

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™ 8-103Z Polyurethane Adhesive

PART NUMBER	AVAILABLE SIZE*
8-103Z-50	50ml 1:1 Dual Cartridge
8-103Z-400	400ml 1:1 Dual Cartridge

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

DESCRIPTION

Chemtools® Rapidstick™ 8-103Z Polyurethane Adhesive is a two-component medium setting structural adhesive that provides a high level of adhesion with maximum reliability, and excellent environmental resistance to harsh conditions.

8-103Z cures at room temperature due to air-borne moisture, with the curing process the result of exothermic reactions between the two components. It offers good abrasion, impact, and chemical resistance, is sandable after cure, and adheres to a wide variety of surfaces.

Recommended bonding surfaces include, but are not limited to:

Aluminium	Stainless Steel	ABS	PVC	Polyurethane	Composites
Wood	Glass	Concrete	Thermoplastics	Thermosetting Plastics	

COVERAGE GUIDE

CARTRIDGE TYPE	POLYURETHANE ADHESIVE COVERAGE CHART					BOND LINE COVERAGE ↓
	BEAD SIZE (ROUND) VS APPROX. BOND LINE COVERAGE PER CARTRIDGE					
1:1 MIX RATIO	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	
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

PRE-APPLICATION MIXING PROCEDURE

Proper homogenous mixing of resin and hardener is essential for the curing and development of stated strengths.

1. Attach the cartridge to the 50ml/400ml manual or pneumatic dispensing system.
2. Open the tip.
3. Burp the cartridge by squeezing out some material until both sides are uniform to ensure no air bubbles are present during mixing.
4. Attach the mixing nozzle to the end of the cartridge.
5. Apply to the surface and attach other substrate quickly before fixture time elapses. Substrates can be clamped with a bond line thickness as small as 0.007".

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



APPLICATION

SURFACE PREPARATION: Clean the surface by solvent-wiping any deposits of heavy grease, oil, dirt, or other contaminants. Surfaces can also be cleaned with industrial cleaning equipment such as vapor phase degreasers or hot aqueous baths. If working with metal, abrade or roughen the surface to significantly to increase the microscopic bond area and increase the bond strength.

APPLICATION: Always dispense a quantity of adhesive at start-up to ensure the adhesive exiting the tip of the mixer is a uniform colour, without streaks. If previously opened or aged material is being used, allow the purged material to cure to confirm quality before proceeding.

Carefully dispense a sufficient quantity of adhesive onto the substrate to ensure that the bond gap will be completely filled when the parts are joined. Allow for squeeze-out at the edges of the bond to ensure coverage.

Carefully secure or clamp parts to prevent joint movement while the adhesive sets. Do not apply excessive pressure that can cause excessively thin gaps and starve the bond line.

Test the curing adhesive at the edges for fingernail hardness before removing any clamps or fixtures.

CURING AND OFF-RATIO PERFORMANCE: Rapidstick™ 8-103Z is designed in such a way that off-ratio mixing between 0.8:1 and 1.2:1 will not affect the final properties of the bond performance*.

*Aluminium / Aluminium. According to ASTM D1002, results show that there are only minor changes in the lap shear strength and curing properties of the adhesive when mixed off-ratio.

CLEAN-UP PROCEDURE

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.

TECHNICAL DATA

ADHESIVE PROPERTIES (UNCURED)

Mix Ratio by Volume	1:1
Mix Ratio by Weight	1:1
Colour Part A	Beige
Colour Part B	Black
Colour Mixed	Black
Mixed Viscosity	High Viscosity Paste
Working Time	15 – 20 minutes
Fixture Time	55 – 60 minutes
Full Cure	24 hours
Coverage (lb)	148 sq.in per Lb @ 0.25"
Service Temperature	-40°C to +120°C
Shelf Life	12 months from the date of manufacture

ADHESIVE PROPERTIES (CURED)

T-Peel Strength	65 - 75 Lbs per Linear Inch	ASTM D1876
Tensile Elongation	200%	ASTM D638
Shore Hardness	65 - 70D	ASTM D2240
Dielectric Strength	350 volts/mil	ASTM D149
Cure Shrinkage	0.0014 in./in.	ASTM D2566
Tear Shrinkage	400 Lbs per Linear Inch	ASTM D624
Tensile Strength	2200 psi	ASTM D638

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



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

Result: Lap Shear Strength figures are lower for the plastic surfaces due to substrate failure which means substrate is failing before the adhesive bond.

Substrates	Lap Shear Strength & Failure Mode
Steel / Steel	2,050 psi
Aluminium / Aluminium	2,225 psi
Glass / Glass	4,100 psi
SMC / SMC	1,200 psi
ABS / ABS	1,250 psi
Concrete / Concrete	1,940 psi
Galvanized Metal / Metal	2,840 psi
GBS / GBS	2,750 psi

ENVIRONMENTAL RESISTANCE

Result: Excellent resistance to harsh environment conditions. Lap Shear Strength increased after the environmental cycle. Rapidstick™ 8-103Z performed better under these conditions compared to the substrates bonded. Substrates may have less resistance to these conditions, compared to the adhesive.

Condition	Lap Shear Strength & Mode of Failure
Initial	2,225 psi – Cohesive Failure
Environmental Cycle (30 days)	2,275 psi – Cohesive Failure

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.

DISCLAIMER

Every effort has been made to ensure the information provided in this document is accurate at the date of publication. Chemtools® Pty Ltd expressly recommends that the user make his/her own assessment to determine the suitability of the product for its intended purpose prior to application. Chemtools® Pty Ltd shall not be responsible for loss, damage, or injury, resulting from the reliance upon, or failure to adhere to, any recommendations or information contained herein; nor from abnormal use of the material; nor from any hazard inherent in the nature of the material.