

Choice of Sealants in Applications Involving Lexan® or Plexiglass Requires Careful Consideration

The use of sealants in applications involving Lexan or Plexiglass is a question that comes up quite often in the field. Before one can fully understand how to proceed it's helpful upfront to know the composition and properties of Lexan and Plexiglass.

Plexiglass was originally manufactured by Rohm and Haas and is composed of poly(methyl methacrylate) based polymers more commonly known as acrylic, while Lexan, a General Electric product is composed using polymers based on polycarbonate of bisphenol A or simply polycarbonate. Both polymers are transparent making them good substitutes for glass in many applications. Both materials are sometimes referred to as organic glass with one of their greatest advantages over glass being shatter resistance. And yes, they are both different forms of plastic.

The key point to remember is that they are different materials with different performance properties. And as one might expect, Pecora silicone sealant will require different application guidelines when applied to one or the other. Recently we have conducted comprehensive testing of all Pecora silicones on both substrates to determine with the results listed in the table below.

Adhesion and Compatibility

Pecora Silicone	Lexan (polycarbonate)		Plexiglass (acrylic)	
	Primer required for adhesion	Compatibility	Primer required for adhesion	Compatibility
860	P-100 ¹	Pass	P-100 ²	Pass
864	None	Pass	P-100	Pass
865	None	Pass	P-100	Pass
890	None	Pass	P-100	Pass
895	None	Pass	P-100	Pass
896	None	Pass	P-100	Pass
985	None	Pass	P-100	Pass
Dynaflex SC	P-100	Pass	No Adhesion	-----

¹ P-100 will fog lexan, use with care.

² P-100 has no effect on Plexiglass.

Comparative Properties / Lexan vs. Plexiglass

Property	Lexan	Plexiglass
Composition	Polycarbonate	acrylic
Other Tradenames	Makrolon	Lucite
Impact Resistance	High	moderate
Clarity	Excellent (>glass)	Excellent (>glass)
UV resistance	Good w/ additives	Very Good
Chemical resistance	High	low
Service Temperatures	-130 to 130 C	-60 to 90 C

You may find it interesting that the largest single window in the world is made of one big piece of Plexiglass measuring 54 feet long by 18 feet high by 13 inches thick. This window was installed at California's Monterrey Bay Aquarium. The choice of Plexiglass over glass was primarily due to the increased clarity of Plexiglass over glass in the thickness required to withstand the high pressure exerted by millions of gallons of water.

If there is a subject you would like to see discussed and published on the Master Caulksmith section at Pecora.com, simply direct your request or question via e-mail to Cannonr@pecora.com. I appreciate the opportunity to share my many years of sealant knowledge and experience in the interest of supporting those who strive for perfection throughout the waterproofing industry.