

FOAMED ACRYLIC TAPE

Key performance characteristics compared to conventional coated-foam, double-sided tapes (for example, PE):

- 1) Foam rupture. Unlike polyethylene foam tapes, acrylic foam tapes are not susceptible to foam rupture when placed under stress. Polyethylene foam tapes can tear, which can result in water ingress. This is aggravated in multiple freeze/ thaw cycles.
- 2) Acrylic foam tapes are visco-elastic in nature, which allows them to resist compression-set (deformation and flattening of material) when under pressure. Compression-set can be caused as a result of environmental elements. Some polyethylene tapes have poor compression-set resistance qualities.
- 3) Temperature resistance. Acrylic foam tapes have a far higher temperature resistance than polyethylene foam tapes. Adhesive tapes that are used in applications that exceed their temperature limitations can have impaired performance. This is an important consideration in areas where high temperature extremes are found.
- 4) Ability to accommodate thermal expansion. Acrylic foam tapes stretch and retract with memory up to 3 times their thickness to accommodate differential thermal expansion of materials. The ability of polyethylene foam tapes to retain memory in accommodating thermal expansion is poor by comparison. The effect of thermal expansion on tapes can be destructive if it is not designed to accommodate this dimensional change.
- 5) Coated product versus homogenous adhesive mass. Polyethylene foam tapes are coated or laminated with adhesive that can delaminate from the foam carrier in areas where corona treatment has been unsatisfactory. This will result in water ingress. Acrylic foam tapes are not coated, but a solid pre-cured adhesive mass in roll format and are therefore not susceptible to delamination.
- 6) Sealant ability. Polyethylene foam tapes are designed to be bonding tapes and not a sealant. Acrylic foam tapes behave like silicone sealants for this purpose.

When taking the extended warranty periods that the solar industry offer into consideration, and weighing the fact that any (or a combination) of the above factors can occur over the life time of a panel, it is very risky to use polyethylene foam tapes for frame bonding or junction box applications. The possibilities that the relatively small price savings in the short term will be negated by warranty claims in the longer term are very real.