



TAPE, THERMOPLASTIC – BONDING

ESB-M3G41-A

1 SCOPE

The material defined by this specification is a flexible, dry film adhesive tape composed of synthetic elastomers and various thermoplastic and thermosetting resins.

2. APPLICATION

This specification was released originally for material used for bonding product name plates on scuff plates as well as exterior decorative finishes to chrome plated die castings. The bonds are made by heat and pressure activation.

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).

3.2 COLOR Dark Brown (cured and uncured)

3.3 THICKNESS, min 0.0016 in (41 μ m)
(ASTM D 1000)

3.4 SOLIDS, min 97%
(ASTM D 1084, except heat
at 102 +/- 3 °C for 3 h)

3.5 TENSILE STRENGTH, (uncured) 1.35 lb/in (236 N/m)
(ASTM D 1000, pulled at 12 in (305 mm) min)

Elongation, min 200%

3.6 WEIGHT 0.010 +/- 0.002 lb/ft²
(50 +/- 10 g/m²)

3.7 TENSILE SHEAR ADHESION, min

3.7.1 Normal Adhesion 550 psi (3.8 MPa)

3.7.2 Aged Adhesion

7 days water immersion at 23 +/- 2 °C 450 psi (3.1 MPa)
7 days at 93 +/- 3 °C 600 psi (4.1 MPa)
7 days immersion 5% salt solution 150 psi (1.0 MPa)
7 days at 38 °C and 95-100% R.H. 450 psi (3.1 MPa)

Date	Action	Revisions
2005 09 19	Revised	Inserted 3.0; Deleted 3.1, 3.10, 4
1978 11 14		Metricated, Renumbered & Retyped CAH1-RD572066-175
1963 09 10	Released	AS1-1082



Test Method: Clean an area approximately 1 in (25 mm) wide along the edge of the long dimension of (2) 4-1/2 x 12 in (174 x 305 mm) pieces of 0.030 in (0.76 mm) AA-5052-H32 aluminum using first toluol (M-14J 242) and then acetone (M-1021). The area may be considered free of oils and greases when there is no haze remaining on the metal. Apply the bonding tape to the cleaned area of one panel. Lay the cleaned bond area of the second panel over the first, making a bond area 1/2 wide x 12 in long (13 x 305 mm). Apply a pressure of 150 psi (1.0 MPa) to the bond line using a laboratory press or other suitable means and bring the bond line temperature to 191 °C. Maintain at that temperature for 10 minutes. Remove the pressure and allow the panel to cool 4 to 24 h at 23 +/- 2 °C. Cut the panel into 1 in (25 mm) wide strips using a band saw. This will provide specimens 8-1/2 in (216 mm) long with a 1/2 in (13 mm) overlap bond. Pull the specimens at a rate of 0.1 in (25 mm)/min and double the load reading to compute and record the load in psi (or MPa). An average of 3 samples shall be used to obtain the results. Subject three 1 in (25 mm) specimens to each of the above aging tests.

3.8 90° PEEL ADHESION, min

3.8.1 Normal 5 lb/in (880 N/m)

3.8.2 Aged Peel Adhesion

7 days at 38 °C and 95-100% R.H. 5 lb/in (880 N/m)

7 days immersion 5% salt solution 5 lb/in (880 N/m)

Test Method: Clean 1 x 7 x 0.010 in (25 x 178 x 0.25 mm)/min strips of AA3003-H14 aluminum using first toluol (M-14J242) and then acetone (M-1021). The strip may be considered free of oils and greases when there is no haze remaining on the metal. Panels of AA-5052-H32, 0.030 in (0.76 mm) aluminum 2 x 9 in (50 x 230 mm) are prepared in the same manner. Apply the bonding tape (1 x 6 in (25 x 150 mm) strips) to the 2 x 9 in (50 x 230 mm) aluminum panel and carefully lay the 1 x 7 in (25 x 178 mm) aluminum strip over it. Apply a pressure of 150 psi (1.0 MPa) to the bond line using a laboratory press or other suitable means and bring the bond line temperature to 197 °C. Maintain at that temperature for 10 minutes. The above procedure will provide a bond area 1 x 6 in (25 x 150 mm). Peel the samples at a rate of 12 in (305 mm) per minute. The load reading recorded is expressed as pounds per inch (or kg per mm) of width. No point shall fall beneath the minimum adhesion values indicated above. An average of 3 samples shall be used to obtain the results.

Subject 3 specimens to each of the above aging tests.

3.9 FLAMMABILITY, max 4 in (101 mm)/min
(FLTM BN 024-02, without the lot sampling plan)

In addition, the test specimen shall not exhibit any flashing or sudden flaming on either surface in excess of the above max value.

5. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification.

5.1 SOLVENT RESISTANCE

The cured film shall not soften, swell or dissolve when immersed for 5 minutes in aliphatic hydrocarbons (light petroleum naphtha, M-14J147 or M-14J148) or aromatic solvents (toluol or xylol, M-14J242 or M-14M245).