



ALUMINUM ALLOY, SHEET, HEAT TREATABLE, MILL SURFACE

WSB-M2A152-A1

1. SCOPE

The material defined by this specification is a stampable, heat treatable 6xxx series autobody aluminum sheet alloy.

2. APPLICATION

This specification was originally released for material used for stamped body panels, particularly where a combination of formability and age hardening at low paint oven temperatures (170 - 180 °C) is required.

Note: The yield strength of the material after the paint operation depends on the amount of forming deformation and the specific paint bake process.

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 CHEMICAL COMPOSITION

(ASTM E 34/ASTM E 101/ASTM E 227/ASTM E 607/ASTM E 1251)

The determination of the chemical composition can be made with chemical, spectrochemical or x-ray fluorescence, in accordance with the above standards. In case of the dispute, the umpire method shall be ASTM E 34.

Silicon	0.20 - 1.70
Iron	0.70 max
Copper	0.90 max
Manganese	0.80 max
Magnesium	0.10 - 1.40
Chromium	0.35 max
Zinc	0.25 max
Titanium	0.25 max
Others, each	0.05 max
Others, total	0.15 max
Aluminum	Remainder

Date	Action	Revisions
2003 09 22	Revised	Para 3.0 inserted, para 3.1, 3.9 and 4 deleted
2001 03 05	Revised	Added para 3.8, rev para 3.3 & updated
1995 05 11	Activated	



3.3 MECHANICAL PROPERTIES, T4 or T41 TEMPER

(ASTM B 557M, thickness 0.6 - 2.0 mm) and (ASTM E 646)

The following specified properties are to be measured on samples cut parallel, transverse and 45° to the rolling direction.

As received:

Yield Strength (0.2% offset), min, MPa	110*
Tensile Strength, min, MPa	230
Elongation, min, %	22
n-value, min (over full curve from 1% - uniform elongation)	0.23

*The supplier must demonstrate capability of producing to a yield strength range of 50 MPa. Established range will be detailed on the Aluminum Suppliers Control Plan.

3.4 ADHESIVE AND SEALANT PERFORMANCE REQUIREMENTS

(For applications where adhesives and sealants are required)

Material supplied to this specification shall demonstrate acceptable adhesive and sealant performance per the material specifications and the adhesive and sealant compatibility procedures identified by Materials Engineering.

3.5 PAINTABILITY

Material supplied to this specification must have prior approval for paintability by the responsible Materials Engineering activity. This approval shall be based on samples prepared to the local process and resistance requirements appropriate to the country of Ford vehicle manufacture, or to the relevant Engineering Performance Specification.

Material supplied to European Automotive Operations (EAO) shall meet the requirements of WSK-M2P136-A.

Material supplied to North American Automotive Operations (NAAO) shall meet the following requirements:

- Material intended for Class 1 surface applications shall meet the requirements of ESB-M2P130.
- Material intended for Class 2 and 3 surface applications shall meet the requirements of ESB-M2P129.

A Class 1 surface shall be specified for parts of the body or front end sheet metal that are exposed after paint or trim.

A Class 2 surface shall be specified for parts of the body not covered by trim materials but exposed to view when the car doors or enclosure lids are in an open position.

Class 3 surface specifications are parts that are wholly or partially concealed during normal use of the vehicle. Parts such as fender aprons, floor pans and unexposed underbody structural members are typical parts that would be specified as Class 3.

