



Silicone Outperforms Typical PV Tapes in Frame Sealing and Rail Bonding Applications

Leading the way in material solutions

Dow Corning Solar Solutions recently tested several of its silicone frame sealing and rail bonding solutions against two well-known global brands of photovoltaic (PV) tape. The data speaks for itself – *Dow Corning®* brand silicone products outperformed these well-known PV tapes in cohesive failure and lap shear strength tests. Here are the results:

Silicone adhesives outperform typical PV tapes in rail bonding applications because they offer:

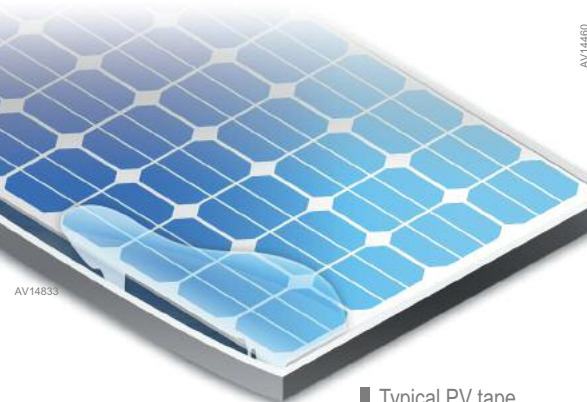
- Added module durability and structural strength
- Greater protection and weatherability
- Reduced cost of ownership
- Exceptional adhesion to glass and PV substrates

In addition to increased performance, they provide:

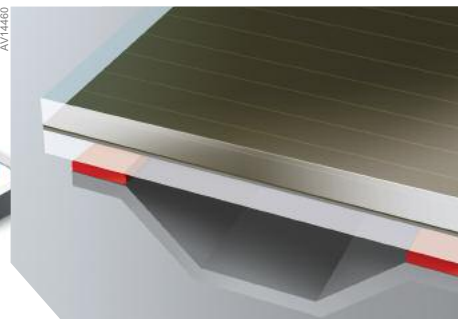
- Ease of installation and application – increasing productivity
- Multiple application options
- Multiple cure time options for greater manufacturing flexibility as well as making on-site and in-plant repair easy

Silicone sealants provide increased performance compared to typical PV tapes in frame sealing applications because they offer:

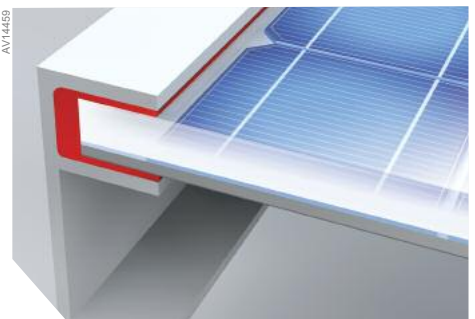
- Ease of use and application – increasing productivity
- Complete protection against moisture and debris
- Greater protection overall
- Long-term durability
- Enhanced environmental protection and durability – tapes degrade with 100% adhesive failure when exposed to UV and moisture
- Long-term adhesion
- Significantly better adhesion to glass and metal frames
- Sealing and protection in critical joints and areas difficult to tape



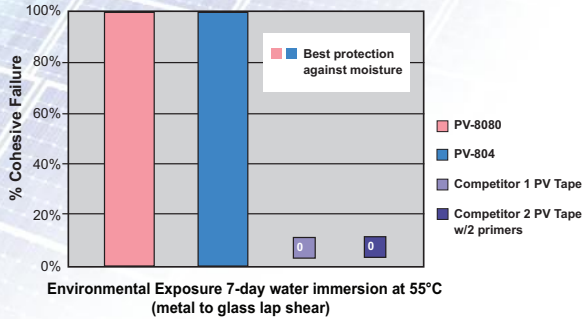
Typical PV tape adhesive failure



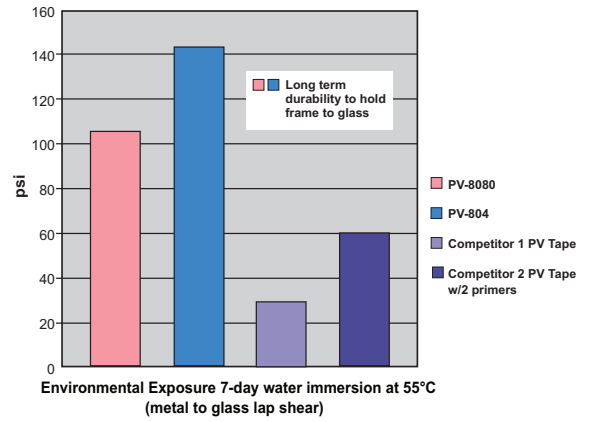
Dow Corning® brand silicone sealants seal and protect critical joints, corners and other areas that are difficult to seal using typical PV tapes.



Dow Corning Frame Sealing Solutions vs. PV Tapes Cohesive Failure



Dow Corning Frame Sealing Solutions vs. PV Tapes Lap Shear Strength

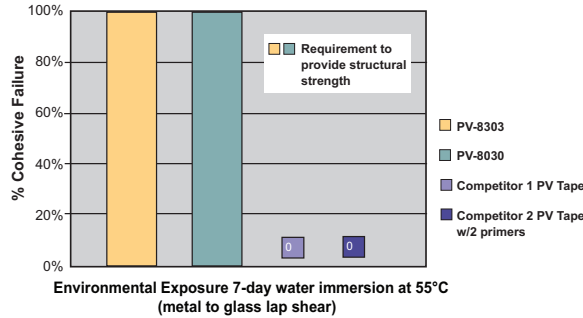


The percent cohesive failure shows the material's adherence to different substrates. The higher the percentage of cohesive failure, the better the result.

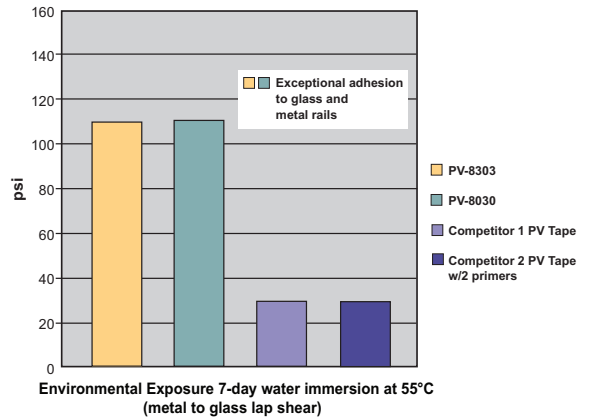
Competitor 1 and Competitor 2: Dow Corning® PV-8080 Neutral Sealant and Dow Corning® PV-804 Neutral Sealant showed the best adherence performance compared to both competitors which showed zero percent cohesive failure and 100 percent adhesive failure.

Competitor 1 and Competitor 2: This chart shows the amount of force it takes to pull an adhesive or tape apart using shear force. The higher the pounds per square inch, the better the adhesive strength. PV-8080 Neutral Sealant and PV-804 Neutral Sealant showed good lap shear strength, while the lap shear strength of Competitor 1 and Competitor 2 was significantly lower.

Dow Corning Rail Bonding Solutions vs. PV Tapes Cohesive Failure



Dow Corning Rail Bonding Solutions vs. PV Tapes Lap Shear Strength



Competitor 1 and Competitor 2: Dow Corning® PV-8303 Ultra Fast Cure Sealant and Dow Corning® PV-8030 Adhesive showed the best adherence performance compared to Competitor 1 and Competitor 2 which showed zero percent cohesive failure and 100 percent adhesive failure.

Competitor 1 and Competitor 2: Lap shear strength shows the measure of an adhesive's ability to endure the force applied to bonded substrates that are being pulled in opposite directions. The higher the pounds per square inch, the better the adhesion strength. PV-8303 Ultra Fast Cure Sealant and PV-8030 Adhesive showed good lap shear strength, while the lap shear strength of both Competitor 1 and Competitor 2 was significantly lower.

THE NUMBERS TELL THE STORY.

Dow Corning® brand silicone rail bonding adhesives and frame sealants increase the performance and structural strength of your PV modules, outperforming the global brands of PV tapes we tested.

LEARN MORE

Dow Corning has sales offices and manufacturing sites, as well as science and technology laboratories, around the globe. For more information, please visit dowcorning.com/solar or e-mail solar.solutions@dowcorning.com.

Images: Page 1 Masthead - AV13017, AV13259, AV14459, Page 2 - AV11889

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