

Surface Preparation When Using K-Flex Sheet with PSA

Elastomeric sheet with a “peel and stick” pressure sensitive adhesive (PSA) backing can save significant time during installation. Sheet with PSA also minimizes the need for solvent-based contact adhesives. Only butt seams would require use of an approved adhesive (see TA14). This is a major advantage when re-insulating duct work and air handling units in occupied buildings or when installing insulation in clean room applications or other applications where solvent-based adhesives are not desirable.

K-Flex USA uses a water-based acrylic adhesive that is very aggressive and is rated to 250°F. This adhesive has a reinforcing scrim that distributes load / stress and prevents stretching of the sheet during installation. When installing sheet with PSA there are a number of important considerations:

Temperature - PSA is temperature sensitive. PSA works best when the air and substrate temperatures are 50°F and above. PSA can be installed down to 40°F, but it will take significantly more pressure to obtain a good bond. This is especially true where the insulation will be hanging horizontally such as the bottom of a wrapped rectangular duct. The use of a roller to apply even pressure is recommended.

Substrate Conditions – The substrate to which sheet with PSA is being applied must be dry and free from dirt, oil, grease, rust, scale and any other foreign matter that may inhibit proper bonding. In relining applications, it is important to remove all old adhesive residues. Many types of steel come with a factory-applied oil to prevent “white rust”. Formed metal sections often have residual rolling oils that are used to reduce wear and tear on the forming machines, but may also inhibit proper adhesion of PSA-backed insulation. Contaminated substrates must be cleaned prior to installation of insulation. Cleaning methods depend upon the type of contamination and what is safely useable and allowable under the job conditions.

When using K-Flex Duct® Liner Gray with PSA in an HVAC sheet metal application, the use of “chem-cleaned” galvanized steel will practically eliminate the need for any manual cleaning of the substrate.

Painted Substrates – While PSA is not chemically incompatible with painted substrates, some paints such as epoxy coatings and powder coated metals provide a “slick” surface that may not allow adequate adhesion of the PSA. In some applications, it may be necessary to mechanically roughen the paint surface (without damaging the integrity of the coating) to promote a better bond. Special care should be exercised when using sheet with PSA with powder-coated metals. This paint application process creates a very slick surface, making it difficult to maintain good bond, especially in elevated temperature applications.

Whenever there is any doubt about the suitability of substrate or installation conditions, it is recommended that a test section be insulated prior to proceeding with the full installation. Acceptable bond is indicated when the elastomeric insulation fails (tears) internally.

The use of mechanical fasteners (mechanical or weld pins) is required for most duct and AHU lining applications. Mechanical fasteners can also be used to assure adhesion to the underside of ducts when the insulation thickness is greater than 1-1/2 inches, and for applications to “slick painted surfaces.

Plain (no PSA) sheet may also be applied using approved solvent based contact adhesives for these applications.

