

Technical Data Sheet

Chemtools® Pty Ltd | Ph: 1300 738 250 (+61 2 9833 9866) | Unit 2, 14 – 16 Lee Holm Road ST MARYS NSW 2760
Safety Data Sheets, product photos, and other information can be obtained by visiting www.chemtools.com.au



Rapidstick™ 8-411 Methacrylate Structural Adhesive

PART NUMBER	AVAILABLE SIZE*
8-411-50	50ml, 10:1 Dual Cartridge
8-411-490	490ml, 10:1 Dual Cartridge

*Available colours and/or sizes may change without notice.

DESCRIPTION

Chemtools® Rapidstick™ 8-411 Structural Adhesive is a two-component, 100% reactive toughened adhesive with excellent impact, peel, and shear resistance in a convenient 10:1 mix ratio. Its non-sagging and thixotropic formulation is specially formulated to bond acrylics, polycarbonates, various plastics, and metals to themselves and each other.

8-411 fills gaps up to 0.2mm and is room temperature cured with a short open time, forming a strong and durable transparent bond that is resistant to humidity and moisture, chemicals, and temperature fluctuations. It is ideal for applications requiring optical clarity with excellent adhesion to diverse substrates. Boasting excellent UV resistance, 8-411 is typically used for channel letter assembly, outdoor signs, and structural bonding of plastics and metals.

Recommended bonding surfaces include, but are not limited to:

Acrylic (PMMA)	Polycarbonate (PC)	Polyvinyl Chloride (PVC)	Plexiglass
Acrylonitrile Butadiene Styrene (ABS)		Most common metals, including aluminium and steel	

TECHNICAL DATA

Colour	Resin: Clear / Activator: Clear
Viscosity @ 25°C (Brookfield RVT)	Resin: 75 – 100,000 / Activator: 25 – 30,000
Mix Ratio (Rate & Volume)	Resin: 10 / Activator: 1
Mixed Viscosity	10,000 – 11,000 Thixotropic
Working/Open Time	6 – 9 minutes
Fixture/Handling Time	14 – 18 minutes
Full Cure	24 hours at room temperature
Hardness (Shore D)	50 – 60
Gap Fill	Up to 0.2mm
Tensile Strength	2,000 psi
Modulus @ 1% Strain	81,000 – 86,000 psi
Elongation	5 – 10%
Temperature Resistance	-40°C to +120°C
Chemical Resistance	Most common chemicals and solvents
Shelf Life	12 months from the date of manufacture

LAP SHEAR STRENGTH DATA (ASTM D1002) AFTER 7 DAYS @ 25°C

Note: Substrate failure means substrate is failing before the adhesive bond.

Substrates	Lap Shear Strength & Failure Mode
Plexiglass to Plexiglass	1,275 psi – Substrate Failure
Polycarbonate to Polycarbonate	1,150 psi – Substrate Failure
ABS to ABS	1,375 psi – Substrate Failure
ABS to Aluminium	1,450 psi – Substrate Failure
Acrylic to Aluminium	1,050 psi – Substrate Failure
Polycarbonate to Aluminium	1,150 psi – Substrate Failure

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COVERAGE GUIDE

MMA COVERAGE CHART						
BEAD SIZE (ROUND) VS APPROX. BOND LINE COVERAGE PER CARTRIDGE						
CARTRIDGE TYPE	1/8 inch 3.175 mm	1/4 inch 6.35 mm	3/8 inch 9.525 mm	1/2 inch 12.70 mm	5/8 inch 15.875 mm	BOND LINE COVERAGE ↓
1:1 MIX RATIO						
50ML	12,649.2	3,149.6	1,397	787.4	508	mm
	126.50	31.50	13.97	7.87	5.08	cm
	1.26					M
200ML	55,575.2	13,868.4	6,197.6	3,454.4	2,209.8	mm
	555.76	138.68	61.98	34.55	22.10	cm
	5.56	1.39				M
400ML	101,015.8	25,273	1,126.8	6,299.2	4,038.6	mm
	1,010.16	252.73	11.27	62.99	40.39	cm
	10.10	2.53				M

APPLICATION GUIDE

All surfaces must be clean and dry, and free of dust and grease. Best results will be achieved with surfaces that have been lightly abraded immediately prior to bonding.

Adhesive should be dispensed using the 10:1 static mixer supplied with the cartridge, following application guidelines below.

After application, test the curing adhesive at the edges for fingernail hardness before removing any clamps or fixtures.

APPLICATION GUIDELINES

Preparing the Cartridge and Static Mixer

Ensure the cartridge is properly loaded into the dispensing gun. Attach the 10:1 static mixer securely to the end of the cartridge, ensuring a tight fit.

Priming the Mixer

To ensure that both components are flowing evenly and mixing correctly, dispense a small amount of adhesive through the mixer until a uniform colour is achieved.

The Mixing Process

As the two components pass through the static mixer, the compound with the greater volume in the cartridge enters the nozzle at a ratio 10 times that of the other. The internal elements of the mixer ensure that both components are thoroughly combined before exiting the tip, providing optimal performance of the adhesive.

Dispensing the Adhesive

Squeeze the trigger of the dispensing gun and ensure a steady and consistent flow of the mixed material by maintaining a constant pressure on the trigger.

Apply the mixed adhesive directly to the substrate or surface where bonding is required. Work quickly, as the adhesive may start to cure once mixed.

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Cleaning and Storage

After use, remove the cartridge from the dispensing gun and dispose of any unused material properly. If the adhesive cures inside the mixer, it will need to be replaced before the next use. Store the cartridge and static mixer in a cool, dry place to prolong shelf life.

Adhesive components and mixed adhesive should be removed from mixing and application equipment with a suitable industrial solvent or cleaner before the mixed adhesive cures. Once cured, soaking in a strong solvent or paint remover will be required to soften the adhesive for removal.

Maintenance

Regularly inspect the static mixer for any blockages or damage that may affect the dispensing process. Replace the static mixer when necessary to ensure proper mixing and dispensing at the correct ratio for optimum adhesive performance.

CURING

Working Time is the approximate time after mixing components A and B that the adhesive remains fluid and bondable.

Fixture Time is the approximate time after mixing components A and B required for the adhesive to develop sufficient strength to allow careful movement, unclamping, or demolding of assembled parts. Parts can generally be put into service when 80 percent of full strength is developed.

The time to achieve 80% cure is approximately 2-3 times that required for fixturing.

Note: The chemical curing reaction that occurs when components A and B are mixed generates heat. The amount of heat generated is controlled by the mass and thickness of the mixed product. Large masses over 12.7mm thick can develop heat in excess of +120°C and can generate harmful, flammable vapours. Large curing masses should be carefully moved to a well-ventilated area where the chance of personal contact is minimised.

ADVICE ABOUT DISPENSING EQUIPMENT

Care must be taken to ensure compatibility between the adhesive components and the materials in the equipment that they contact. All wetted metal components should be constructed of stainless steel or aluminium, or have a sufficient thickness of chemically resistant material that prevents contact between the adhesive components and the base metal.

Contact with copper, zinc, brass, or other alloys containing these materials must be strictly prevented. All non-metallic seals and gaskets should be fabricated from Teflon® or UHMW polyethylene-based materials.

SHELF LIFE

12 months from the date of manufacture in accordance with the following conditions:

Store continuously between 13°C and 23°C. Long term exposure above 23°C will reduce the shelf life of these materials. Prolonged exposure of activators, including cartridges which contain activators, above 37°C quickly diminishes the product's reactivity and should be avoided. Shelf life can be extended by refrigeration (8°C - 12°C). Do not freeze.

FIRST AID & SAFETY PRECAUTIONS

Always refer to Safety Data Sheet/s before use. Use proper Personal Protection Equipment. Do not get in eyes, on skin, or on clothing. Use with adequate ventilation. Avoid breathing fumes. Keep away from heat, sparks, open flames, and hot surfaces. This product may produce adverse health conditions, ranging from minor skin irritation to serious systemic effects. It should not be used, stored, or transported until the handling precautions and recommendations as stated in the Safety Data Sheet/s for this product have been fully understood by all persons who will work with the material.

STORAGE & TRANSPORT

Refer to Safety Data Sheet/s for recommendations. As a general precaution, keep containers tightly closed, protect from sunlight, and do not expose to temperatures exceeding 50°C. Store in a cool, dry place at room temperature (5 – 40°C). Do not return any unused material to its original container. Containers should be secured and stored upright during transit.

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