

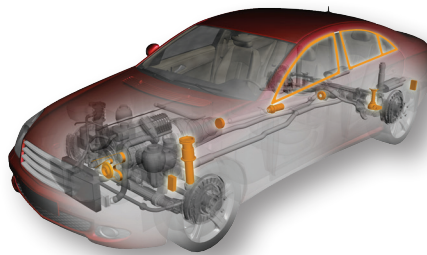


Solutions from Dow Automotive Systems

## MEGUM™/THIXON™/ROBOND™ Rubber-to-Substrate Bonding Agents

Bonding elastomeric materials to metal, engineering plastics or other elastomers requires tough adhesives. MEGUM™, THIXON™ and ROBOND™ bonding agents can be specially formulated for the specific bonding requirements of various substrates and conditions. We offer a full line of low-VOC and HAP-compliant systems to help reduce emissions. Our adhesives perform in extremely severe environments and are suited for many automotive applications, including hoses, mounts, belts, bushings, seals and instrument panels.

Long an industry leader in glass and plastic bonding technology, Dow Automotive Systems offers rubber-to-substrate bonding solutions that help make vehicles more energy efficient, safer, stronger, quieter, cleaner, more comfortable and better looking. Our experience and diverse technologies enable us to solve your most challenging problems.



High-performance adhesive formulations bond similar and dissimilar substrates in mounts, bushings, belts, brake pads, window profiles and other applications.

### Customizable Solutions

As a global science and technology leader and full-service supplier, we work closely with our customers to provide solutions based on the optimal combination of material, process and system costs. Our Technical Service & Development Centers provide rapid development of new products and solutions, in the-field technical service and quick response to your immediate needs.

Our facilities in all major regions include manufacturing plants, research-and-development laboratories, warehouses, shipping areas and administrative offices. This allows us to globally perform troubleshooting, problem solving, performance testing, accelerated environmental testing and analytical expertise and services.

Dow Automotive Systems offers a complete, compatible family of rubber-to-substrate bonding agents designed to meet specific needs for a range of transportation and industrial applications, including belting, hoses, mounts, bushings and seals.

## Guide for Solvent-based Bonding Agents

Rubber Class	Adhesive Conditions of Cure & Specific Properties	Primer	Cover	One-coat
Natural rubber (NR) Styrene-butadiene rubber (SBR) Polyisoprene rubber (IR) Polybutadiene rubber (BR)	Corrosion resistance Hot glycol	MEGUM™ 3276 THIXON™ P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 122-J MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 511-EF THIXON 516 THIXON 520-EF THIXON 520-PEF THIXON 526 THIXON 532A-EF THIXON OSN-2-EF	MEGUM 508 MEGUM 5382 THIXON 2001-EF THIXON OSN-2-EFVV
EPDM	Coil coating	THIXON P-7-6	THIXON 547-EF	THIXON 6110F
Polychloroprene rubber (CR)		MEGUM 3276 THIXON P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 122-J MEGUM 538 MEGUM 5386 THIXON 511-EF THIXON 516 THIXON 520-EF THIXON 520-PEF THIXON 526 THIXON 532-AEF	MEGUM 508 MEGUM 5382 THIXON 2001-EF THIXON OSN-2-EF
Nitrile rubber (NBR)	Standard Higher heat and oil resistance	THIXON P-11-EF THIXON P-21 MEGUM 3276 THIXON P-6-EF	MEGUM 538 MEGUM 5386 THIXON 511-EF THIXON 520-PEF THIXON 526	MEGUM 3276 MEGUM 3340-1 MEGUM 10576 MEGUM 15637 THIXON P-11-EF THIXON P-21 THIXON 715-EF/720

## Guide for Solvent-based Bonding Agents, Continued

Rubber Class	Adhesive Conditions of Cure & Specific Properties	Primer	Cover	One-coat
Hydrogenated nitrilebutadienerubber (HNBR)	Sulfur cured	MEGUM™ 3276 THIXON™ P-6-EF	MEGUM 538 MEGUM 5386 THIXON 516	MEGUM 3276 MEGUM 15637
	Peroxide cured	THIXON P-6-EF	THIXON 526 THIXON 532-A-EF	MEGUM 3276 MEGUM 15637
Blend of NBR with polyvinylchloride (NBR/PVC)		MEGUM 3276 THIXON P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 122-J MEGUM 538 MEGUM 5382 MEGUM 5386	THIXON 715-EF/720
Nitrile carboxylic rubber (XNBR)		MEGUM 3276 THIXON P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 511-EF	THIXON 715-EF/720 MEGUM 3276 MEGUM 15637
Ethylene-propylene rubber (copolymers and terpolymers)	Sulfur cured	MEGUM 3276 THIXON P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 508 MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 532-AEF THIXON 560	MEGUM 508 THIXON 2001-EF
	Peroxide cured		MEGUM 508 MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 532-AEF THIXON 560	
	Coil coating	THIXON P-7-6	THIXON 547-EF	

## Guide for Solvent-based Bonding Agents, Continued

Rubber Class	Adhesive Conditions of Cure & Specific Properties	Primer	Cover	One-coat
Butyl-rubber (IIR)		MEGUM™ 3276 THIXON™ P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 511-EF THIXON 532-AEF	THIXON 2001-EF
Chlorosulfonated rubber (CSM)		MEGUM 3276 THIXON P-6-EF THIXON P-11-EF THIXON P-21	MEGUM 508 MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 511-EF	MEGUM 508 THIXON OSN-2-EF
Polyacrylate rubber (ACM)				MEGUM 15637 THIXON 715-EF/720
Vamac (AEM)		THIXON P-6-EF	MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON OSN-2-EF	MEGUM 15637 THIXON 715-EF/720
Fluoro rubber (FKM)	Amine, bisphenolic cured			MEGUM 3290-1-LD THIXON 300/301
	Peroxide cured			MEGUM 3299 MEGUM W-2525
Silicone rubber (VMQ)				THIXON 304-EF THIXON 305 MEGUM W-2525
Epichlorohydrin rubber (ECO, CO)				MEGUM 15637 THIXON 715-EF/720 THIXON OSN-2-EF
Millable polyurethanes (PU)				MEGUM 508 MEGUM 3276 MEGUM 15637 THIXON 715-EF THIXON 715-EF/720
Castable polyurethanes (PU)	Curing at room temp			THIXON 422
	Curing at 100 °C without pre-bake			THIXON 405 THIXON 422 THIXON 423
	Pre-bake at >100 °C			THIXON 405 THIXON 423

## Guide for Solvent-based Bonding Agents, Continued

Rubber Class	Adhesive Conditions of Cure & Specific Properties	Primer	Cover	One-coat
Thermoplastic Polyurethanes (TPU)				THIXON™ 405 THIXON 422 THIXON 423
Thermoplastic (TPV)	Coil coating			THIXON 6110-F
PVC	Coil coating			THIXON 6106

## Guide for Water-based Bonding Agents

Rubber Class	Primer	Cover	One-coat
Natural rubber (NR) Styrene-butadiene rubber (SBR)	MEGUM™ W-7025 MEGUM W-23500	MEGUM W-1111 MEGUM W-9200 MEGUM W-9500 MEGUM W-23126	MEGUM W-1111 ROBOND™ TR-5125
Nitrile rubber (NBR) Hydrogenated nitrile-butadiene rubber (H-NBR) Polyacrylate rubber (ACM), (AEM/Vamac)			MEGUM W-7025 ROBOND TR-7015A ROBOND TR-7021D ROBOND 7025 (peroxide cured) ROBOND TR-7115
Ethylene-propylene rubber (copolymers and terpolymers)			ROBOND TR-5125 ROBOND 7025 (peroxide cured)
Fluoro rubber (FKM) – peroxide cure			MEGUM W-2525
Fluoro rubber (FKM) – bisphenol cure			ROBOND TR-3295 ROBOND TR-3010
Silicone rubber (VMQ)			MEGUM W-2525

## Conditions of Use – Solvent-based Products

Reference	Type <sup>1</sup>	Cover Compatibility	Elastomers to be Bonded <sup>2</sup>	Dry Film Thickness, mils (µm)	Pre-bake <sup>3</sup>	Bonding Temperature Range <sup>4</sup>
MEGUM™ 122 J	C		GP	0.4-0.8 (10-20)	NRP (max. 120 °C/248 °F)	130-190 °C (266-374 °F)
MEGUM 508	C		EPDM	0.6-1.2 (15-30)	NRP (max. 120 °C/248 °F)	130-190 °C (266-374 °F)
MEGUM 538	C		GP, EDPM	0.6-1 (15-25)	NRP (max. 120 °C/248 °F)	130-190 °C (266-374 °F)
MEGUM 3276	M		NBR, H-NBR, ACM	0.2-0.4 (5-10)	NRP	120-205 °C (248-401 °F)
MEGUM 3276	P	MEGUM 122-J MEGUM 508 MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON™ 511-T THIXON 520-PEF THIXON 526 THIXON 532-AEF	GP	0.2-0.4 (5-10)	NRP	
MEGUM 3290	M		FKM	0.06-0.08 (<2)	NRP	150-210 °C (302-410 °F) +P
MEGUM 3290-1-LD	M		FKM	0.06-0.08 (<2)	NRP	150-210 °C (302-410 °F) +P
MEGUM 3299	M		FKM (peroxide cured)	0.06-0.08 (<2)	NRP	150-210 °C (302-410 °F) +P
MEGUM 5382	C		GP, EDPM	0.6-1 (15-25)	NRP (max. 120 °C/248 °F)	130-190 °C (266-374 °F)
MEGUM 15637	M		NBR, H-NBR, ACM, ECO	0.2-0.6 (5-15)	R (15 min. at 115-135 °C / 239-275 °F) NRP	120-205 °C (248-401 °F)
THIXON 300/301	M		FKM	0.06-0.08 (<2)	NRP	160-195 °C (320-383 °F) +P
THIXON 304 THIXON 305	M		VMQ	0.06-0.08 (<2)	NRP	100-260 °C (212-500 °F) +P
THIXON 422	M		PU	0.4-1.0 (10-25)	R(>100°C / 212 °F)	80-120 (176-248 °F) +P
THIXON 423	M		PU	0.4-1.0 (10-25)	R(>100 °C / 212 °F)	80-120 (176-248 °F) +P

<sup>1</sup>P=Primer, C=Cover, M=One-coat

<sup>2</sup>GP=General purpose (NR, SBR, CR, IIR, BR)

<sup>3</sup>R=Recommended, NRP=Not recommended but possible

<sup>4</sup>P=Post-cure as required by rubber formulation

## Conditions of Use – Solvent-based Products, Continued

Reference	Type <sup>1</sup>	Cover Compatibility	Elastomers to be Bonded <sup>2</sup>	Dry Film Thickness, $\mu\text{m}$	Pre-bake <sup>3</sup>	Bonding Temperature Range <sup>4</sup>
THIXON™ 511-EF	C		GP, EPDM	0.6-1 (15-25)	NRP (max. 120 °C / 248 °F)	130-190 °C (266-374 °F)
THIXON 520-PEF THIXON 526	C		GP	0.4-0.8 (10-20)	NRP (max. 120 °C / 248 °F)	130-190 °C (266-374 °F)
THIXON 547-EF	C		GP, EPDM	0.2-0.4 (5-8)	R (10 min. 105 °C / 221 °F)	130-190 °C (266-374 °F)
THIXON 715/720	M		NBR, ACM, PU, ECO	0.2-0.4 (5-10)	R (10 min. at 130 °C / 266 °F)	125-205 °C (257-401 °F)
THIXON P-6-EF	P	MEGUM™ 122-J MEGUM 500 MEGUM 508 MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 511-EF THIXON 516-EF THIXON 520-EF THIXON 520-PEF THIXON 526 THIXON 532A-EF THIXON OSN 2-EF	GP	0.2-0.4 (5-10)	NRP	
THIXON P-7-6-EF	P	THIXON 547-EF	GP	2.5-5	R (210-235 °C / 410-455 °F)	
THIXON P-11 THIXON P-11-EF THIXON P-21	M		NBR, H-NBR, ACM	0.2-0.4 (5-10)	NRP	100-205 °C (212-401 °F)
THIXON P-11-EF THIXON P-21	P	MEGUM 122-J MEGUM 508 MEGUM 538 MEGUM 5382 MEGUM 5386 THIXON 511-EF THIXON 520-PEF THIXON 526	GP	0.2-0.4 (5-10)	NRP	

<sup>1</sup>P=Primer, C=Cover, M=One-coat

<sup>2</sup>GP=General purpose (NR, SBR, CR, IIR, BR)

<sup>3</sup>R=Recommended, NRP=Not recommended but possible

<sup>4</sup>P=Post-cure as required by rubber formulation

## Conditions of Use – Water-based Products

Reference	Type <sup>1</sup>	Cover Compatibility	Elastomers to be Bonded <sup>2</sup>	Dry Film Thickness, $\mu\text{m}$	Pre-bake <sup>3</sup>	Bonding Temperature Range <sup>4</sup>
MEGUM™ W-2525	M		FKM, AEM, VMQ, EPDM, H-NBR (peroxide cured)	0.06-0.08 (<2)	R (15 min. at 110-150 °C / 230-302 °F)	150-210 °C (302-410 °F)
MEGUM W-2525 MEGUM W-3295	M		FKM, ACM	0.06-0.08 (<2)	R (15 min. at 120-150 °C / 248-302 °F)	150-210 °C (302-410 °F)
MEGUM W-7025	P, M		NBR, H-NBR, X-NBR	0.2 (2.5-5)	NRP (max. 120 °C / 248 °F)	120-205 °C (248-401 °F)
ROBOND™ W-3295	M		FKM, ACM	0.06-0.08 (<2)	R (15 min. at 120-150 °C / 248-302 °F)	150-210 °C (302-410 °F)
ROBOND TR-5125	P		NR, SBR, IIR, NBR, CR, EPDM	0.8-1.0 (20-25)	NRP (max. 120 °C / 248 °F)	130-190 °C (266-374 °F)
ROBOND TR-7021-D	P		NBR, H-NBR, X-NBR	0.1-0.2 (2.5-5)	NRP (max. 120 °C / 248 °F)	120-205 °C (248-401 °F)

<sup>1</sup>P=Primer, C=Cover, M=One-coat

<sup>2</sup>GP=General purpose (NR, SBR, CR, IIR, BR)

<sup>3</sup>R=Recommended, NRP=Not recommended but possible

<sup>4</sup>P=Post-cure as required by rubber formulation



## ABOUT DOW AUTOMOTIVE SYSTEMS

Dow Automotive Systems, a business unit of The Dow Chemical Company, is a leading global provider of collaborative solutions and advanced materials for automotive and commercial transportation original equipment manufacturers, tier suppliers and aftermarket customers. Our materials focus includes structural, elastic and rubber-to-substrate adhesive solutions; polyurethane foams and acoustical management solutions; innovative composite solutions; and films and fluids, with an emphasis on achieving customer and corporate sustainability goals. Offices and application development centers are located around the world to ensure regionalized technical, engineering and commercial support for customers and industry groups. For additional information, visit [dowautomotive.com](http://dowautomotive.com).

---

### **Dow Automotive Systems**

The Dow Chemical Company  
1250 Harmon Road  
Auburn Hills, Michigan 48326  
USA  
E-mail: [dowautomotive@dow.com](mailto:dowautomotive@dow.com)

### **US**

Toll Free 800 441 4369

### **International**

Latin America	+ 55 11 5184 8722
Europe	+ 800 3 694 63 67 + 31 115 67 2626
Italy	+ 800 783 825
Pacific	+ 800 7776 7776 + 60 3 7965 5392
China	+ 400 889 0789 + 86 21 3851 4988

**dow.com**

---

NOTICE: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change over time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligations or liability for the information in this document. No warranties are given.

©™Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

Form No. 299-52337-0216 HMC