



Coated Aluminum Foil for Automotive Trim Applications

1 Scope

1.1 Material Description. This specification describes the requirements of coated aluminum foil/sheet to be used as a smooth uniform stabilizing insert in extruded molding sections, as described in Section 3.

The foil/sheet furnished shall be coated to provide good adhesion between the aluminum and the subsequent extruded overcoating of plastic. Any appropriate color of adhesion promoting film will suffice.

1.2 Symbols. Not applicable.

1.3 Applicability. This foil material has primary use as a dimensional stabilizer in extruded nonmetallic trim parts (roof ditch molding, side window molding, windshield molding, etc.)

1.4 Remarks. Suffixes to the basic GM number will reflect the various combinations of finish and coatings as follows:

Code	Description
A	Bright foil without adhesion promoting film
B	Bright foil with adhesion promoting film
C	Black foil without adhesion promoting film
D	Black foil with adhesion promoting film
E	Mill finish without adhesion promoting film
F	Mill finish with adhesion promoting film
G	Bright foil for vinyl substrate and ionomer overcoating (one side only).
H	Uncontrolled foil appearance; both sides coated.

1.4.1 Coating used on only one side of foil shall be so noted on engineering drawing or math data. Also, type of film/adhesion promoter shall be noted on drawing/math.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D1876 ASTM E345

2.2 GM Standards/Specifications.

GMW3059

3 Requirements

3.1 Requirements on Test Specimens.

3.1.1 Chemical Requirements. Suppliers shall deliver foil that conform to chemical composition limits shown in Table 1.

Table 1: Chemical Composition for Permitted Alloys ^{Note 1}

Alloy	Fe plus Si		Cu	Mn	Mg	Others Each	Others Total	Al (minimum)
AA1145	0.55		0.05	0.05	0.05	0.03 ^{Note 2}	-----	99.45
AA1235	0.65		0.05	0.05	0.05	0.03 ^{Note 3}		99.35
AA1100	1.00		0.05 to 0.20	-----	0.10	0.05	0.15	99.00
AA1200	0.65		0.05	0.05	0.05	0.05	0.15	99.00
Alloy	Fe	Si						
AA3003	0.7	0.6	0.05 to 0.20	1.00 to 1.50	-----	0.05 ^{Note 4}	0.15	remainder
AA3105	0.7	0.6	0.30	0.20 to 0.80	0.20 to 0.80	0.05 ^{Note 5}	0.15	remainder

Note 1: Aluminum Association (AA) Composition limits in % by weight. Remainder of each alloy is aluminum.

Note 2: Vanadium and Zinc 0.05 maximum.

Note 3: Vanadium 0.05% maximum, Titanium 0.06% maximum, Zinc 0.10% maximum.

Note 4: 0.10% Zinc maximum.

Note 5: 0.20% Cr, 0.40% Zn, and 0.10% Ti maximum.

3.1.2 Mechanical Requirements.

3.1.2.1 Mechanical Properties.

3.1.2.1.1 The strain-hardened foil or sheet shall conform to the mechanical properties listed in Table 2 when tested per ASTM E345.

Temper designations are described as follows:

- H14, half hard.
- H18, full hard.
- H19, extra hard.
- H28, fully strain hardened and partially annealed.
- H48, full hard and lacquered.

Table 2: Mechanical Properties

Alloy/Temper	Thickness Range (mm)	Ultimate Tensile Strength (MPa minimum)	Elongation (in 51 mm) (% minimum)
AA1145-H19	0.0510 to 0.5100	140	1
AA1235-H19	0.0510 to 0.5100	140	1
AA1100-H18	0.0510 to 0.5100	150	1
AA1100-H19	0.0510 to 0.5100	165	1
AA1200-H19	0.1500 to 0.5100	180	1
AA3003-H14	0.0510 to 0.3301	140	1
	0.3302 to 0.5100	180	2
AA3003-H18	0.0510 to 0.5100	185	1
AA3003-H19	0.0510 to 0.1499	190	1
	0.1500 to 0.5100	185	1
AA3003-H28	0.1500 to 0.5100	190	1
AA3105-H48	0.1500 to 0.5100	185	1