, usually after a long period of time.
- REMOVABLE ADHESIVE – A pressure sensitive adhesive characterized by low ultimate adhesion and clean removability from a wide variety of surfaces.
- REPULPABLE – Paper tapes that can be recycled to the process without contamination of the broke pulp.
- RESIDUE – Adhesive left on the substrate after removal.
- REVERSE WOUND – A roll of material where the adhesive is exposed on the outer wrap, not on the liner.
- REVERSION – A deterioration of physical properties that may occur after air aging at elevated temperatures, evidenced by a decrease in hardness & tensile strength and an increase in elongation.
- REWIND SLITTING – A process to convert into slit rolls by unwinding a jumbo or log, slitting with knifes and then winding onto individual cores. Normally used for high volume production due to set up time.
- RoHS – Restriction of Hazardous Substances: a European Directive (2002/95/EC) which restricts the use of specific heavy metals and flame retardants in electrical and electronic equipment.
- RUBBER (NATURAL) – A tough elastic substance made from the latex of rubber trees and shrubs.
- RUBBER (SYNTHETIC) – A tough elastic substance made from synthetic materials and polymers.
- RUBBER BASED ADHESIVE – A pressure sensitive adhesive based on natural or synthetic rubber.

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- SATURATION – Adding material (saturant) to the backing for improvement of physical properties and resistance to various deleterious environments.
- SELF-SEAL – An adhesive joint that is accomplished by coating both adherend surfaces and bringing them under pressure.
- SELF-WOUND ROLL – A roll of tape in which each layer of tape is directly on top of the last one. The roll contains no liner.
- SERVICE TEMPERATURE – The extremes of temperature at which a material can be used without compromising its strength or other properties.
- SHEAR – Loading forces across the face of an adhesive joint.
- SHEAR ADHESION – The ability of a tape to resist static forces applied in the same plane as the backing.
- SHEAR RESITANCE – Shear resistance is measured as a force required to pull the pressure sensitive material parallel to the surface to which it was affixed under specific conditions. The shear resistance of PSA's may be measured statically or dynamically. Static shear test methods use a constant load of longer test times. Dynamic shear tests measure the cohesion of the sample in a tensile tester under increasing load (force).
- SHEAR STRENGTH – The internal or cohesive strength of the adhesive.
- SHELF LIFE – The period of time during which a product can be stored under specified conditions and still remain suitable for use.
- SHOCK RESISTANCE – Shock resistance is a suddenly applied force on an adhesive bond. Under normal conditions (room temperature) the shock resistance of tapes is significantly higher. PSA tapes with a foam backing have an incorporated buffer system and therefore absorb shock much better than film tapes. Additionally high coating weights and flexible backings of high quality film can take over part of this buffer function.
- SHORE HARDNESS – A measurement of surface hardness of a material using a Durometer.
- SILICONE – A unique polymer system that can be a very effective release coating or PSA capable of functioning at extreme temperature.
- SILICONE ADHESIVE – Adhesive system designed for sticking to silicone surfaces.
- SILVERING – Defect in which the tape tears or breaks into small pieces during unwind or removal from the application surface.
- SINGLE COATED TAPE – A pressure sensitive tape consisting of a carrier with adhesive coated only on one side.
- SLIP SHEET – A treated sheet used to cover the adhesive to facilitate handling.
- SOLUTION – The dissolving of a solid into a liquid by mixture with a solvent.
- SOLVENT – A dissolving, thinning or reducing agent. Specifically, a solvent is a liquid that dissolves another substance.

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- SOLVENT ADHESIVE – An adhesive component that is dissolved in an organic solvent for coating. Rubber or acrylic based systems can be coated this way.
- SOLVENT RESISTANCE – The resistance of a PSA to the destructive action of specific organic liquids.
- SPECIFIC ADHESION – The relative tendency of an adhesive to form a bond on a specific surface.
- SPI RESIN CODES – A set of symbols ranging from 1 to 7, placed on plastics to identify the different polymer types and allow efficient separation for recycling.
- SPLICE – A point at which two separate lengths of tape are joined together.
- SPOOL WOUND ROLLS – One layer of tape starts on a side of the core. The next layer overlaps with the first one and then the tape is wound back and forth traversing from one side of the core to the other. This process allows for much longer rolls, thus reducing the downtime involved with constant roll changes.
- STABILISE – To increase the steadiness of a film and keep it from changing or fluctuating.
- SUBSTRATE – The surface that the adhesive tape is applied to.
- SUBSTRATE FAILURE – When an assembly fails and the weak link is the strength of the substrate.
- SUPPORT – A term used to describe the material used in the middle of a double-coated tape.
- SURFACE ENERGY – The measure of surface tension (in dynes). The lower the surface energy of a substrate, the more difficult it becomes for an adhesive or coating to wet out that surface. Low Surface Energy (LSE) materials resit adhesive spread over the substrate, while High Surface Energy (HSE) materials allow excellent spread and provide the best adhesion.
- SURFACE TREATING – Any method of treating a polyolefin so as to alter the surface and render it receptive to inks, paints, lacquers and adhesives such as chemical, flame and electronic oxidation.
- SYNTHETIC – Made by chemical synthesis, especially to imitate a natural product.

- TACK – The condition of the adhesive when it feels sticky and offers an initial ‘grab’ immediately upon contact with little pressure.
- 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 – The force required to break a piece of tape by pulling on opposite ends of the piece.
- THICKNESS – The distance from one surface of a tape, backing or adhesive to the other, usually expressed in millimetres.

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of adhesive tape

- TIGHT RELEASE – The adhesive does not release from the liner freely.
- TOLERANCE – Maximum allowable variation from agreed-upon or specified dimensions throughout the manufacturing or converting process.
- TRANSFER ADHESIVE – This adhesive tape is solely adhesive and has no carrier, only a release liner.
- TRANSPARENCY – The ability of a tape to allow transmission of light.
- TRANSVERSE DIRECTION – The direction of a substrate from left to right and from side to side as opposed to the web direction.
- TWISTING – Twisting is the tendency of the tape to curl around lengthwise, when a tape has been unwound from the roll and allowed to hang freely.

U

- ULTIMATE ADHESION – The maximum adhesion available determined by the force required to remove a length of tape from a surface after an extended period of time.
- UNIFORMITY – The consistency of a single type of tape either within a single roll, from roll to roll or from lot to lot.
- UNPLASTICIZED VINYL (UPVC) – A tough durable plastic film which is similar to plasticized PVC, but lacking the elongation numbers found in PVC due to the lack of plasticizers.
- UNWIND ADHESION – The force required to remove the tape from the roll.
- UNWINDING FORCE – The unwinding force is a results of the interaction between adhesive and release liner. A low and constant unwinding force is an important property for the processing of an adhesive tape.
- ULTRAVIOLET LIGHT (U.V.) – That part of the spectrum wherein the wavelength of light is shorter than that of visible light.
- U.V. CURING – A system that uses ultraviolet rays to facilitate the curing process.
- U.V. RESISTANCE – The ability of any material to withstand extended exposure to U.V. light without degradation, hardening or excessive discoloration.

V

- VINYL (PVC) – A tough, durable plastic film having excellent resistance to oil, chemicals and many solvents. It has excellent abrasion resistance and its high elongation is due to the addition of plasticizers.
- VINYL NITRILE SPONGE RUBBER – Closed cell, single coated adhesive foam that offers good oil resistance and shock absorbency.
- VISCOSITY – The flow rate of an adhesive.
- VOID – An area of an adhesive-coated substrate that does not have the coating.
- VULCANISATION – The treatment of rubbers with sulphur at a high temperature to increase its strength by promoting crosslinking.

GLOSSARY

of adhesive tape

W

- WATER ABSORPTION – The measure of the amount of water which will be soaked up and retained by the tape.
- WATER PENETRATION RATE – The rate of water transmitted through a controlled area of tape under a specified time and condition.
- WATER VAPOUR TRANSMISSION – The amount of water vapour measured passing through a tape within a specified time.
- WEATHER RESISTANCE – The ability of a tape/adhesive after application to resist exposure to such conditions as light and humidity. Generally, acrylic adhesive tapes display good weathering resistance.
- WEAVING – A poorly wound roll of tape in which the individual layers of the tape are not in alignment with the other layers.
- WEB – A large wide and long roll of material, used in a continuous process.
- WET TENSILE – Tensile strength of the tape that has been kept wet for a specified period of time. It measures the ability of a tape to function satisfactory when exposed to moisture.
- WETTING – The ability of an adhesive to flow uniformly over the laminated surface to which it is bonded.
- WET OUT – The ability of an adhesive to spread, thereby filling in the hills and valleys of the substrate.

Y

- YELLOWING – A gradual change in the original appearance of a material characterized by the development of yellow and brown hues.

WHAT WE

Can do for you?

We are seasoned at selecting adhesives, tapes, technical foils globally and integrating these materials that fit the application requirements and needs of the customer.

We can support from the design to the integration to a prototype, MVP, semi manufactured product and full integrated packaged product.

Tacon started as a converter of raw adhesive materials to smaller and handheld rolls of tape. These were sold directly to end users or wholesalers. As our experience, knowledge and machinery expanded, we were able to advise larger companies and integrate different materials. Today, next to contract manufacturing for partners we design, select materials, build prototypes including printing electronics and pack them according the customer demand in a clean room.

Tacon
Tape Converters Holland BV
More than Tape...

Tape is too often a last-minute rush decision, resulting in bad connections.

AartJan van Zadelhoff

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More than Tape...

WANT TO LEAN MORE?

We inspire innovation for manufacturing partners by co-creating custom tape products because we believe that sharing knowledge creates the best connections.

Contact us

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