

# **Our Guide to Technibond Double Sided Foam Tapes**

**How to find the very best foam tape  
for your particular application**

**Clear and unambiguous advice**

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August 2014**

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# The Guide To Double Sided Foam Tapes

## Introduction

**Technibond** are the experts on double sided tapes, particularly foam tapes. Most of the products in our range are specially made for us, based on over 30 years experience. They are not available elsewhere. Counting all the variants, we now offer a hundred or more double sided foam tapes. Why so many? How do we find the best one for a particular application?

**In fact**, finding the best tape is not as difficult as it might seem, partly because our tape range is designed with a clear structure. So this publication is intended to guide you logically through that structure, to arrive at the best solution. Then to confirm your choice, to arrange samples or get prices, call us on **01628 642800**. Please tell us you have read this guide – it cheers us up and provides useful feedback.

## First Things First

**Firstly**, a quick check to make sure that a foam tape is the best choice for you, rather than a cheaper thin tape - or a more expensive acrylic tape!

**Foam tapes** (rather than thin tapes) should be used when **both** materials being bonded together are fairly rigid. If one or both of your materials are very flexible, a thin tape is the usual choice, unless you need the tape to act as a spacer.

**Acrylic tapes** (**Techniflex™**) are only used for rigid materials and should be considered in one of the following two situations:

1. A very high bond is required, to withstand short term large forces such as vandalism. In these situations a foam could possibly split.
2. Where large areas or long lengths of two different classes of material are involved, particularly outside. The two different materials will expand and contract differently with temperature or humidity, putting repeated strain on the tape. The acrylic is more flexible than a foam. Contact us if you are in doubt.

Okay, you need a foam tape. Let's set about getting the best one by following this scheme.

## Select The Adhesive

**Not surprisingly**, we will start with the adhesive, as this is the most important part (and normally the most expensive part) of the tape. Our product range clearly recognizes this, by grouping most of our tapes according to the adhesive. We offer five tapes in three adhesive classes, with four adhesives.

Here is a summary:

Tape Group	Adhesive	Properties
<b>HBA</b> High Bond Acrylic	Solvent coated, pure acrylic, cross-linked	Very high performance on "easy" surfaces
<b>HSA</b> High Shear Acrylic	Solvent coated, pure acrylic, cross-linked	Very high performance on "easy" surfaces
<b>HPA</b> High Peel Acrylic	Solvent coated, modified acrylic, cross-linked	Well balanced, medium performance
<b>HTA</b> High Tack Acrylic	Solvent coated, modified acrylic, cross-linked	The tape for difficult surfaces and difficult conditions
<b>HSHT</b> High Shear High Tack	Solvent rubber	Good performance in indoor applications

Now we'll look in detail at which of these you need for your application. Firstly, use this chart below to select the best one or two tapes according to your criteria:

Criterion	HSA	HPA	HTA	HSHT
Indoor Application	✓	✓	✓	✓
Outdoor application	✓	✓	✓	✗
Applied in cool conditions (below 10°C)	✗	✓	✓	✗
Withstands cold conditions (below 0°)	✓	✓	✓	✗
Withstands warm conditions (above 40°C)	✓	✓	✓	✗
Withstands hot conditions (above 70°C)	✓	✓	✗	✗
Withstands high loads	✓	✗	✗	✓
Bonds to low surface energy surfaces*	✗	✗	✓	✓
Bonds to rough materials	✗	✗	✓	✓
Resistant to plasticizers	✓	✓	✓	✗
Resistance to solvents	✓	✓	✓	✗
Resistant to water	✓	✓	✓	✓
Resistant to UV light	✓	✓	✓	✗
Best economy	✗	✓	✗	✓
Available 3mm thick	✗	✗	✓	✓
Available 0.5mm thick	✗	✗	✓	✗

\*See appendix 1

Now check your choice or choices against these fuller descriptions:

### HBA

You will have noticed that I haven't included HBA in this chart. That is because you almost certainly don't need HBA! Yes, it's a fantastic product, it's our highest performance foam tape and it meets the most stringent automotive specifications. But nowadays, we hardly ever recommend it ourselves. We recommend HSA, or Techniflex acrylic tape. Maybe we shouldn't say, but that's the truth. Compared to HSA, HBA has a stronger foam and a higher adhesive coat weight. It will stick to slightly rougher surfaces and will withstand higher temperatures. But so will Techniflex.

If you do think you need HBA, please give us a ring on 01628 642800 and we will talk it through with you. Otherwise, move on.

### HSA

This is the high specification foam tape and it's the best of its type on the market. Yes, we can prove it. HSA is also the tape that established Technibond's reputation, so we are very proud of it. It withstands extremely high shear forces, temperatures up to 100°C and down to -40°C; water, solvents, UV light...pretty much everything. But it needs clean and smooth, medium to high surface energy surfaces and it should be applied with good pressure at 15°C or more. Factory applied in good conditions, it will perform longer and better than almost any other tape.

Although many of our tapes offer plasticizer and solvent resistance, there are degrees of resistance. Resistance does not mean immunity, but HSA offers the very best resistance. The same goes for temperature resistance. Its ageing is superb; we have had samples of HSA in our laboratory for over 20 years with no appreciable loss of performance, and in a weathering machine HSA has outlived any of the materials it was bonded to.

The nature of HSA means that it feels quite dry to the touch and indeed, it takes time to form a full bond. Don't be deceived. Once fully formed, the bond is extremely secure.

Naturally, HSA is not our cheapest tape, but for the outstanding performance it gives, it is great value.

### HPA

HPA, by contrast, was designed for economy; but it was designed for some of our high volume applications with blue chip companies, who require great performance as well. In terms of performance, it fits between HSA and HTA. Compared to most other "economy" tapes it has quite high shear, which makes it a great general purpose tape.

Because of this, it is the tape that our distributors love.

HPA is tackier than HSA, so it sticks better to medium energy surfaces and to slightly rough surfaces. It will also bond more quickly in cool conditions. HPA does not have the ultimate resistance of HSA, but for many practical purposes it is nearly as good. Its high temperature performance is limited to 80°C, and for high loading, particularly at elevated temperatures, we still recommend HSA.

## HTA

HTA is another Technibond original, though it has substantially changed from the first version we introduced 30 years ago. HTA, as the name suggests, is our tackiest foam tape due to the nature of the adhesive and the high adhesive coat weight. It is the best product for more difficult surfaces and more difficult application conditions. It is the best product if you have to stick to a wide range of materials or cannot control the application conditions. If we had to pick a “universal” foam tape, it would be HTA. If you are still confused at the end of this guide, start with HTA.

HTA will bond well at lower temperatures than any of our other tapes, down to about 5°C. (Please don't believe any claims that a tape will stick below 0°C). Once bonded, it will withstand temperatures from -40°C to +80°C. It will also bond to rather rough materials and, while we hesitate to say it, to materials that have not been cleaned properly. And HTA is the best acrylic adhesive for sticking to low surface energy materials, only surpassed by our rubber adhesive tape HSHT. It is the obvious choice for application outdoors or in unheated conditions, and in any situation where the application cannot be well controlled.

We always advise people that HTA is not suitable for high loading. This is true. But please do not think that it is a low performance product. It is a medium shear adhesive not a low shear adhesive, and it is a very high quality product. It is available in a wider range of thickness options than our other tapes, and HTA is now our biggest selling foam tape.

## HSHT

Unlike the tapes above, HSHT uses a rubber based adhesive.

When Technibond started 30 years ago, most foam tapes used rubber based adhesives. By contrast, we promoted acrylic adhesives. The decline of rubber based adhesives is at least in part due to our success, and those adhesives are now rather unfashionable. Nevertheless, we have always sold them alongside our acrylic tapes, and rubber based adhesives certainly have their place.

The disadvantages of rubber are well known; poor temperature resistance, poor weathering and UV resistance, poor solvent and plasticizer resistance. Add to that, they

are also poor at low temperatures. But they have some real advantages; good tack combined with outstanding shear resistance at room temperature – hence our name HSHT. And they are better on low surface energy materials than even the best acrylics, and lower cost than most. It gives exceptional performance on most materials in undemanding conditions. For indoor applications, do consider HSHT.

**Hopefully you have now identified your best tape choice**, but that is not yet the end of the process. You have identified the best tape group, but you now need to identify the best exact tape. So we will now look at the tape options.

## Select the Thickness

**Firstly, a word** about foam tape thickness in general. We tend to follow the general (but not universal) convention of describing our tapes according to the foam thickness rather than the tape thickness. The adhesive typically adds 0.1mm to this, and we state the actual thickness on our data sheets. So Technibond HSA 1mm is actually 1.1mm thick. Most foams are produced in metric sizes, so our usual thickness range is 0.5, 1.0, 1.5, 2.0, 3.0mm. But some foams are produced at 0.8mm, 1.6mm, 3.2mm representing the Imperial sizes 1/32<sup>nd</sup> inch, 1/16<sup>th</sup> inch, 1/8<sup>th</sup> inch.

**Please don't get hung** up on the difference between 0.8mm and 1mm. They are interchangeable. In actual fact, these foams are produced by quite a complex process and the thickness cannot be precisely controlled. A “thin” batch of 1mm foam could actually be thinner than a “thick” batch of 0.8mm foam. The only reason the two different products exist is historical, from metric or Imperial roots.

### 0.5mm Foam

Use a 0.5mm tape where both materials are very flat, and where appearance is overriding. The thinner the foam, the less visible it is but the less gap-filling it provides. This thin foam is also more expensive. We are not trying to rob you, 0.5mm foam is genuinely more expensive than 1mm foam as it is made to a higher density and at lower volumes.

Please note that the only 0.5mm tape we currently offer, is HTA. Or look at Techniflex.

### 0.8 and 1mm Foam

These foams are the standard, providing a good balance between cost and gap-filling. About 65% of our foam tape sales are at this thickness. That is about all that needs to be said. But please read the notes on 2mm foam.

## 1.5 and 1.6mm Foam

We are not great fans of these intermediate thickness foams, we offer them because some customers specifically request them, and in a few cases design considerations make them essential. If that is the case you will know it. Otherwise, if you need greater gap-filling than 1mm, we believe you should use a 2mm tape.

## 2mm Foams

We sell very large quantities of 1mm and 2mm foam tapes, despite 2mm being more expensive. So please take this option seriously. The benefit is far better gap-filling, though this term is misunderstood. More correctly, it will compensate for more unevenness between the two materials, and compensate for more movement between them. This is extremely important in the following situations:

- Whenever two materials are being bonded together in lengths over a metre or so. Unless both materials are extremely flat, there is likely to be too much variation between them for a 1mm tape to make a full bond.
- When one of the materials may warp or twist. Wood is the obvious example. A thinner tape may resist movement lengthwise, but it will not resist twisting.

If you are using a good quality 1mm tape and having problems, try a 2mm tape. It may well be the solution.

## 3mm and 3.2mm Foams

The comments on gap-filling apply even more to 3mm foams, but these foams tend to be very visible, and of course are more expensive still.

3mm foams are also used as a spacer, where a larger gap is required. Note that we only supply two tapes in these thicknesses; HTA and HSHT.

The difference between 3mm and 3.2mm is not significant; it simply depends on whether the foam has been made to a metric or imperial size.

## Select Black or White

Finally, the part of the tape that is about visual appearance, not performance. So this is a matter of preference. Black is sometimes slightly more expensive than white, but in many cases the prices are identical.

Generally, where there is a choice, we recommend black. It is less visible and looks cleaner, even on a white extrusion. Most people still go for white, but our persuasion has had quite an effect; 40% of our sales are black, 60% white. It's down to you.

## Now check the availability

In a few cases your tape may not be available in all options, so check against this complete list:

Product	Foam colour	Thickness (mm)
HSA	White	1
		1.6
		2
	Black	1
		2
HPA	White	1
		1.6
		2
	Black	2
HTA	White	0.5
		1
		2
		3
	Black	0.5
		1
		2
		3
	White	0.8
		1.6
		3
	Black	1

## That's it – nearly!

That's it for the actual tape, just one more consideration – the throw-away bit, the release liner. We offer a choice of paper or film (and several colours of film). The film is more expensive, but it will never tear and can speed up application considerably to save you money. Technibond pioneered the use of film liners and now, overall, about 70% of our tapes are made on film, which shows how popular they are.

**HSA and HBA** automatically come with a film liner unless you specify paper.

**ALL other foam tapes** come on paper or film. We run three films regularly; clear blue and yellow. For larger quantities, any combinations are possible. But if you have a colour preference, please speak to our sales department. Some tapes are regularly produced on one particular colour and are more easily available than others. Phone **01628 642800**.

If you have any queries at all please phone **01628 642800** for friendly advice

## Appendix 1 – Surface Energy Chart

Substrates	Surface Energy (Dynes/cm)	Approximate bonding capability of adhesive
Copper	1103	Pure acrylic
Aluminum	840	Modified acrylic
Zinc	753	Rubber
Tin	526	
Lead	458	
Stainless Steel	700-1100	
Glass	250-500	
Kapton® (Polyimide)	50	
Phenolic	47	
Nylon	46	
Alkyd Enamel	45	
Polyester	43	
Epoxy Paint	43	
Polyurethane Paint	43	
ABS	42	
Polycarbonate	42	
PVC (Polyvinyl Chloride)	39	
Noryl®	38	
Acrylic	38	
Polane® Paint	38	
PVA	37	
Polystyrene	36	
Acetal	36	
EVA	33	
Polyethylene	31	
Polypropylene	29	
Tedlar®	28	
Silicones	22-24	
Teflon®	18	

HIGH SURFACE ENERGY

LOW SURFACE ENERGY

Pure acrylic

Modified acrylic

Rubber