

PRESSURE-SENSITIVE ADHESIVE (PSA) TAPES

This Installation Guide provides recommendations to ease installation and maximize the service life of adhesive backed materials.

CHOOSING AN ADHESIVE

Pressure-sensitive adhesives are designed to work in specific temperature ranges depending on the end use of the component and the application environment. As with all pressure-sensitive applications, the following factors, as well as testing, are crucial in determining the correct adhesive selection and suitability. Adhesion tests are recommended for powder-coated surfaces. Aging trials should be performed on plasticized PVC and some rubbers.

Surface contour

The contour of the object to which the product is applied should be primary consideration. In general, PSAs are most suited to flat surfaces. Where irregular angles are involved, stiffness of the material being installed should be considered. While flexible materials such as foams can potentially be used on the surface that is not perfectly flat, rigid and semi-rigid materials will tend to want to return to their original shape leading to adhesive failure over time. This is regardless of the adhesive strength. Rigid and semi rigid materials should only be installed on flat surfaces. Incisions and joins can be made to assist in materials conformity to uneven surface.

Surface Energy

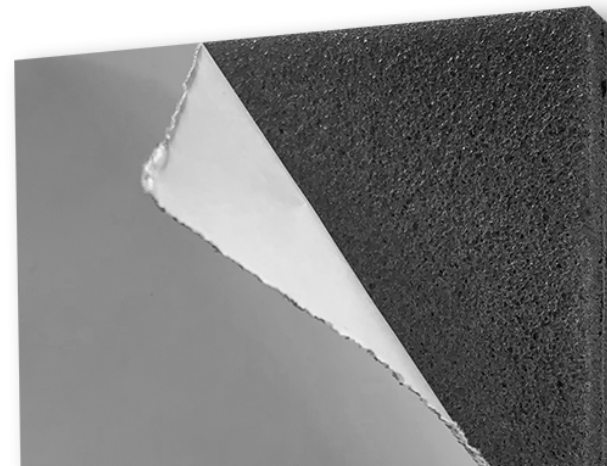
This is a measure of how well an adhesive wets out the surface of the material to which it is applied. Materials with low surface energy (LSE) do not allow adhesives to wet out the surface. Materials with high surface energy (HSE) provide excellent wet-out, and best adhesion. Acrylic adhesives usually offer better adhesion to LSE surfaces. Some substrates require special treatment such as corona treating, primers, top coating, etc. to achieve better adhesion. On some LSE substrates, adhesion levels improve the longer the adhesive is applied. In most cases maximum adhesion strength is obtained after 24hours however this can vary slightly with temperature.

Surface Contamination

The presence of contamination such as dust, paper debris, oils, waxes etc. on the surface of the substrate can prevent contact of the adhesive with the substrate. Many types of surface contamination are not visible but can be identified analytically. It may be necessary to clean the surface to obtain an acceptable bond.

Surface Texture

The texture of a substrate can impact the adhesive bond. Textured materials do not allow complete contact of the adhesive with the substrate. Less surface contact results in a smaller bonding area and lower adhesion levels. Where substrates have texture, more aggressive adhesives are recommended. In some instances, such as stainless steel, surface preparation might involve roughening the surface with 80 grit sand paper to provide additional surface area for the adhesive.



pressure-sensitive adhesive (PSA)

APPLICATION GUIDELINES FOR PSA-BACKED PRODUCT

- Apply the adhesive backed material to the substrate as soon as possible to prevent it from setting into the product itself as well as potentially being contaminated.
- Gradually remove the adhesive liner from the part to ease handling.
- Make sure to avoid air pockets between the adhesive and the substrate.

Please note: Under extreme temperature conditions or where the substrate surfaces cannot be free from contaminants, mechanical fixing will be required. For installing products weighing over 4 kg/m² such as Sorberbarrier, mechanical fixing is highly recommended in addition to PSA adhesion on all inverted installations, including ceiling installations.



PRODUCT INSTALLATION

1. Surface preparation

- Ensure that all target surfaces (whatever the substrate) are clean, dry and free of contaminants (e.g. liquid, dirt, dust, oil, loose paint, rust, wax, grease, fibreglass release agents).
- PSA products are best cut to size (as required) before installation.

2. Measure and pre-cut product where required

- Measure surfaces where product is to be installed. Check for allowances at corners and bends.
- Transfer measurements /dimensions on the product with a marker (this could also be achieved by making paper/ cardboard templates).
- Where possible, cut the long lengths of required parts along the width of the product. This will minimise foam shrinkage when installing.
- If using templates, lay the panel on a flat, clean and dry surface with face up (PSA backing down). Place templates on facing side of the panel and make reference marks (with a marker or cleanable chalk as desired).
- To cut, use straight edge or level and cut with a sharp utility knife.
- If the product is foam, you may need to compress the foam while cutting through or alternatively you can make a series of cuts rather than cut through in one go. Do a trial to check for correct fits and allowances before peeling off the release liner for installation.

3. Install

- When installing large pre-cut parts, do not remove the entire release liner. Partially remove the liner from the side of the product carefully to avoid tearing the liner or touching the PSA. Apply the product with firm pressure to the mounting surface. Gradually peel off the rest of the liner, simultaneously installing the product as the rest of the liner is peeled off.
- On smaller parts remove the liner entirely and allow the adhesive-backed material to relax for 10 to 30 seconds to release tension before applying to the substrate.
- In both cases of small or large parts, make sure not to stretch material as you apply the product to the substrate. The product should be applied to the entire surface without tension or stretching with uniform pressure, which is best achieved by using a roller. Stretching material during application can cause undue stress resulting in product failing over time.
- For products 1 to 2 mm thick, a scraping tool can be used to apply material without trapping any air pockets.
- For products 3 to 50 mm thick (e.g. Sorberfoam or Sorberbarrier), use a 150 mm thick x 200 mm wide rubber roller pressing uniformly and firmly in one direction only. Move the roller in the same direction each time, making sure the entire surface is covered. Firm pressure develops better adhesive contact and improves bond strength as well as pushes out some of the air pockets that might have been trapped.



Thicker PSA products are best rolled
(See 3.)

Please contact Pyrotek® for further information or detailed advice on your specific application.

For further information
and contact details,
please visit our website
pyroteknc.com

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