

Insulation Adhesives Are Not Created Equal

Wet-applied adhesives formulated to install closed-cell elastomeric foam insulation on mechanical systems, such as HVAC, refrigeration and plumbing piping and equipment, are also known as special-purpose contact adhesives. These adhesives are designed to bond two adjoining insulation surfaces while also providing a vapor seal to prevent corrosion under insulation (CUI).

Each elastomeric insulation manufacturer offers their own solvent-based and low-VOC adhesives. However, each manufacturer's adhesive maintains different working characteristics that are critical to understand prior to installation to ensure success.

Key terminology to understand an insulation contact adhesive's working properties are as follows:

Dry time or Tack time: the amount of time necessary to allow the adhesive to "flash-off" or "tack up" prior to bonding two adjoining surfaces together.

Open time: the maximum amount of time to leave the adhesive "open" in container prior to it flashing off and becoming ineffective.

Full cure time: the amount of time necessary for an adhesive to fully cure prior to sealing glued seams with tape, coatings and jacketing materials or turning a mechanical system back on.

Project site conditions certainly affect the working characteristics of insulation adhesives, and each manufacturer lists minimum and maximum application temperatures for ambient air and bonding surfaces in their technical data sheets, installation manuals and product labels.

Dry or tack times are usually referred to as a range in minutes from when the adhesive is applied to the insulation surface. Using the "fingernail test", touch your fingernail to the

adhesive to determine if it is “tacky to the touch” or “dry to the touch”. A fingernail is a better indicator than a fingertip. Depending on the adhesive, tacky or dry indicates that the adhesive is ready for contact.

Solvent-based contact adhesives generally tack up faster than low-VOC adhesives. Solvent formulas typically tack up in 1 to 5 minutes and low-VOC formulas in 3 to 10 minutes depending on jobsite conditions. Although low-VOC adhesives do deliver long-term performance when applied properly, they are known to be frustrating to work with if not given the additional dry/tack time necessary.

As previously mentioned, full cure time is also a critical factor to be aware of prior to turning a mechanical system (i.e. refrigerant piping) back on or covering the glued seams with tapes, coatings and jacketing materials. The ranges offered vary from immediate to 7 days depending on the adhesive and application.

By becoming familiar with a special-purpose contact adhesive’s working properties listed in the manufacturer’s technical data sheets, installation manual and product labels, long-term bonds and vapor seals can be achieved.

The good news is that Aeroflex USA's Aero seal and Aero seal LVOC™ special purpose contact adhesives cure differently than most other commercially-available insulation adhesives. Once “dry to the touch,” Aero seal and Aero seal LVOC™ can be immediately sealed with Aerocel Protape zero-perm EPDM tape, Aero coat™ and Aero coat LVOC™ insulation coatings and specified insulation jackets. No additional cure time is required.