



Brunel Close, Park Farm
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 Tel 01933 675299
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 Iss 3.0 10/10/03

COMPOSITE WELDER

PRODUCT DATA SHEET

Composite Welder is a two-part methacrylate adhesive designed for structural bonding of thermoplastic, thermoset, metal and composite assemblies. Combined at a 10:1 ratio, it has a working time of 4 to 6 minutes and achieves 75% of ultimate strength in 15 to 18 minutes at room temperature. Composite Welder is the standard choice for composite bonding applications. It requires virtually no surface preparation. In addition this product provides a unique combination of high strength, excellent fatigue endurance, outstanding impact resistance and superior toughness.

FEATURES

- Non-sagging
- Will fill gaps of up to 8mm
- High toughness
- Resistant to weathering and humidity
- Room temperature cure
- No surface preparation
- 100% reactive

RECOMMENDED APPLICATIONS

- | | |
|-------------------|---------------------|
| * PVC & Vinyl | * Steel/Carbon |
| * ABS | * Aluminium # |
| * Acrylics (PMMA) | * Stainless Steel # |
| * Polyesters | * Phenolics |
| * Styrenics | * Fibreglass |
| * Vinyl Esters | * PC Blends |
| * Polysulfone | * Gelcoats |
| * PBT Blends | * PET Blends |
| * Epoxy | * Brick |
| * Polyurethanes | * Honeycomb |

(# Primer suggested – Metal Prep 90)

PRODUCT DATA

Physical Properties - Uncured @ 22°C

	<u>Part A</u>	<u>Part B</u>
Viscosity, cP.....	100,000 - 125,000	50,000 - 70,000
Colour.....	Off white	Blue
Density, g/cc.....	0.96	1.07
Mix ratio by volume	10	1
Mix ratio by weight.....	8.9	1

Mechanical Properties - Cured @ 22°C

Tensile (ASTM D3039)	
Strength, Mpa.....	18.6 – 20.6
Modulus, Mpa.....	517 - 689



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Strain to Failure (%).....	100 - 125
Lap Shear (ASTM D1002)	
Cohesive Strength, Mpa.....	12.0 – 15.5
Mixed density	0.97g/cc
Working time (1).....	4 - 6 minutes
Fixture time (2).....	15 - 18 minutes
Full cure.....	24 hours
Solvents.....	None
Flashpoint.....	9°C
Elongation.....	100 - 125%
Operational Temperature Range.....	-55 to 120°C

Durability: 336 hours at 40°C, 100% RM.
 Grit blasted steel to grit blasted steel – 100% strength retained.

* The viscosity and flow properties of Devcon methacrylate adhesives are ideal for robotic meter-mix application. Non sagging beads can be dispensed at very high speeds with moderate pressures through disposable static mixers.

- (1) Working Time: The time elapsed between the moment Part A and B are combined and thoroughly mixed and the time when the adhesive is no longer usable.
- (2) Fixture Time: The interval of time after which surfaces being joined will support a 2lb (1kg) dead weight on a ½" (12.7mm) overlap joint 1" (25.4mm) wide without movement.

Chemical Resistance:

Hydrocarbons	Excellent
Acids and Bases (3-10 pH)	Excellent
Salt Solutions	Excellent

Susceptible to Polar Solvents, Strong Acids and Bases.

APPLICATION INFORMATION

Mixing:

Devcon Composite Welder is available in pre-measured cartridge form or with automated equipment. For more information concerning automated application, please contact ITW Devcon. The pre-measured cartridge form should be used with the appropriate manual Applicator Gun and Static Mixer Nozzle. The Static Mixer Nozzle enables the adhesive to be dispensed, metered and directly applied to the surfaces to be bonded. Please note: Once the product cures in the nozzle it has to be thrown away and a new nozzle used.

Application:

Apply mixed adhesive directly to one surface in an even film or as a bead. Assemble with the mating part within the recommended working time. To assure maximum bond strength, surfaces must be mated within the specified working time of the adhesive. Use sufficient material to insure 100% joint fill when parts are mated and clamped. All adhesive applications, part positioning and clamping should occur before the working time of the mix has expired. Movement of the part after the working time has expired can result in bond strengths lower than normal. Ensure that the assembly remains undisturbed until fixture has occurred.



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Effect of Temperature:

Application of adhesive at temperatures between 18°C and 26°C will ensure proper cure. Temperatures below 18°C will slow cure speed; above 26°C will increase cure speed. The viscosity's of Parts A and B of this adhesive are affected by temperature.

STORAGE AND SHELF LIFE

The shelf life for Composite Welder adhesive (Part A) is 1 year from date of shipment from ITW Devcon. The shelf life for the activator (Part B), including cartridges that contain activator is 9 months. Shelf life is based on continuous storage between 12 and 23C. Long term exposure above 23C will reduce the shelf life of these materials. Shelf life can be extended by refrigeration (7 – 12C) These products should never be frozen.

PRECAUTION

For complete safety and handling information please refer to the appropriate Materials Safety Data Sheets prior to using this product.

HANDLING & STORAGE

WARNING! This product is flammable (Parts A and B). Contents include Methacrylate Ester. Keep containers closed after use. Avoid skin and eye contact. Wash with soap and water after skin contact. In case of eye contact, flush with water for 15 minutes and get medical attention. Harmful if swallowed. Keep out of the reach of children. Keep away from heat, sparks and open flames. NOTE: Because of the rapid curing features of this product, large amounts of heat are generated when large masses of material are mixed at one time. The heat generated by the exotherm resulting from the mixing of large masses of adhesive can result in the release of entrapped air and volatile components as evidenced by gassing. To prevent this, use only enough material as needed for use within the working time for the product, and confine gap thickness to no more than 8mm. Do not dispense waste material into plastic cups as heat may melt container. Do not hold metal containers of Composite Welder adhesive during curing or else heat generated may cause burning.

Clean-Up:

Clean up is best accomplished before the adhesive cures. For cured adhesive carefully scrape it away and wipe with a solvent. Spills should be cleaned up with an absorbent material and disposed of as flammable material.

ORDERING INFORMATION

Stock No Unit size

14160	250ml Cartridge	14281	200/250ml Manual Applicator Gun
		15047	250/490ml Static Mixer Nozzle
		19650	Metal Prep 90 473ml

Warranty: Devcon will replace any material found to be defective. Because the storage, handling and application of this material are beyond our control, we can accept no liability for the results obtained.

Disclaimer: All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Devcon makes no representations or warranties of any kind concerning this data.

For technical assistance please call 01933 675299