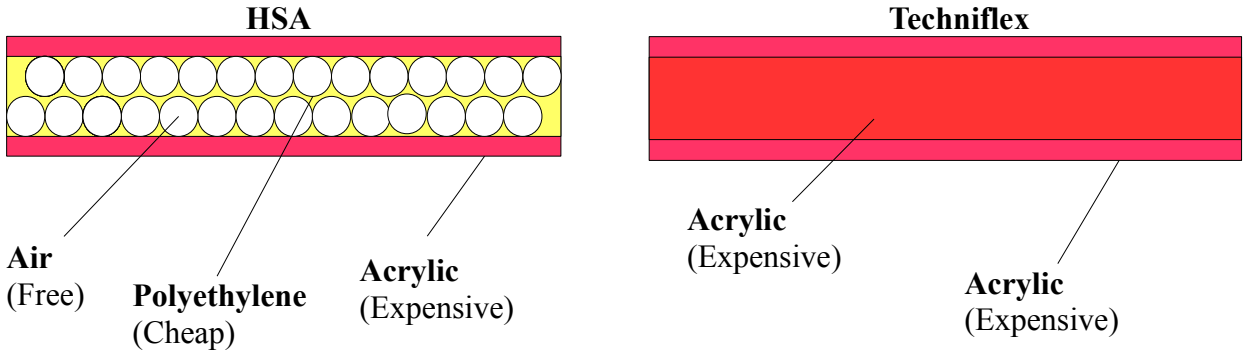
To Flex or not to Flex: Techniflex Explained

Techniflex: Twice as Good?

Techniflex is our most expensive double-sided tape, at over twice the price of our benchmark HSA product. Why is that? Is it twice as good? Is it competitive? Where should I consider using it? Read on....

Why does it cost so much?

Let's compare the structure of Techniflex with HSA, our very high performance P E Foam tape:



The major component in most PE foam tapes, by volume, is air. Compare the weight of a roll of Techniflex with a roll of foam tape! And that, in essence, is why Techniflex costs more.

And in reality you get a lot of expensive high quality acrylic polymer per pound with Techniflex, far more than with other tapes, which makes it a bit of a bargain. We keep the cost as low as possible by having it coated by a very good manufacturer in the Far East so while it's expensive, it is excellent value.

Phone us now for a quote on 01628 642800

Is it Twice as Good?

That depends, because it's different to a foam tape. Is it twice as strong? Yes, the internal strength is extremely high; there is no foam to rupture. Although Technibond foam tapes use stronger foams than our competitors, they can still rupture under extreme stress. Techniflex cannot be broken in this way; it is almost vandal-proof. Twice the adhesion? Not quite, but getting close. The peel strength is so high it is actually quite difficult to measure, and it bonds well even to rough materials. Twice the shear? No, the very high mass of this product restricts the shear strength. Nevertheless, the shear is impressive; better than many tapes and quite close to HSA - and Techniflex is probably twice as tacky as HSA! And with better temperature performance.

But the real advantage of Techniflex is its **visco-elastic** nature. That means it combines **viscous** behaviour (it will flow) with **elastic** behavious (it deforms and springs back). It is solid and liquid at the same time, something you only get with high molecular weight polymers.

All pressure-sensitive adhesives are visco-elastic, or they wouldn't work. They are both solid and liquid. The liquid, viscous behaviour allows the adhesive to flow so it can wet out the substrate (see our article on surface energy for more information on wetting). Wetting is essential to form a bond. And the solid or elastic behaviour gives the adhesive its cohesive strength, otherwise it would soon fail by liquid flow. There may well be a wetting time, but there is no cure time, and the adhesive remains permanently flexible, permanently visco-elastic. A wet glue by contrast is applied as a liquid and it then sets or cures and becomes a solid.

Shear strength, incidentally, measures the resistance to viscous flow which is why it is so important. High shear adhesives are more elastic and less viscous (or less "wet") so they tend to be less tacky.

But back to Techniflex.....

While the **adhesive** layer of both Techniflex and foam tapes are visco-elastic, only Techniflex has a visco-elastic acrylic core. Foam cores are elastic but not viscous. **This means that Techniflex will stretch, deform, almost mould itself to the surfaces** so in many cases it will provide a much stronger more resistant bond than is possible with a foam tape, particularly where the substrates are likely to move. In these cases it is by far the best option

Phone us for advice on your application 01628 642800

Techniflex v The Competition

Acrylic tapes were invented by 3M over 30 years ago and marketed under the trade name "VHB" for Very High Bond. The products were highly priced but marketed very well and gradually gained a large market share. As the patents on this technology started to expire, other manufacturers started to copy the 3M products. There are now many companies making some basic cheap acrylic tapes to try to gain a share of this market. And there are a few quality companies making genuinely good acrylic tapes and developing new products of their own. Such as our supplier.

We have been supplying Techniflex for over 10 years. Our laboratory application testing had shown that while foam tapes were suitable for most applications and better than acrylic tapes for many, there were applications where acrylic tapes easily outperformed foam tapes. We set about finding a partner to develop and supply a range for us.

During this testing we found many products of poor or inconsistent performance. Many suppliers do not properly control the chemistry or coating, so the products vary in thickness or performance. Many vary batch to batch. Some even have poor UV stability. Our take on this is simple; if you don't need that level of performance, use a good quality foam tape but if you do, use a good reliable acrylic tape. Ours is very good, and it is continually tested. So use 3M or us! And yes, we are very competitive.

Where should Techniflex be used?

Use Techniflex where you really need to. In other cases a high performance foam tape will be cheaper and may even be better.

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The main areas where Techniflex comes into its own are:

1) Where you need a thick clear bond (Techniflex Clear)

Examples:
Glass to glass bonding - manufacture of safety glass and bullet-proof glass
Acrylic to Acrylic bonding - signs and displays

2) For the highest strength - non-mechanical structural bonding

Examples:
Metal to metal bonding of stiffeners without welding
Road signs, to resist wind and vandalism without puncturing the surface
Bonding commercial vehicle panels

3) To resist movement

Examples:
Glazing woodgrain effect doors that are exposed to direct sunlight
Bonding large outdoor signs where diurnal cycles cause differential movement

4) Other areas

For a more rigid bond than a foam tape
Where compression of the bond needs to be resisted
For higher temperatures than a foam tape
For cosmetic reasons

Phone us and talk to an expert! 01628 642800