

ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

ADHESIVE, STRUCTURAL, FAST CURING, AIR DRY

WSS-M2G409-A

1. SCOPE

The material defined by this specification is a two-step anaerobic, polyacrylate resin that cures readily between parallel, closely mating (0.003 in. bondline), smooth-surface materials. This adhesive develops handling strength in approximately 10 sec.

2. APPLICATION

This specification was originally released for a material used for bonding resin-impregnated, sintered stainless steel interior rear view mirror bracket buttons to windshields for service replacement. This specification replaces ESB-M2G176-A.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 QUALITY

The material shall be a smooth, homogeneous mixture, free from foreign materials and properties detrimental to normal production operations.

3.5 MATERIAL PROPERTIES

	COMPONENT	Adhesive	Accelerator
3.5.1	Color	Light amber	Light brown
3.5.2	Viscosity (MPa·s) ASTM D 1084 (Method B)	850-1200	N/A
3.5.3	Density (kg/L)	1.03-1.08	0.77-0.81
3.5.4	Shelf Life, max. 32 °C	1 year	1 year 30 days(opened)
3.5.5	% Solids, min. ASTM D 2834 (except Temp 102 °C for 3 h)	75	3

Date	Action	Revisions
2002 12 10	Revised	Para 3.0 inserted ; Para 3.1, 3.2, 3.3, 3.7, 3.8, 4 deleted
1999 09 08	Activated	S. Lenda

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3.5.6	% Ash, max. ASTM D 5040 (except Temp 760 +/- 30 °C for 1 h)	0.5	0.1
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3.6 PERFORMANCE PROPERTIES

ASTM D 1002 (0 gap, 12.7 mm overlap, 1.3 mm/min jaw separation rate)

Sample preparation: Thoroughly clean both surfaces with hexane. For cyanoacrylate adhesives, apply a small drop of adhesive to the prepared surface of one lap-shear specimen. For two part adhesives which are not mixed prior to application, apply as follows: apply a bead of Part A to the prepared surface of one lap-shear specimen and a bead of Part B to the prepared surface of the mating lap-shear specimen such that when the lap-shear specimens are mated, the two beads contact each other fully. Apply sufficient quantities of each part so as to ensure complete coverage of the prescribed bond area.

Tensile Shear Strength, MPA, minimum

Unaged:	Steel/Steel	Al/Al
After 2 minutes	12.4	6.2
After 1 h	13.8	6.9
After 24 h	17.2	7.9

Aged:
(Assembled test parts are aged 24 h at room temperature before exposure)

	Steel/Steel	Al/Al
88 °C, 2 weeks hot*	13.8	7.0
- 29 °C, 24 h, cold*	10.3	5.5
Humidity, 2 weeks, 38 +/- 1 °C and 95 - 100 % relative humidity**	6.9	4.5
10 cycles of: ** 4 h at - 29 °C 4 h at 82 °C 16 h humidity 30 +/- 1 °C and 95 - 100 % relative humidity	6.9	3.45