

AL 718

NOMINAL COMPOSITION

Aluminum	Remainder
Silicon	12.0% ± 1.0%
Copper	0.30% Max
Iron	0.80% Max
Magnesium	0.10% Max
Manganese	0.15% Max
Zinc	0.20% Max
Other Elements (Each)	0.05% Max
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Grayish-White
Melting Point (Solidus)	1070°F (577°C)
Flow Point (Liquidus)	1080°F (582°C)
Brazing Range	1080°F - 1120°F (582°C - 604°C)
Specific Gravity	2.66
Density (Lbs/in ³)	0.096
Electrical Conductivity (%IACS) ⁽¹⁾	N/A
Electrical Resistivity (Microhm-cm)	N/A

⁽¹⁾ IACS = International Annealed Copper Standard

PRODUCT USES

AL 718 is a general purpose brazing filler metal to join aluminum and aluminum alloys. When joining dissimilar metals thought should be given to the galvanic potential between the metals to avoid galvanic corrosion problems. To maintain joint integrity on heat treatable aluminum alloys, the solution temperature must be below the solidus of the filler metal.

PROPERTIES OF BRAZED JOINTS

The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. Joint clearances of 0.003 - 0.005 in. (.076-.127 mm) per side are optimum for achieving highest joint strength. Joints with increased clearances can still produce adequate joint strengths depending on final operating conditions.

	Tensile Strength (lbs/in ²)	Elongation (% in 2 in.)
3003 Aluminum	15,000 - 20,000	5.00 - 10.0
3003 to Copper	10,000 - 15,000	2.00 - 5.00

Prolonged heating should be avoided due to the erosion of AL718 into the base metal. Small clearances should also be avoided. Excessive heat times at brazing temperature and small clearances can lead to the erosion seen in the picture below:

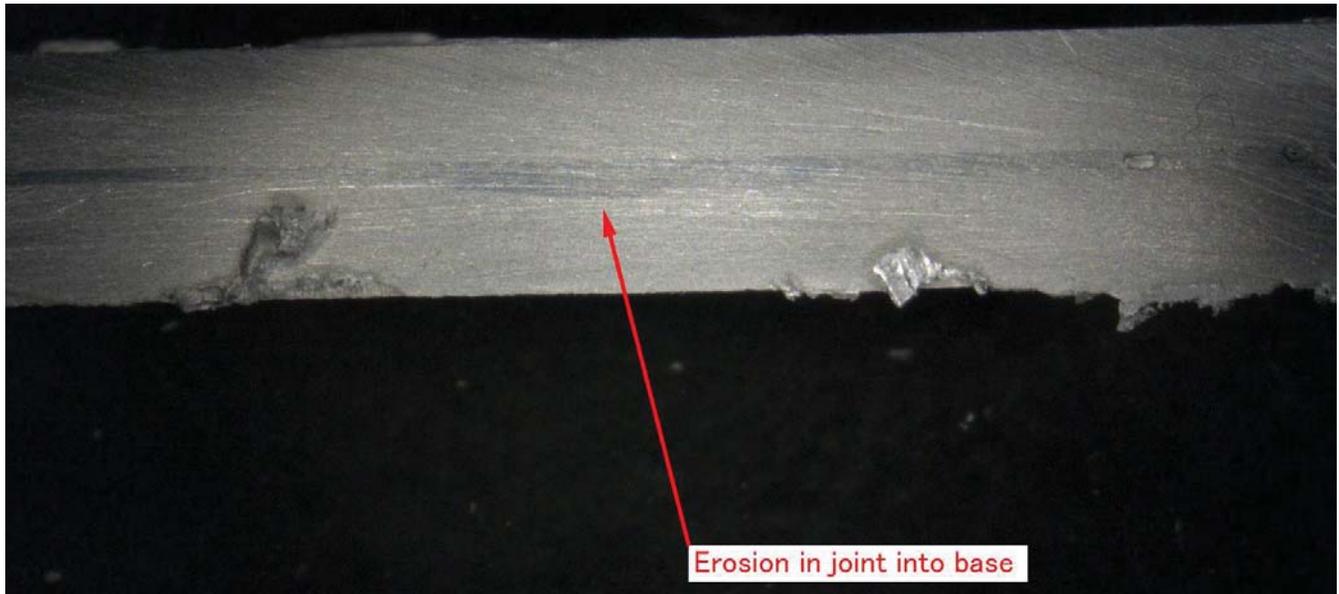


Figure 1: Erosion of Al filler metal into Al base metal

AVAILABLE FORMS

Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste.

SPECIFICATIONS

AL 718 alloy conforms to the following specifications:

- Aluminum Association (AA) 4047
- American Welding Society (AWS) A5.8/A5.8M BAlSi-4
- Aerospace Material Specification (AMS) 4185
- ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8 BAlSi-4
- International Organization for Standardization (ISO) 17672 Al 112

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: A00000386, Legacy Code: 62-718.

SAFETY INFORMATION

The operation and maintenance of brazing equipment or facility should conform to the provisions of American National Standard (ANSI) Z49.1, "Safety in Welding and Cutting". For more complete information refer to the Material Safety Data Sheet for AL 718.

WARRANTY CLAUSE

Lucas-Milhaupt, Inc. believes the information contained herein to be reliable. However, the information is given by Lucas-Milhaupt, Inc. without charge and the user shall use such information at its own discretion and risk. This information is provided on an "AS IS" AND "AS AVAILABLE" basis and Lucas-Milhaupt, Inc. specifically disclaims warranties of any kind, either express or implied, including, but not limited to, warranties of title or implied warranties of merchantability or fitness for a particular purpose. No oral advice or written or electronically delivered information given by Lucas-Milhaupt, Inc. or any of its officers, directors, employees, or



Technical Data Sheet

agents shall create any warranty. Lucas-Milhaupt, Inc. assumes no responsibility for results obtained or damages incurred from the use of such information in whole or in part.