

Adhesive Tapes - A Basic Understanding



Adhesive tapes – a potted history

There are many ways that we can use to join and assemble things.

- **Sewing** - holding together with thread as we do in our clothes.
- **Friction** – through rubbing some metals together very hard they melt, and when they solidify they become fused.
- **Welding** - this is used to join not only metals but some plastics.
- **Mechanical Interlocking** - perhaps the best example of this is a paper clip or timber joint in furniture.

Adhesive tapes – a potted history

Early man found that certain naturally produced items were sticky and that this characteristic could be used to join things together. This discovery was well before mechanical fastening methods (for example nails) were discovered.

In the 1800s chemists began modifying natural substances such as vulcanising rubber and refining petroleum. Each of these processes enabled adhesives to be developed that were better, stronger, easier to use and could be developed for specific applications such as shoe making and book binding. The 20th century saw the beginning of polymer chemistry and the introduction of modern day adhesives, such as synthetic resins – the base of modern day adhesives.

the specialist in technical tapes.



Why use adhesive tapes?

There are many advantages to using adhesive tapes compared to other assembly methods such as glues, mechanical fixings etc. These include:

- Greater stress bearing area
- Easier methods of assembly
- Can bond dissimilar substrates
- Improved dimensional stability
- Will seal and isolate substrates
- Dampens vibration and shock
- Allows smooth surface assembly
- High strength to weight ratio
- Better stress distribution
- Speeds automated processes
- Clean Application
- Safer to use
- No mixing
- Minimal waste
- Easier job costing
- No long cure or drying times
- Uniform distribution of adhesive
- Easy to convert
- Can apply to one surface with liner intact

How is an adhesive put together?

The formulation of an adhesive tape is complex and can differ from manufacturer but the basic **five** component parts are as follows:

Carrier - To the “man in the street” the carrier would be regarded in a single sided product as the tape or the application it is used for. For example an electrical tape the carrier is PVC, and for a duct tape the carrier is cloth.

Liner - Used to separate the adhesive from the backing or another adhesive; allowing easy unwind; used to protect the adhesive before final assembly; used for identification; used for casting of films and foams.

How is an adhesive put together?

Primer/Key Coat - Provide an “active” surface for the adhesive to bond; helps prevent “leaching” from the carrier; helps prevent migration of the adhesive; cleaning.

Release Coat/Key Coat - To allow a controlled unwind; can be used in place of a liner in some cases; improves ageing characteristics.

Adhesive - Many different type of adhesives such as rubber resin, silicone or phenolic can be used within adhesive tapes; each adhesive type has its own different properties such as temperature or UV resistance and each manufacturer has their own distinct formulations.

Formats of adhesive tapes

There are a number of formats that can be manufactured at different stages in the production process and are often referred to by end users or tape distributors. Here is just a selection of the most commonly used terms:

- Jumbo
- Log
- Cut Coil / Rolls
- Gaskets / Die Cut Shapes
- Bobbins / Spools
- Pads

Summary

The manufacture of an adhesive tape is not a simple process, but is based on Scapa's significant technology and process expertise.

Adhesive tapes and films have been in existence for less than 100 years and are continuing to be developed for new applications, and with new materials.

Scapa's aim is to provide excellent products and service to our customers through our manufacturing and technical expertise.

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Summary

This allows us to produce a more extensive range of specialist adhesive tapes than many other global manufactures, including:

- Metal
- Fabric
- Coated Cloth
- Polyester
- Self Amalgamating
- Paper
- Cable Wrapping
- Polypropylene
- Double Sided
- Transfer
- Cellulose
- PVC
- Polyethylene
- Cable Components
- Foam
- Non woven

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