



ALUMINUM BRAZING SHEET - BRAZE ALLOY CLAD

WSH-M2A144-A

1. SCOPE

The material defined by this specification is an aluminum sheet clad with brazing alloy on one or both sides.

2. APPLICATION

This material was released originally for fabrication of core tubes in flux brazed automotive heaters when clad on one side, or headers/tanks/baffles for flux brazed aluminum heaters when clad on both sides.

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 PERCENTAGE (weight percent)

3.2.1 Core Composition

The upper and lower limits of each controlled element must be established by the suppliers and presented prior to source approval.

Samples submitted for approval shall represent this established chemistry. Upon successful testing of the submitted sample to all requirements of this specification, the allowable chemical composition range will be detailed on the Engineering Materials Approved Source List. No changes in chemical composition range shall be made without prior approval by Ford Motor Company.

3.2.2 Braze Cladding Composition (See Sec. 5)

Silicon	9.2 - 10.4
Iron	0.5 max
Copper	0.10 max
Magnesium	0.05 max
Manganese	0.05 max
Zinc	0.10 max
Each Other Element	0.05 max
Total Other Elements	0.15 max
Aluminum	Balance

Date	Action	Revisions
2003 09 18	Revised	Para 3.0 inserted; para 3.1, 3.6 and 4 deleted
1989 05 26	RD885100-249	Released C. F. Carter, CCD, J. P. Lines, EAO

**3.3 BRAZE CLAD THICKNESS**

Percent of total material thickness as specified on the engineering drawing:

Both Sides Clad
(i.e.-headers, tanks, baffles)
7.5 +/- 1.5%

One Side Clad
(i.e.-tubes)
10 +/- 2%

3.4 MECHANICAL PROPERTIES (Material as Supplied)
(ASTM B 557M)

	O Temper (i.e.-headers, tanks, baffles)	H-14 Temper* (i.e.-tubes)
Ultimate Tensile Strength	117 - 165 MPa	165 - 215 MPa
Yield Strength, min	45 MPa	145 MPa
Elongation, min	20%	1%

*Note: These properties apply only to material thicknesses from 0.20 - 0.63 mm.

3.5 GRAIN SIZE (Material as Supplied)
(ASTM E 112)

3.5 or finer

5. GENERAL INFORMATION

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

The chemical composition values as approved per section 3.2.2 are mandatory, however, suppliers should aim to meet the desired target value of 9.8 for silicon. This target value gives rise to optimum conditions.