

BISCO® Silicones

Technical Bulletin

BISCO® Silicones Adhesive Application

Rogers Corporation offers BISCO® Silicones with both Acrylic and Silicone Pressure Sensitive Adhesive (PSA) options on all cellular and most solid silicone products. A majority of customers use the adhesive as a manufacturing aid for placement of a part during processing. Typical applications for these materials are simple gaskets.



When applying any PSA, users should allow at least 24 hours before testing adhesion strength anchorage, giving the adhesive time to flow, and cover the substrate at room temperature if possible. Slightly higher temperatures may improve adhesive flow and speed up the bonding process. Applying adequate pressure will also accelerate flow and eliminate trapped air, ensuring better adhesive coverage of the substrate.

Adhesive Properties			
Property	Test Method	Acrylic PSA	Silicone PSA
Peel Adhesion 20 Minute Dwell Time	PSTC-1	75 Oz/Inch	25 Oz/Inch
Shear Adhesion 500 grams 1" x 1"	PSTC-2	+24 hours	+24 hours
Liner		78# Kraft	0.002" PET
Shelf Life		18 months (Stored at RT and 50% humidity)	6 months (Stored at RT and 50% humidity)
Temperature Range		-31°C to 149°C (-25° F to 300°F)	-51°C to 232°C (-60° F to 450°F)

Acrylic adhesives are a combination of acrylic monomers and other compounds, formulated to create specific tacky chemical structures. Acrylic adhesives are typically a good general-purpose, cost-effective option for most applications. Rogers can apply this adhesive on one or both sides of the product for most BISCO Silicone material options. The acrylic adhesive is suitable for temperature use from -32°C (-25°F) to 149°C (300°F). Since this is a supported adhesive, it also aids in the dimensional stability of the gasket, keeping the x-y reference plane stable. Typical shelf life for material stored at standard conditions (23°C at 50% RH) is eighteen months.

Continued on reverse.

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Silicone-based adhesives, however, are especially formulated for premium performance. Silicone bonds well to silicone and other relevant surfaces, and is suitable for longer-term, critical applications. It also has the widest temperature range from -51°C (-60°F) to 232°C (450°F) among PSA materials, and has good resistance to chemicals, moisture and UV rays.

For applications that demand a higher temperature option, a silicone adhesive would be recommended. The silicone adhesive is a 0.002" unsupported product. The silicone adhesive cannot be provided on both sides of the product and is sometimes more difficult to work with, due to the liner technology available. The shelf life for material stored at standard conditions is 6 months.

When suggesting a pressure sensitive adhesive, keep in mind the adhesive does not necessarily have to match the temperature range of the silicone material. In many cases, the PSA simply supports the assembly of the gasket into the device or fixture. Using an acrylic PSA can significantly improve your cost structure, improve the shelf life of material, and improve manufacturing time during assembly.

For BISCO cellular materials a "5" is added to the product nomenclature to identify that the product has an adhesive. Either an "(A)" for Acrylic or an "(S)" for Silicone is added to identify the adhesive type. For example, in ordering BF-1000 with an acrylic adhesive added the product identification becomes BF-1005 (A).

For BISCO Performance Solids and General Purpose Silicones just add an "(A)" for Acrylic or an "(S)" for Silicone after the product name, since the last two digits of these materials denote the durometer of the product on the Shore A hardness scale. For example, in ordering HT-6240 with a Silicone adhesive the product identification becomes HT-6240 (S)

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