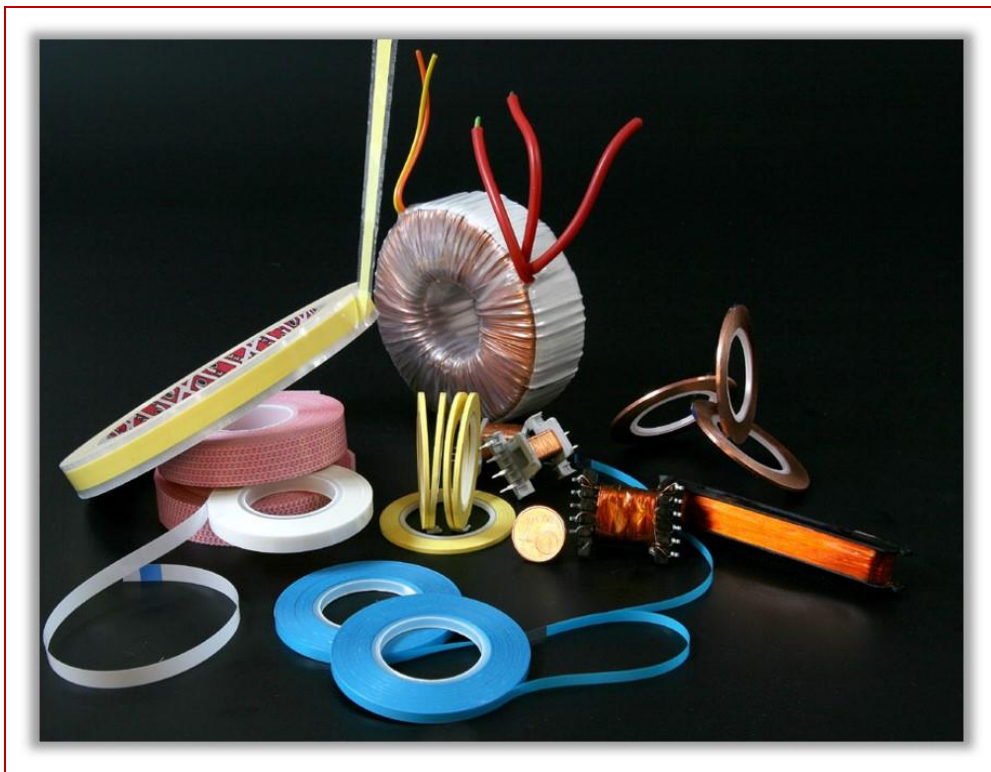




PRESSURE SENSITIVE TAPES
FOR
ELECTRICAL & ELECTRONIC
INDUSTRY



PPI ADHESIVE PRODUCTS LIMITED

A Brand Of Quality To Rely On...

Introduction

PPI ADHESIVE PRODUCTS LTD was originally established in 1970 and commenced **production at Waterford Industrial Estate in 1971.**

The company, which is owned and managed by its Irish board of directors, produces a very extensive and sophisticated range of **Technical Adhesive Tapes, Laminates and Die-Cuts** for a wide range of applications, most notably in the Electrical, Electronic, Aerospace, Automotive and Medical sectors, as well as a wide range of tapes for specialized industrial and high-tech applications.

PPI products are **exported to more than 60 countries worldwide** and are approved by many of the leading multinational companies in the above-mentioned industries. The products meet most of the major **international standards** e.g. **EN, VDE, DIN, BSS, IEC, ASTM, UL, MIL, AFERA and CEN** and the company is registered under the **I.S. EN ISO 9001:2015** quality system.

PPI Adhesive Products Limited has two production facilities in Ireland and maintains its own **PPI sales companies** and sales representatives in Europe (UK, Germany, France, Belgium, Slovakia), Asia (China, Singapore, India) and USA. The company is also represented worldwide by PPI authorized distributors.

“PPI - We don't just sell tape ... we sell quality solutions...”

The company, through its own independent **Research & Development Center** also based in Waterford, has excelled in developing **custom made products** tailored to meet specific and special requirements from customers apart from providing quality solutions to engineering and technical problems.

We in the PPI group of companies have the experience and the capability to offer products and services to all of our customers, which can fulfill applications ranging from small developing niche areas to highly demanding technical challenges.



**OVER 50 YEARS OF COMMITMENT
TO QUALITY AND INNOVATION**



INSULATING TAPES FOR THE ELECTRICAL INDUSTRY

PPI self-adhesive tapes for electrical insulation encompass all insulation classes from Y to H in the working temperature range from -200°C to $+400^{\circ}\text{C}$.

When selecting a self-adhesive tape for electrical insulation the following points are important:

- nature of the object requiring insulation
- insulation requirement
- resistance against heat and cold
- resistance against impregnating resins, cast resins, transformer oils, solvents, chemicals...
- mechanical strength

When selecting a self-adhesive tape for use during a manufacturing process the following points are important:

- nature of the object being processed
- type of surface e.g. plastic, metal, glass
- whether tape will remain permanently in place or be removed after processing
- resistance against solvents and moisture

As well as the different supporting base materials we offer a range of different corrosion-proof **adhesive coatings:**

synthetic rubber	thermosettings (ts)/ pre-cured thermosetting (pts)
synthetic resin	heat-resistant (hr)/ thermosetting (ts)/ pre-cured thermosetting (pts)
silicone	heat-resistant (hr)/ thermosetting (ts)
heat-sealing	thermoplastic/ duroplastic

Heat-resistant adhesives are thermoplastic with good tack and limited resistance to heat and solvents. Thermosetting adhesives cure when subjected to heat and provide excellent resistance to solvents, impregnating resins and cast resins.

Pre-cured thermosetting adhesives already have good resistance to solvents, impregnating resins and cast resins and after full curing this resistance is greatly increased.



Thermosetting - Recommended curing cycle:

Thermosetting adhesives	
1 hour	- 150°C (302°F)
2 hours	- 130°C (266°F)

Pre-cured thermosetting adhesives	
4 hours	- 100°C (212°F)
2 hours	- 130°C (266°F)
1 hour	- 150°C (302°F)

Heat-sealing adhesives, thermoplastic as well as duroplastic, can be activated by solvents or by heat. They produce particularly strong adhesive bonds when sealed with a combination of pressure and heat.

ELECTRICAL TAPES BACKING MATERIALS

Electrical insulation requirements in demanding environments are achieved using a unique combination of backings and adhesives. PPI Electrical Tapes are constructed from a complete range of backing materials.

POLYESTER Electrical Tapes

Electrical tapes based on polyester film exhibit very good dielectric strength combined with excellent mechanical strength. PET film can be used continuously at a temperature of **130°C** (266°F). The film possesses good tensile strength, flexibility and chemical inertness to most solvents. PET film is rated as flame retardancy class UL 94 VTM-2.

Applications:

PET based tapes serve as general purpose film for electrical applications, such as phase separation of motors and core and inter-layer insulation of coils and transformers and slot insulation in general.

PPI standard tapes:

PPI 1010, 1013, 1016, 1017, 1022, 1026, 1027, 1040, 1042, 0102

PET/Glasscloth
PPI 1710, 1711A



NOMEX™ POLYAMIDE PAPER Tapes

Insulation tapes based on Nomex polyamide paper offer good temperature resistance, dielectric strength, mechanical toughness, flexibility, and flame retardancy. Polyamide paper is an excellent insulator designed to operate in the temperature range of **150°C to 220°C** (302°F to 428°F). Nomex Mica Paper is used with high voltage equipment where corona is an issue. The flame retardancy is improved due to the mica content.

Applications:

Insulation for bar wound armature, phase and layer insulation, coil banding and wrapping

PPI standard tapes:

PPI 6510, 6511, 6512, 6610, 6612



GLASS CLOTH Electrical Tapes

Glass cloths are the most flexible and conformable backings used for adhesive tapes. Due to the glass fibers in the cloth (an inorganic material), it is non-flammable and high temperature resistant. Glass cloths can be used at a constant temperature of **180°C** (356°F), and offers good solvent and chemical resistance.

Applications:

Having excellent tensile strength, glass cloth tapes are widely used in applications such as insulation, inner and outer layer wrapping of electrical coils, and bobbins.

PPI standard tapes:

PPI 8410, 8411, 8415, 8416



POLYIMIDE Electrical Tapes

Polyimide tape is mainly preferred in applications where a durable tape with high-temperature stability is required.

Polyimide film has the best thermal properties of films available. It has no melting point and can be used over a temperature range of **-269°C to 350°C** (-450°F to 660°F) and constantly at a temperature of **240°C** (465°F). Its physical properties are excellent and include high tensile strength, high resistance to creep, cut-through, abrasion, solvents and chemicals. It has high dielectric strength which makes it an ideal insulating material for use with high voltage. Polyimide film will resist radiation and ultraviolet light. Polyimide tape is generally flame-resistant and can withstand much higher short-term temperature than other electrical tapes.

Applications: Insulation for high-stress conditions in traction machine manufacturing, generator production; Outer wrap for transformers, toroidal coils, motor coils; Bundling of armature coils

PPI standard tapes:

PPI 7010, PPI 7011



TEFLON™ PTFE Electrical Tapes

PTFE has a wide range of temperature use from **-265°C to 260°C** (-509°F to 500°F). It has superior resistance against all types of solvents, chemicals and stresses. Teflon displays high dielectric strength and is flame retardant, rated at 94 VTM-O. It's flexible and conformable properties make it ideal for wrapping irregular shapes.

Applications:

Tear resistant Teflon® (PTFE) film based electrical tapes are suitable for high temperature insulation for coils, transformers and motors. Laminated with glass cloth are suitable for cable harnessing at high temperatures, interphase insulation, core and coil lead anchoring and high temperature ground insulation. High quality glass cloth reinforced substrate combines excellent mechanical properties — tensile strength, puncture and tear resistance —

plus non-stick / low friction characteristics of PTFE backed materials. The silicone adhesive also gives this product ideal high temperature performance and ideal long-term age resistance.

PPI standard tapes:

PPI 7510,

Teflon/Glass cloth:
PPI 7610



ACETATE SILK CLOTH Electrical Tapes

Acetate cloth tapes are used only for moderate applications, due to the fact that they cannot exceed **120°C** (248°F). Among the main types of electrical tapes, cloth tape is generally less associated with strong dielectric properties, meaning it's not the best choice for applications where insulation is the key factor. However it is prized for its mechanical properties. Acetate silk cloth electrical tapes are very conformable, flexible, hand tearable, printable and suited for varnish impregnation.

Applications:

The main application for these tapes is the outer wrap and identification of coils and relays. They are used for cable harnessing, lead holding and interwinding insulation where high mechanical strength is required.

PPI standard tapes:

PPI 3510

STATIC SHIELDING IN TRANSFORMERS

PPI 1091 / PPI 10912 Single sided Copper – Polyester Laminate Tapes

PPI 1091 and PPI 10912 are specially formulated shielding tapes comprising a **LAMINATE of polyester - copper - polyester**.

The POLYESTER is available in thicknesses of both **0.025 mm (1 Mil)** and **0.050 mm (2 Mil)** so that the dielectric strength required can be achieved.

Standard COPPER thickness is **0.035 mm, 0.050 mm, 0.100 mm up to 0.500 mm**. Other copper thicknesses may be supplied subject to availability and minimum order requirements.

PPI 1091 shields the entire inner width of the transformer spool whereas **PPI 10912** offers even greater security because of its fringing on both edges which ensures complete insulation of the spool ends. PPI 1091 and PPI 10912 are applied directly between the primary and secondary windings and the lead can be point soldered to the copper foil through the polyester film. The solder point should then be covered with a PPI self-adhesive insulating tape.

Delivery specification:

PPI – 1091	all widths from 6 mm (¼")
PPI – 10912	all widths from 12 mm (½")
Roll Length	up to 100 metres (110 yds)



PPI 1095 AND PPI 1096

PPI 1095 Copper – Polyester Laminate with Overlap

Copper thickness: 0.035mm (1.4 Mil) 0.050mm (2.0 Mil) 0.100mm (4.0 Mil) up to 0.0500mm (20.0 Mil)

Polyester thickness: 0.025mm (1.0 Mil) 0.050mm (2.0 Mil)

The copper is **COMPLETELY** wrapped with the polyester with an average overlap of 2 mm (0.08"). Where an earth contact is required, it is possible to solder through the polyester insulating layer.

Available widths: from 5 mm to 100 mm (from 0.2" to 4")

Roll length: up to 50 m (55 yds)

PPI 1096 Copper – Polyester Laminate with Solder gap

Copper thickness: 0.035mm (1.4 Mil) 0.050mm (2.0 Mil) 0.100mm (4.0 Mil) up to 0.0500mm (20.0 Mil)

Polyester thickness: 0.025mm (1.0 Mil) 0.050mm (2.0 Mil)

The copper is **PARTIALLY** wrapped with the polyester leaving a minimum 1 mm (0.04") wide strip of uncovered copper in the middle of one side. The minimum overlap of polyester required on each edge of the uncovered strip of the copper is as follows:

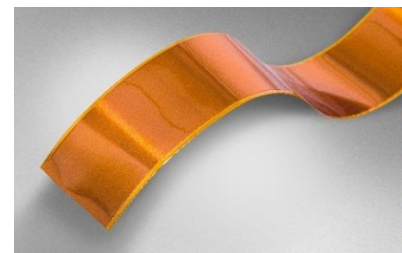
Polyester 0.025 mm (1.0 Mil)	3 mm (0.12")
Polyester 0.050 mm (2.0 Mil)	4 mm (0.16")

Available width:

Polyester 0.025 mm (1.0 Mil): from 7 mm to 100 mm (0.28" to 4")

Polyester 0.050 mm (2.0 Mil): from 9 mm to 100 mm (0.36" to 4")

Roll length: up to 100 m (110 yds.)

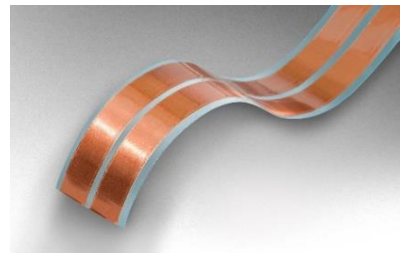


*Other copper thicknesses may be supplied subject to availability and minimum order requirements.

OTHER FORMS OF SHIELDS, FOILS & LAMINATES

- Similar to PPI 1091 and 10912 but with two or more parallel strips of copper.
- Similar to PPI 1091, 10912, 1095 and 1096 but with a wide range of film thicknesses and other insulating materials such as Polyimide film, PEN film and NOMEX®2.
- Special shapes and die-cut pieces of copper insulated in the same way as PPI 1091, 10912, 1095 and 1096 and available in a range of copper thicknesses up to 0.150 mm (6 Mils).
- Copper foils with insulation laminated on one side only for coil winding.

Insulation for classes B, F and H available as standard.



Static shielding in forms other than those described above can be produced subject to minimum order requirements.

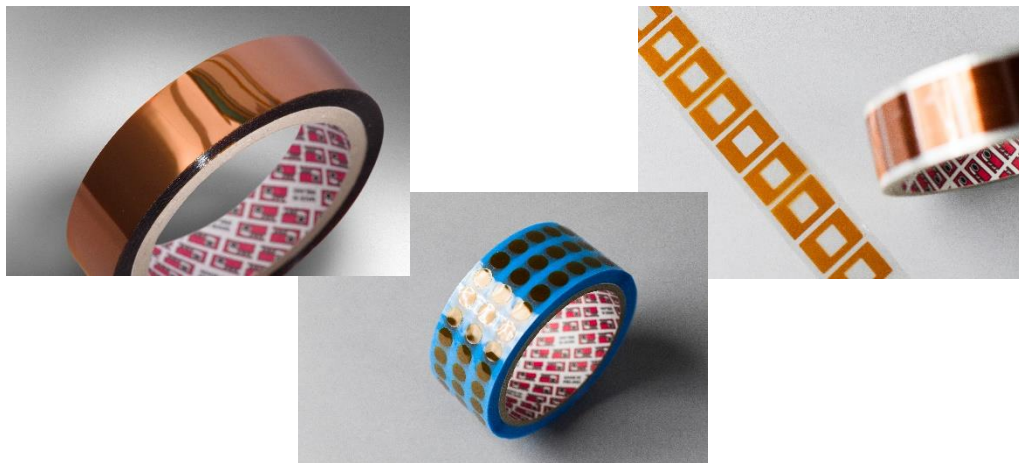


For further information please consult our "PPI Foils for Shielding & Winding" catalogue.

ADHESIVE TAPES FOR THE ELECTRONICS INDUSTRY

High Temperature PCB Processes Masking Tapes

- RD 487G** Masking tape for printed circuit boards during the hot air levelling process especially for masking of gold-plated fingers. Conformable and tear resistant, RD-487G will leave no adhesive residue when removed from the circuit board.
- PPI 701** High temperature resistant polyimide tape coated with a silicone adhesive layer that has an optimum balance of tack and adhesion. PPI 701 is readily removable from a PCB surface after the reflow process without causing any adhesive residue making it the ideal choice for gold finger masking applications.
- PPI 702** A thicker version of the PPI 701, due to a thicker adhesive layer. This product possesses increased tack and adhesion particularly onto uneven PCB surfaces.
- SP-255** A crepe paper based high temperature masking tape, which is flexible and hand tearable. Suitable for the protection of various areas of P. C. Boards. Also recommended for masking edge connectors or fingers during hot air levelling.
- SP-479** Version of SP-255 with thicker silicone adhesive layer and good adhesion to irregular board surfaces.
- RD-042D** Polyimide film based tape coated with a special surface conductive adhesive. Through its unique construction, RD-042D is the original anti-static PCB high temperature masking tape and is widely used in the production of premium quality PCB's where static reduction is critical.
- RD-624B** Version of RD-042D with high temperature resistant acrylic adhesive.
- SP-905** Removable masking tape for electroplating processes. The polyester/silicone combination is resistant to a wide variety of chemicals (e.g. etching, plating solutions) and is therefore ideally suited to masking applications.



For further information please consult our “PPI self-adhesive tapes for Printed Circuit Board assembly” catalogue.

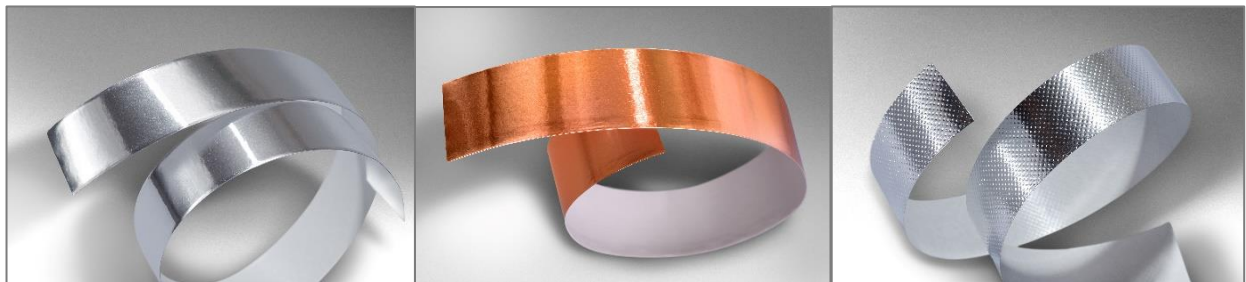
EMI/RFI SHIELDING FOR ELECTRONIC APPLICATIONS

ALUMINIUM SHIELDING TAPES

- PPI 9015** Aluminium tape with conductive adhesive for EMI/RFI shielding, static shielding.
- PPI 9020** Embossed aluminium tape, conductive through adhesive, lowest contact resistance, for EMI/RFI shielding, static shielding.

COPPER SHIELDING TAPES

- PPI 9110** Copper tape with non-conductive adhesive
- PPI 9115** Copper tape with conductive adhesive for EMI/RFI shielding, static shielding, solderable
- PPI 9116** Copper tape with conductive adhesive on both sides for EMI/RFI shielding, bonding of conductive surfaces, electrical grounding.
- PPI 9120** Embossed copper tape, conductive through adhesive, lowest contact-resistance, for EMI/RFI shielding, static shielding, solderable.



TIN-CLAD COPPER SHIELDING TAPES

Copper foil is tin-clad on both sides to ensure good solderability and corrosion resistance.

- PPI 9510** Tin-clad copper tape with non-conductive adhesive for EMI/RFI shielding, static shielding, solderable.
- PPI 9515** Tin-clad copper tape with conductive adhesive for EMI/RFI shielding, static shielding, solderable.
- PPI 9516** Tin-clad copper tape with conductive adhesive on both sides for EMI/RFI shielding, static shielding.
- PPI 9520** Embossed tin-clad copper tape, conductive through adhesive, lowest contact-resistance, for EMI/RFI shielding, static shielding, solderable.

All the above tapes are available with a removable interliner and also in DIE-CUT form.

For further information please consult our “PPI Foils for Shielding & Winding” catalogue.

Our group of companies

PPI ADHESIVE PRODUCTS LTD.

Manufacturer of self-adhesive tapes for the electrical and electronic industries, for use in printed circuit board assembly, for shielding and winding transformer applications, for a wide range of industrial and specialty applications.

TECHNICAL ADHESIVE PRODUCTS LTD.

Producer of precision die-cut adhesive components for electrical, electronic and general industrial applications. T.A.P. can offer experienced technical know-how on all aspects of product die-cutting and design.

WATERFORD RESEARCH & DEVELOPMENT LTD.

Continuously develops self-adhesive products for our own group and for our interested customers. R&D develops new production techniques and market know-how on all aspects of adhesive products.

VALENTIA INDUSTRIES LTD.

Producer of single and double-sided siliconised polyester films.

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