

3M

Scotch-Weld™ 3500-2 B/A

Introduction	Scotch-Weld™ 3500-2 B/A is a two part , high temperature curing , void filling compound. It offers the following advantages :	• High performance from -55°C to + 175°C • Convenient 1:1 mix ratio by weight • Thixotropic for ease of application • Long work life at 15-25°C • Low volatiles loss during cure	• Cures from 120°C to 175°C in one hour • Low cured density • Excellent water and chemical resistance • Room temperature storage of the two compounds
Description	(This is not a specification)	<u>Base compound</u>	<u>Accelerator compound</u>
	Colour :	Off-white	Dark grey
	Base :	Epoxy	Modified amine
	Mix ratio by weight :	100	100
	by volume :	100	93
	Consistency :	Thixotropic paste	Thixotropic paste
	Uncured density :	0.61 g/ml	0.66 g/ml
	Worklife (100 g mix) :	48 hours (minimum) at 15-25°C	
	Cure cycle :	1 hour from 120°C to 175°C with 2-5°C/minute heat-up rate	
	Flow (Boeing jig) :	5 mm (maximum)	
	Volatiles loss on cure :	1.0 % after 1 hour cure at 175 +/- 5°C (atmospheric pressure)	
	Cured density :	0.62 g/ml after 1 hour cure at 175 +/- 5°C (atmospheric pressure)	
Applications	• Designed for honeycomb sandwich constructions	• Honeycomb splicing and reinforcement • Mismatch areas filling	• Inserts bonding
Product performance	Compressive strength : (12.5 x 12.5 x 25) mm samples were cut from a cured test block of Scotch-Weld™ 3500-2 B/A. Compression was run with the force applied to the 12.5 mm square surface at a rate of 0.5 to 1.3 mm/minute. Cure cycle : 120 ± 5 °C or 175 ± 5 °C, 60 minutes, atmospheric pressure, with a 3.0°C/minute heat-up rate. The results reported are average of five individual specimens.		

Test temperatures	Compressive strength ⁽¹⁾	Compressive strength ⁽²⁾
	(120°C cure)	(175°C cure)
+ 23 ± 2°C	63.9 MPa	50.8 MPa
+ 80 ± 2°C	53.6 MPa	---
+ 135 ± 2 °C	---	28.9 MPa
+ 150 ± 2 °C	---	25.7 MPa
+ 175 ± 2 °C	---	18.4 MPa

(1) : 1.3 mm/minute load rate

(2) : 0.5 mm/minute load rate

**Compressive modulus of elasticity at 23°C :
(ASTM D 695)**

Six (12.5 x 12.5 x 25) mm compressive specimens were cut from a test block of Scotch-Weld™ 3500-2 B/A cured under atmospheric pressure for one hour at 120 ± 5 °C . Compression was then run at 1.3 mm/minute.

Average compressive modulus : 5300 MPa

Filler strength (Ejection test) :

A 40 mm length of 10 mm diameter optimized FPL etched aluminium rod is bonded into a (30 x 30 x 10) mm block of void filler such that 20 mm and 10 mm of the rod protudes on either side. After curing for one hour at 175 ± 5 °C , the force necessary to push out the rod is measured for a load rate of 0.5 mm/minute.

Test temperatures	Typical filler strength (average of 5 specimens)
+ 23 ± 2°C	4470 N
+ 150 ± 2°C	3500 N
+ 150 ± 2°C (After 1000 hours at 150 ± 5 °C)	3330 N

Fluid resistance :

Compressive and filler strength specimens of cured Scotch-Weld™ 3500-2 B/A were prepared in accordance with the above described conditions. They were then immersed in the following environments at 23 ± 2°C (unless otherwise stated) . The % weight increase was recorded on the compressive specimens whilst the filler strength specimens were tested at 0.5 mm/minute.

	% Weight absorption	Average filler strength
CONTROL	----	3895 N
WATER BOIL 2 hours at 100 ± 2°C	0.9 %	Not tested
50°C/95 % R.H. for 30 days	1.7 %	Not tested
<u>48 hours immersion</u>		
AVTUR/FS III NATO F-34	0.1 %	4075 N
ENGINE OIL NATO O-149	1.2 %	4100 N
HYDRAULIC OIL MIL-H-5606	1.1 %	4250 N

	% Weight absorption	Average filler strength
<u>1000 hours immersion</u>		
SKYDROL 500B	Not tested	3655 N
DISTILLED WATER	Not tested	3215 N
AVTUR/FS III NATO F-34	Not tested	3780 N
LUBRICATING OIL EATO 35	Not tested	3605 N

Product application

Surface preparation :

A thoroughly cleaned, dry, grease-free surface is essential for maximum performance.

Mixing :

Scotch-Weld™ 3500-2 B/A may be mixed by hand or machine until an uniform grey colour is obtained. When mixing by hand cotton gloves are recommended (in addition to the normal skin protective measures) to facilitate handling.

Adhesive application :

Scotch-Weld™ 3500-2 B/A can be applied by spatula, trowel or extrusion machine. The most appropriate work temperature is comprised between 20 and 25°C.

Recommended cure cycle :

Scotch-Weld™ 3500-2 B/A will cure in one hour from 120°C to 175°C. Product can be worked out on immediately on cooling.

Cleanup :

Excess adhesive and equipment can be cleaned with a solvent like Methyl-Ethyl-Ketone (M.E.K.).¹⁾

1) When using solvents, extinguish all ignition sources in the area and observe precautionary measures.

Storage stability

Store the product at room temperature or below. Storage life at 15-25°C is 6 months for the two compounds in their original unopened containers. Rotate stock on a "first in - first out" basis.

Precautionary Information

See Material Safety Data Sheet for precautionary information.

Important notice to purchaser

All statements, technical information and recommendations in this Data Sheet are based on tests 3M believes to be reliable, but the accuracy or completeness of those tests is not guaranteed. The following is made in lieu of all warranties, express or implied.

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to use the product. Before using, the user must determine the suitability of the product for his or her intended use. The user assumes all risk and liability in connection with the use of the product.

Product Information source

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Reasons for change	New revision
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Issued by :	S. DUQUESNE	Approved by :	P. JANNIC
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