

Electrical Applications

3M™ is one of the largest producers of adhesive tapes in the world with a long tradition and experience. The company produces tapes not only for electrical and electronics applications but also for packaging, masking, marking, decorative use, sealing, office use, etc. For some types, Scotch® is used. Scotch® is not a company, but a trademark of 3M™ registered in 1925 and used for tapes. The first PVC based tape for electrical applications in the world was developed in the 3M™ laboratories and was launched on the market in 1945.



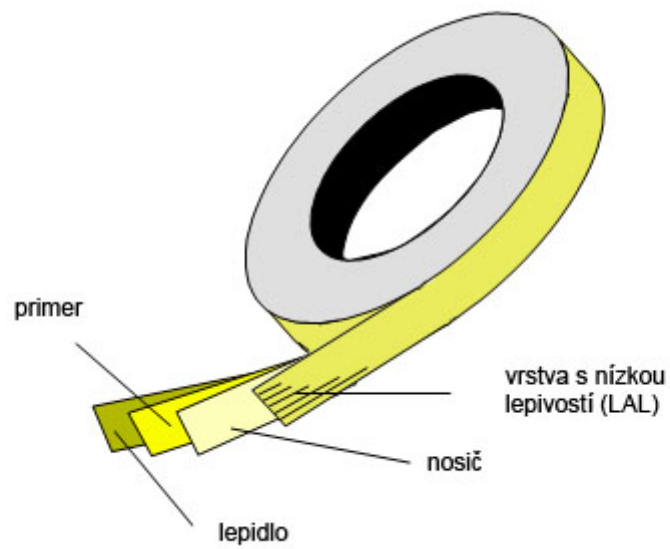
Tapes for Electrical Applications

3M™ tapes for electrical applications are widely used in production and installation.

- insulation
- binding, fixing
- cable sheathing repairs
- sealing against dampness
- sealing cable ends
- filling damaged spots of cables
- insulation and mechanical protection of coils
- self-extinguishing materials
- screening of cables and wires
- anti-corrosion protection
- bundling cables and optical fiber distribution wiring

Construction of Tapes

Core	Spool in the center.
Base material (carrier)	Tape material providing insulation, mechanical strength, environment and temperature resistance and identification.
Primer	A thin layer between the adhesive and the carrier enabling a good hold by the adhesive to the carrier.
LAL (Low Adhesion Layer) or RC (Release Coating)	A very thin layer of material with low adhesion, where the adhesive holds less, applied on the glossy (upper) side of the tape without adhesive. Provides easier unwinding.
Liner	Glossy paper (silicone) or a film used for tapes which have adhesive from one or both sides to substitute the function of LAL and for adhesive-free tapes, e.g., for rubber self-fusing tapes.
PSA (Pressure Sensitive Adhesive)	Tapes with adhesive, where the degree of bond is a function of the pressure with which it is applied.
Adhesion	Well measurable power with which the tape bonds to a surface. Usually measured on a polished steel board.



Features of Tapes

Dielectric Strength

The tape's ability to insulate to prevent electric breakdown. As the tape thickness changes when stretched, it is stated how many kV a millimeter can withstand. One layer of a common PVC tape features a dielectric strength of 5 - 10 kV. However, PVC tapes are usually designed for insulation up to 1 kV only. It is necessary to use self-fusing rubber tapes for higher voltage.