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Urethane adhesives

A guide to today's auto glass urethane adhesive options

To help you choose the right urethane adhesive for the job, the editors of *Glass Magazine* put together a **comprehensive guide** detailing **47 products** currently available to the auto glass replacement market.



Manufacturer	Part number, brand name or description	One- or two-part	Primer	Primer dry time	Minimum installation temperature, degrees Fahrenheit	Minimum drive-away time with dual air bags	Lap shear at drive-away	Ultimate cure time	Lap shear at ultimate cure	Recommended uses, additional comments from company representatives
Adco Products Inc. www.adcocorp.com	Titan Pro1 primerless, all-weather, one-hour isocyanate-free urethane	One	Primerless-to-glass. Pinchweld scratches and rust should be sealed with Titan UP-100. Encapsulated parts should be primed with TITAN UP-100.	10 minutes	0 F Adhesive must be warm enough to gun	1 hour per safe drive-away chart	Not applicable	Less than 24 hours at 72 F and 50 percent relative humidity	Greater than 550 pounds per square inch	Full windshield and backlite installations. Primerless, nonconductive, all-weather, one-hour adhesive. Isocyanate-free for enhanced installation safety. Exceeds Federal Motor Vehicle Safety Standard 212 and meets OEM standards.
	Titan Pro2 primerless, all-weather, two-hour isocyanate-free urethane	One	Primerless-to-glass. Pinchweld scratches and rust should be sealed with Titan UP-100. Encapsulated parts should be primed with Titan UP-100.	10 minutes	0 F Adhesive must be warm enough to gun	2 hours per safe drive-away chart	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 550 psi	Full windshield and backlite installations. Primerless, nonconductive, all-weather, two-hour adhesive. Isocyanate-free for enhanced installation safety. Exceeds FMVSS 212 and meets OEM standards.
	Titan 660 primerless, high modulus, isocyanate-free urethane	One	Primerless-to-glass. Pinchweld scratches and rust should be sealed with Titan UP-100. Encapsulated parts should be primed with Titan UP-100.	10 minutes	40 F Adhesive must be warm enough to gun	3 hours per safe drive-away chart	N/A	Less than 36 hours at 72 F and 50 percent RH	Greater than 550 psi	Full windshield and backlite installations. Improved Titan 660 formula now with three-hour safe drive-away time. Heavy body formulation is sag-resistant and maintains bead profile. Exceeds FMVSS 212 and meets OEM standards..
	Titan 380 primerless, high modulus, isocyanate-free urethane	One	Primerless-to-glass. Pinchweld scratches and rust should be sealed with Titan UP-100. Encapsulated parts should be primed with Titan UP-100.	10 minutes	40 F Adhesive must be warm enough to gun	4 hours per safe drive-away chart	N/A	Less than 36 hours at 72 F and 50 percent RH	Greater than 550 psi	Full windshield and backlite installations. Easy to apply, primerless and guns without sagging. Exceeds FMVSS 212 and meets OEM standards.
C.R. Laurence Co./ Sommer & Maca Industries www.crlaurence.com	CRL900HV high viscosity, fast-curing, cold-applied in 10.1 fluid-ounce cartridge; part of the Lynx Services program	One	CRL9P pinchweld primer, CRL9GC glass primer, PWR22 automotive glass cleaner	10 minutes at 40 F plus	15 F	8 hours at 72 F and 40 percent RH	N/A	3/16-inch bead per 24 hours at 72 F and 50 percent RH	650 psi	High strength and best value. Passes FMVSS 208 and 212 with dual air bags and unrestrained dummies.
	PowrBond one-hour, low-conductive No. 121-4002	One	Universal One-Step primer No. 121-4006	One-Step: 10-plus minutes	0 F	1 hour above 0 F	450 psi with air bags	Less than 24 hours at 70 F and 50 percent RH	600 psi	Newest product provides one-hour drive-away time above 0 F. Meets FMVSS 212 and 208. Lynx approved. Product liability insurance. User Guide contains drive-away charts, installation instructions and cross-brand technical data.
	PowrBond regular viscosity cartridge, low-conductive No. 121-7449	One	Universal One-Step primer No. 121-4006	One-Step: 10-plus minutes	41 F	6 hours, depending on temperature and humidity	150 psi with air bags	24 hours at 70 F and 50 percent RH	800 psi	Regular viscosity passed FMVSS 212 and meets FMVSS 208. Lynx approved. Product liability insurance. User Guide contains drive-away charts, installation instructions and cross-brand technical comparative data.
	PowrBond high viscosity cartridge, low-conductive No. 121-7349	One	Universal One-Step primer No. 121-4006	One-Step: 10-plus minutes	41 F	3 hours, depending on temperature and humidity	150 psi with air bags	Less than 24 hours at 70 F and 50 percent RH	800 psi	High viscosity meets FMVSS 212 at 35 miles per hour; also meets FMVSS 208. Lynx approved. Product liability insurance. User Guide contains drive-away charts, installation instructions and cross-brand technical comparative data.
	PowrBond heated, high modulus, low-conductive No. 121-4001	One	Universal One-Step primer No. 121-4006	One-Step: 10-plus minutes	10 F	2 hours, depending on temperature and humidity	150 psi with air bags	Less than 24 hours at 70 F and 50 percent RH	650 psi	Meets FMVSS 212 and 208. Lynx approved. Product liability insurance. User Guide contains drive-away charts, installation instructions and cross-brand technical comparative data.

Industry products: urethane adhesives

Manufacturer	Part number, brand name or description	One- or two-part	Primer	Primer dry time	Minimum installation temperature, degrees Fahrenheit	Minimum drive-away time with dual air bags	Lap shear at drive-away	Ultimate cure time	Lap shear at ultimate cure	Recommended uses, additional comments from company representatives
C.R. Laurence Co./ Sommer & Maca Industries www.crlaurence.com	PP301HV high viscosity, primerless-to-glass; part of the Lynx Services program	One	PP3MP pinchweld primer, PP3UV EPDM/PVC primer ultraviolet blocker, PWR22 automotive glass cleaner	10 minutes	40 F	3 hours at 70 F and 50 percent RH	150 psi	¾-inch bead per 24 hours at 70 F and 50 percent RH	Greater than 550 psi	Crash tested; passes FMVSS 212, 216 and 208. Primerless-to-glass with superior decking support. Fast green-strength buildup. Isocyanate-free. Formula self-produces moisture during curing for fast cure rates. Premium value.
	PP302MV medium viscosity, primerless-to-glass; part of the Lynx Services program	One	PP3MP pinchweld primer, PP3UV EPDM/PVC primer ultraviolet blocker, PWR22 automotive glass cleaner.	10 minutes	40 F	4 hours at 70 F and 50 percent RH	150 psi	¾-inch bead per 24 hours at 70 F and 50 percent RH	Greater than 550 psi	Primerless-to-glass with great superior decking support. Fast green-strength buildup. Isocyanate-free. Formula self-produces moisture during curing for faster cure rates. Premium value.
	PP303HL high modulus, low-conductive, primerless-to-glass; part of the Lynx Services program	One	PP3MP pinchweld primer, PP3UV EPDM/PVC primer ultraviolet blocker, PWR22 automotive glass cleaner.	10 minutes	40 F	3 hours at 70 F and 50 percent RH	150 psi	¾-inch bead per 24 hours at 70 F and 50 percent RH	Greater than 550 psi	OEM tested. Primerless-to-glass. Fast green-strength buildup. Isocyanate-free. Formula self-produces moisture during curing for faster cure rates.
Dow Automotive www.dowautomotive- aftermarket.com	BetaSeal* Express and Express EP advanced-cure urethane adhesive	One	Glass: BetaPrime* 5500/5500SA one-step glass and frit primer. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	0 F	1 hour	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim.
	BetaSeal One, One BP and One EP all-application auto glass urethane adhesive	One	Glass: BetaPrime* 5500/5500SA one-step glass and frit primer. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	0 F	1 hour	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for all applications, including high modulus and nonconductive, structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim.
	BetaSeal X-2500 two-component urethane adhesive	Two	Glass: BetaPrime* 5500/5500SA one-step glass and frit primer. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	15 F	1 hour	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim.
	BetaSeal U-400HV and U-400BP rapid-cure urethane adhesive	One	Glass: BetaPrime* 5500/5500SA one-step glass and frit primer. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	40 F	2 hours	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim. OEM approved and used.
	BetaSeal U-418 quick-cure, primerless-to-glass urethane adhesive	One	Glass: None required. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	40 F	3 hours	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim. Primerless-to-glass.
	BetaSeal U-418HV quick-cure, primerless-to-glass urethane adhesive	One	Glass: None required. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	40 F	3 hours	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim. Primerless-to-glass. High viscosity.
	BetaSeal* Express Clear EZKit and Express BP Clear EZKit advanced-cure urethane adhesive. Kits contain enough urethane, primer and ancillary items for multiple installations.	One	Glass: BetaPrime* Clear SA one-step glass and frit primer. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	0 F	1 hour	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim.
	BetaSeal One Clear EZKits and OneBP Clear EZKits all-application auto glass urethane adhesive. Kits contain enough urethane, primer and ancillary items for eight installations.	One	Glass: BetaPrime* Clear SA one-step glass and frit primer. Body: BetaPrime 5404A pinchweld and encapsulation primer	6 minutes	0 F	1 hour	N/A	Less than 24 hours at 72 F and 50 percent RH	Greater than 500 psi	Suitable for all applications, including high modulus and nonconductive, structurally bonded or direct-glazed glass such as windshields, backlites, quarter glass and other stationary glass; also channel bonding, attaching hardware to glass and backfilling to install reveal moldings or other trim.

Industry products: urethane adhesives

Manufacturer	Part number, brand name or description	One- or two-part	Primer	Primer dry time	Minimum installation temperature, degrees Fahrenheit	Minimum drive-away time with dual air bags	Lap shear at drive-away	Ultimate cure time	Lap shear at ultimate cure	Recommended uses, additional comments from company representatives
Eftec Aftermarket www.dinitrol.com	Dinitrol D-410	One	Primerless-to-glass, paint, metal.	N/A	Best if used at moderate temperature	N/A	N/A	More than 24 hours	260 psi	Primerless urethane for rubber gaskets, sealing leaks, bonding trims and moldings, and backfilling.
	Dinitrol D-500MV, 310 milliliters or 600ml	One	538 Plus	10 minutes	40 F	3 hours	N/A	More than 24 hours	910 psi	Medium viscosity, OEM-approved and used, crash tested.
	Dinitrol D-500, 310ml or 600ml	One	538 Plus	10 minutes	40 F	3 hours	N/A	More than 24 hours	910 psi	Standard viscosity, OEM-approved and used, crash tested.
	Dinitrol D-501HV, 310ml or 600ml	One	538 Plus	10 minutes	40 F	1.5 hours	N/A	More than 24 hours	1,100 psi	High viscosity, OEM-approved and used, crash tested.
	Dinitrol D-506	One	538 Plus	10 minutes	15 F	1 hour	N/A	More than 24 hours	1,070 psi	Heated, high modulus, high viscosity, excellent decking, OEM-approved and used, crash tested.
	Dinitrol D-9000, 310ml or 600ml	One	538 Plus	10 minutes	0 F	1 hour at 0 F to 115 F	N/A	More than 24 hours	910 psi	Cold-applied, high modulus, nonconductive, high viscosity, superior decking, OEM-approved and used, crash tested.
OETech www.oetech.biz	OETech1	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	15 F	1 hour	N/A	24 hours at 72 F and 50 percent RH	600 psi	High modulus, low-conductive properties. Fast-curing urethane that can be used for many applications.
	OETech1s	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	15 F	1 hour	N/A	24 hours at 72 F and 50 percent RH	600 psi	High modulus, low-conductive properties. Fast-curing urethane that can be used for many applications.
	OETech2	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	40 F	3 hours	120 psi	24 hours at 72 F and 50 percent RH	600 psi	Can be used for applications that require a low-conductive urethane.
	OETech2s	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	40 F	3 hours	120 psi	24 hours at 72 F and 50 percent RH	600 psi	Can be used for applications that require a low-conductive urethane.
	OETech3+	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	40 F	6 hours	150 psi	24 hours at 72 F and 50 percent RH	600 psi	Can be used for applications that require a low-conductive urethane.
	OETech3s+	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	40 F	6 hours	150 psi	24 hours at 72 F and 50 percent RH	600 psi	Can be used for applications that require a low-conductive urethane.
	OETech4	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	40 F	2 hours	N/A	24 hours at 72 F and 50 percent RH	600 psi	High modulus, low-conductive properties. Fast-curing urethane that can be used for many applications.
	OETechHeritage+	One	OETechCP one-step combo primer or OETechMP one-step molding primer	About 10 minutes	40 F	6 hours	150 psi	24 hours at 72 F and 50 percent RH	600 psi	Can be used for applications that require a low-conductive urethane.
Shat R Proof Corp. www.shatproof.com	SRP160HT	One	SRP7000 or SRP7050 for glass priming. SRP5025 for paint, pre-applied adhesive system, molding and other pinchweld-related priming. SRP5055 for large areas of bare metal or aluminum.	5-to-10 minutes for SRP5025 and SRP7050. 3 minutes for SRP7000.	15 F	1 hour	144 psi	Less than 24 hours at 72 F and 50 percent RH	Greater than 725 psi	This preheated urethane is designed to give installers an accelerated safe drive-away time and superior decking. Achieves dual air-bag drive-away times in as little as one hour.
	SRP180HV SRP180FP	One	SRP7000 or SRP7050 for glass priming. SRP5025 for paint, PAAS, molding and other pinchweld-related priming. SRP5055 for large areas of bare metal or aluminum.	5-to-10 minutes for SRP5025 and SRP7050. 3 minutes for SRP7000.	20 F	1 hour	144 psi	Less than 24 hours at 72 F and 50 percent RH	Greater than 725 psi	The SRP180HV is a dependable, everyday adhesive with quick drive-away times and superior decking. Available in 310ml cartridge and 600ml foil packs. Achieves dual air-bag drive-away times in as little as one hour.

Industry products: urethane adhesives

Manufacturer	Part number, brand name or description	One- or two-part	Primer	Primer dry time	Minimum installation temperature, degrees Fahrenheit	Minimum drive-away time with dual air bags	Lap shear at drive-away	Ultimate cure time	Lap shear at ultimate cure	Recommended uses, additional comments from company representatives
Shat R Proof Corp. www.shatproof.com	SRP360HV	One	SRP7000 or SRP7050 for glass priming. SRP5025 for paint, PAAS, molding and other pinchweld-related priming. SRP5055 for large areas of bare metal or aluminum.	5-to-10 minutes for SRP5025 and SRP7050. 3 minutes for SRP7000.	40 F	1 hour	144 psi	Less than 24 hours at 72 F and 50 percent RH	Greater than 725 psi	SRP360 is required when installing auto glass on many of today's sports and luxury vehicles. The high modulus formula adds torsional stiffness to the vehicle's windshield, while the nonconductive aspect protects the electronics embedded in the glass or encapsulation of the windshield. Also required on vehicles with aluminum body frames.
	SRP Origin	One	SRP7000 or SRP7050 for glass priming. SRP5025 for paint, PAAS, molding and other pinchweld-related priming. SRP5055 for large areas of bare metal or aluminum.	5-to-10 minutes for SRP5025 and SRP7050. 3 minutes for SRP7000.	40 F	3 hours	144 psi	Less than 24 hours at 72 F and 50 percent RH	Greater than 725 psi	The SRP Origin has an excellent working time and will meet your every-day adhesive needs. Available in 600ml foil packs.
	SRP Velocity	One	SRP7000 or SRP7050 for glass priming. SRP5025 for paint, PAAS, molding and other pinchweld-related priming. SRP5055 for large areas of bare metal or aluminum.	5-to-10 minutes for SRP5025 and SRP7050. 3 minutes for SRP7000.	0 F	1 hour	144 psi	Less than 24 hours at 72 F and 50 percent RH	Greater than 725 psi	The SRP Velocity offers one-hour drive-away times year-round and in all weather conditions.
Sika Corp. www.sikaindustry.com	SikaTack ASAP hot-applied windshield adhesive	One	Sika Aktivator, Sika primer 206 G+P	10 minutes at 40 F plus	0 F	45 minutes	Not supported	3/16-inch bead in 24 hours at 73 F and 50 percent RH	500 psi	Acceptable for nonconductive applications. Use Sika primer 206 G+P on pinchweld scratches.
	SikaTack Ultrafast II hot-applied windshield adhesive	One	Sika Aktivator, Sika primer 206 G+P	10 minutes at 40 F plus	15 F	2 hours	Not supported	3/16-inch bead in 24 hours at 73 F and 50 percent RH	500 psi	Acceptable for nonconductive applications. Use Sika primer 206 G+P on pinchweld scratches.
	SikaTack Cool fast-curing, cold-applied, "all-in-one" windshield adhesive	One	Sika Aktivator, Sika primer 206 G+P	10 minutes at 40 F plus	32 F	2 hours	Not supported	3/16-inch bead in 24 hours at 73 F and 50 percent RH	650 psi	Acceptable for all applications, including nonconductive and high modulus. Use Sika primer 206 G+P on pinchweld scratches.
	SikaTack Move™ fast-curing, cold-applied, "all-in-one" windshield adhesive	One	Sika Aktivator, Sika primer 206 G+P	10 minutes at 40 F plus	0 F	1 hour	Not supported	3/16-inch bead in 24 hours at 73 F and 50 percent RH	725 psi	Acceptable for all applications, including nonconductive and high modulus. Use Sika primer 206 G+P on pinchweld scratches.
	Sikaflex 220+ fast-curing, cold-applied windshield adhesive	One	Sika Aktivator, Sika primer 206 G+P	10 minutes at 40 F plus	15 F	8 hours	Not supported	3/16-inch bead in 24 hours at 73 F and 50 percent RH	600 psi	Contact a Sika representative for additional technical information. Use Sika primer 206 G+P on pinchweld scratches.
3M www.3m.com	3M auto glass urethane—HMNC PN08667, 310ml cartridge	One	3M Single Step primer PN08681 125ml bottle PN08682 30ml bottle	10 minutes at 70 F and 50 percent RH	40 F	Refer to OEM guidelines	250 psi	72 hours at 70 F and 50 percent RH	Greater than 500 psi	High modulus, nonconductive product specifically designed for use with later model European vehicles and/or vehicles with glass-embedded telematics.
	3M Fast Cure Auto Glass Urethane PN08690 310ml cartridge PN08689 450ml FlexPack PN08566 600ml FlexPack	One	3M Single Step primer PN08681 125ml bottle PN08682 30ml bottle	10 minutes at 70 F and 50 percent RH	40 F	Refer to OEM guidelines	250 psi	48 hours at 70 F and 50 percent RH	Greater than 500 psi	Fastest curing cold-applied 3M auto glass urethane. GM approved. Exceeds OEM strength requirements.
	3M Auto Glass Urethane—MV PN08693 310ml cartridge PN08695 450ml FlexPack PN08564 600ml FlexPack	One	3M Single Step primer PN08681 125ml bottle PN08682 30ml bottle	10 minutes at 70 F and 50 percent RH	40 F	Refer to OEM guidelines	250 psi	72 hours at 70 F and 50 percent RH	Greater than 500 psi	Medium viscosity auto glass urethane. Appropriate for most vehicle makes and models.