

A low-angle, close-up shot of a person's leg and foot on a mountain bike. The rider is wearing a brown shoe and a white sock. The bike is white with black tires. The background is a warm, golden sunset over a dirt trail with trees in the distance. The entire image has a warm, orange-toned overlay.

3M Science.
Applied to Life.™

Bonding for the future

Solving the challenge of bonding
composites and multi-materials.

Assembly Solutions: Common applications

Across industries, applications, and substrates, 3M offers a wide range of bonding products that can help improve product design and make assembly processes more efficient.



Panel-to-Frame/
Stiffener-to-Panel



Small Joint
Assembly



Large Surface
Lamination



Mounting and
Trim Attachment



Gasket
Attachment



Sealing/
Potting

Advantages of adhesives for composite and multi-material assembly

Designing with composites and multiple materials allows you to use thinner, lighter substrates to create products with improved flexibility and higher resistance to vibration and movement. Joining these parts within your assembly requires new methods of bonding beyond mechanical fasteners and welding, and recent advances in structural adhesives (such as epoxies, acrylics and urethanes) are enabling designers to create products that meet structural integrity requirements.

Structural adhesives are simply one of the most versatile solutions for joining composites and multi-materials. They offer application ease and convenience, and with fast throughput, adhesives could also help you meet higher production standards.

Adhesive performance advantages

- High-performance strength, plus impact and energy absorption
- Maximum durability by distributing stress across the entire bonded area
- Bond high-performance composites, from carbon fibre to polyester sheet molding compound (SMC)

Design advantages of adhesives

- Design flexibility
- Lightweight, high-strength seal with load distribution across the entire bonding area
- Bond multiple materials including plastics, metals and composites



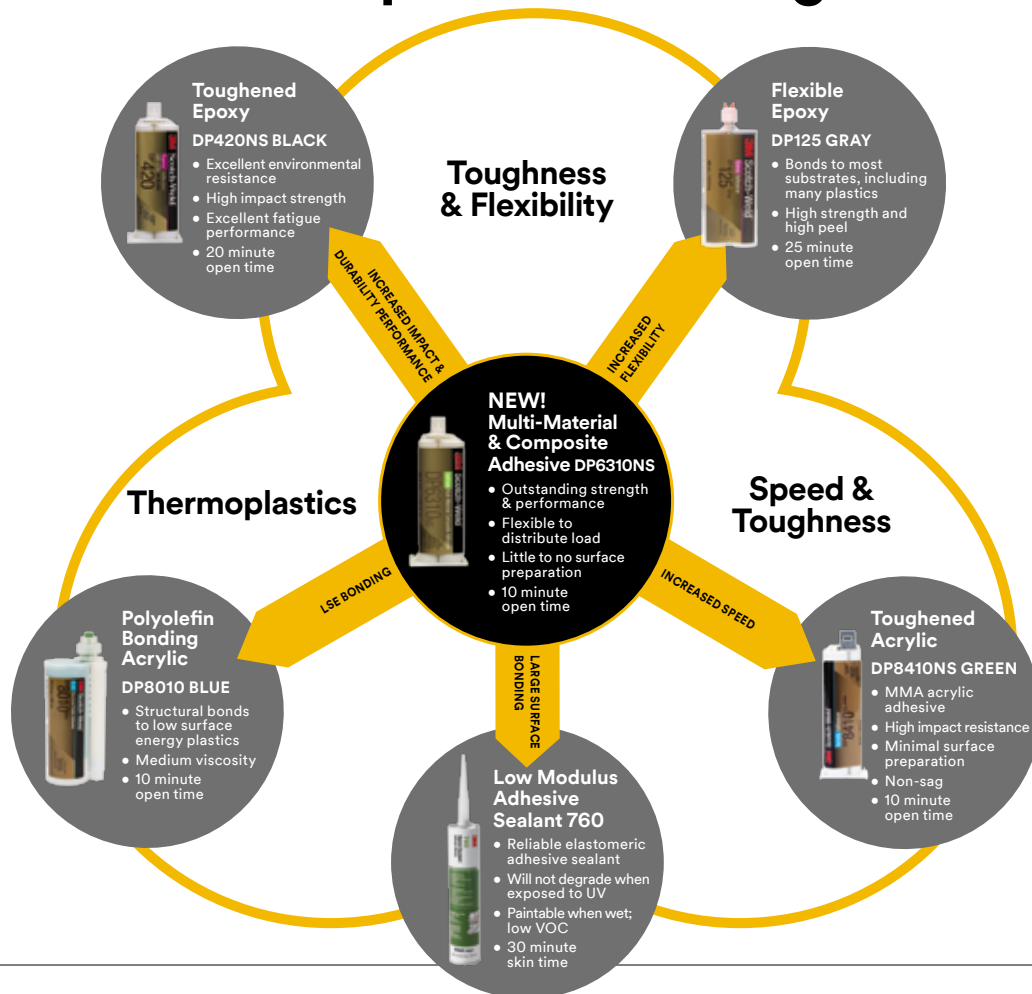
New 3M™ Scotch-Weld™ Multi-Material Composite Urethane Adhesives DP6310NS & DP6330NS

Designed specifically for multi-material and composite assemblies, the new 3M™ Scotch-Weld™ Multi-Material Composite Urethane Adhesives DP6310NS and DP6330NS deliver outstanding strength and performance. These flexible urethane adhesives have excellent elongation and stress strain properties for durable bonding of composite parts and multi-material assemblies.

- Strong and durable
- Fast time-to-handling strength
- Minimum surface preparation
- Low odour
- Excellent performance in high and low temperatures



3M™ Scotch-Weld™ Structural Adhesives for multi-material composite bonding



Selecting the optimal adhesive solution

When selecting an adhesive, it's important to consult with a 3M application specialist. Preliminary adhesive selection can be done by matching end-use requirements to the processing and performance characteristics of 3M Brand Structural Adhesives. The key process factors to consider include:

Substrates

- What materials will be bonded?

Environment

- What are the expected conditions during end use: temperature, humidity, UV exposure?
- Is chemical resistance required: fluids (motor oil, gasoline, diesel fluid, jet fuel), cleaning solutions (weak acids and bases), specialized chemicals that may contact the bonded part?

Stress

- What types of joints are in the design—are there joint designs that put the adhesive bond under shear, tension or compression forces?
- What are the mechanical challenges: impact, vibration, stress type and magnitude?

Production factors

- Do you require manual or automated application?
- Do you need fast or slow adhesives?
- Will the parts be dirty or clean?
- What are the cleanliness/environmental issues during production and end use: outgassing, ionics, corrosion potential, toxicity, disposal?

The specific answers to these questions will help determine the most appropriate products to begin to test and evaluate for suitability of your end product and application.

3M™ Scotch-Weld™ Structural Adhesives

Selector guide

Choose your substrate combination to identify the recommended 3M™ Scotch-Weld™ Structural Adhesive options.

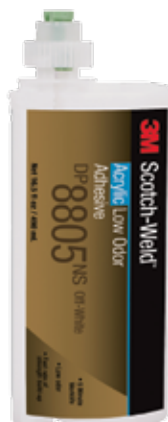
		Substrate 2					
		Metals - Aluminum - Colled Rolled Steel - Galvanized Steel	Fibre-Reinforced Epoxy - Carbon Fibre (CFRP) - Glass Fibre	Fibre-Reinforced Thermosets - Polyester (FRP) - Phenolic - SMC	Thermoplastics - Polyolefin - PET	Other Thermoplastics - Acrylic/PMMA - Polycarbonate (PC) - Rigid PVC and HIPS	Fibre-Reinforced Nylon
Substrate 1	Metals - Aluminum - Colled Rolled Steel - Galvanized Steel	DP420NS DP125 Grey DP8407NS	DP420NS DP6310NS	DP6310NS DP8410NS	DP8010 Blue	DP8410NS DP6310NS	DP6310NS
	Fibre-Reinforced Epoxy - Carbon Fibre (CFRP) - Glass Fibre		DP420NS DP6310NS 760	DP6310NS DP8410NS 760	DP8010 Blue	DP8410NS DP6310NS	DP6310NS
	Fibre-Reinforced Thermosets - Polyester (FRP) - Phenolic - SMC			DP6310NS DP8410NS 760	DP8010 Blue	DP8410NS DP6310NS	DP6310NS
	Thermoplastics - Polyolefin - PET - HDPE				DP8010 Blue	DP8010 Blue	DP8010 Blue
	Other Thermoplastics - Acrylic/PMMA - Polycarbonate (PC) - Rigid PVC and HIPS					DP8010 Blue	DP8010 Blue
	Fibre-Reinforced Nylon						DP6310NS

For more detailed selection options, please visit [3M.ca/StructuralAdhesives](https://www.3M.ca/StructuralAdhesives).

3M™ Scotch-Weld™ Structural Adhesives

General characteristics

All 3M Brand Structural Adhesives provide at least 7 Mpa (1,000 psi) of overlap shear strength. Epoxy, acrylic and urethane adhesives feature the following specific properties:



Epoxy adhesives generally have the highest strength and overall performance. They also provide the best resistance to high temperatures, solvents and outdoor weathering. They adhere well to metals, ceramics, wood and thermoset plastics, and usually require clean, abraded surfaces to obtain maximum bond strength.

Acrylic adhesives provide excellent bond strength and durability. They also provide faster cure speed, higher tolerance for oily or unabraded bonding surfaces, and have the ability to bond a wide variety of plastics and composites, and metals.

Urethane adhesives generally have excellent impact resistance and good adhesion to most plastics and composites, as well as ceramics, metal and wood. They are relatively flexible when cured, making them a good choice for bonding materials with different coefficients of thermal expansion when temperature cycling is foreseen. They tend to have reduced strength in high temperatures.

3M™ Scotch-Weld™ Structural Adhesives ordering information

Product	Size	Unit/case	Unit/case stock #	UPC
3M™ Scotch-Weld™ Multi-Material Composite Urethane Adhesive DP6310NS	48.5 mL	12/CV	62-3590-1448-7	00-076308-86407-1
	400 mL	6/CV	62-3590-3630-8	00-076308-86398-2
3M™ Scotch-Weld™ Composite Urethane Adhesive DP6330NS	48.5 mL	12/CV	62-3565-1448-9	00-076308-86431-6
	400 mL	6/CV	62-3565-3630-0	00-076308-86433-0
3M™ Scotch-Weld™ Epoxy Adhesive DP420NS Black	37 mL	12/CV	62-3299-1435-2	00-021200-39285-6
	200 mL	12/CV	62-3299-3832-8	00-021200-39286-3
	400 mL	6/CV	62-3299-3532-4	00-021200-39287-0
3M™ Scotch-Weld™ Epoxy Adhesive DP125 Grey	50 mL	12/CV	62-3293-1435-5	00-021200-87215-0
	200 mL	12/CV	62-3293-3830-5	00-021200-87844-2
	400 mL	6/CV	62-3293-3530-1	00-021200-87845-9
3M™ Scotch-Weld™ Low Odour Acrylic Adhesive DP8805NS	45 mL	12/CV	62-2852-1446-6	00-076308-98433-5
	490 mL	6/CV	62-2852-3631-1	00-076308-98439-7
3M™ Scotch-Weld™ Acrylic Adhesive DP8410NS	45 mL	12/CV	62-2860-1445-1	00-051115-70994-4
	490 mL	6/CV	62-2860-3630-6	00-051115-70995-1
3M™ Hybrid Adhesive Sealant 760	600 mL Sausage pack	12/CV	62-5277-3932-0	00-048011-62816-5

3M™ Scotch-Weld™ Structural Adhesives

Application and market examples

Transportation: Truck, bus, trailer, RV, emergency vehicles, vehicle interiors, high-end automotive



Manufacturing of commercial buses, boats and specialty vehicles can use multiple bonding options to help withstand the loads applied to the panels during use, and to accommodate movement created by vibration and differential thermal expansion. 3M™ Brand Structural Adhesives are used in many applications to build these vehicles.

Sporting goods: Golf clubs, tennis racquets, hockey sticks, recreational sporting equipment



The sporting goods industry was one of the first to use composite materials in the manufacturing of their products. Sports equipment needs to be very high performance, and the sporting goods industry has relied on 3M™ Brand Structural Adhesives to take their design and performance to the next level.

General industry: Signage, pumps and tanks, electronics, construction, plus many more



Many industries are beginning to use composite adhesives to provide optimal bonding and assembly solutions for composite materials. You can rely on 3M™ Brand Structural Adhesives to help bring your design to reality!



3M Composite and multi-material solution centre

Finding the right science to match your application is key. 3M is here to help, bringing over 60 years of proven adhesive science leadership to composite bonding applications, and offering the expertise to apply them to the right materials for an adhesive bond quality. From creating the rugged strength of the first composite golf club to applying a powerful hold to airplane wings, 3M has brought the industry new solutions, making adhesive science what it is today, with progressive products formulated to solve the manufacturing challenges of the future.

Your next design starts here!

It's time to design with new materials and enhance your process efficiencies—with the help of 3M™ Brand Adhesives and the support of the 3M team. We offer technical service and testing to help you maximize your product designs. 3M is your go-to resource for application and adhesive expertise. Wherever you are in the process, we can help guide you with the advice and information you need.

What's your challenge? Solve it with an adhesive bond.



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