AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 4191

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Revised

ALUMINUM ALLOY WELDING ROD AND WIRE
6.3Cu - 0.3Mn - 0.18Zr - 0.15Ti - 0.10V (2319)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for use as filler metal for inert gas arc welding of high temperature aluminum alloys where the joint is capable of being heat treated to high strength.

3. COMPOSITION:

Copper	5.8 - 6.8
Manganese	0.20 - 0.40
Zirconium	0.10 - 0.25
Titanium	0.10 - 0.20
Vanadium	0.05 - 0.15
Iron	0.30 max
Silicon	0.20 max
Zinc	0.10 max
Magnesium	0.02 max
Beryllium	0.0008 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

4. CONDITION: As drawn, unless otherwise specified.

5. TECHNICAL REQUIREMENTS:

5.1 Welding: Melted wire shall flow smoothly and evenly during welding and be capable of producing acceptable welds.

5.2 Spooled Wire: Shall conform to the following, unless otherwise agreed upon by purchaser and vendor.

5.2.1 Winding: Wire shall be closely wound so as to avoid producing kinks, waves, and sharp bends; and shall be free to unwind without restriction caused by overlapping or wedging. The outside end of the spooled wire shall be so treated that it may be readily located.

6. QUALITY: Wire shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external imperfections detrimental to welding operations, operation of welding equipment, or properties of the deposited weld metal.

7. SIZES AND TOLERANCES: Unless otherwise specified, wire shall be supplied in the following sizes and to the tolerances shown:

7.1 Diameter:

Form	Nominal Diameter Inch						Tolerance Inch
Cut Lengths	1/16	3/32	1/8	5/32	3/16	1/4	+ 0.003 - 0.003
Spools	0.030	3/64	1/16	3/32	1/8		+ 0.001 - 0.002

7.2 Lengths: Cut lengths shall be furnished as ordered, and shall not vary more than ± 3/8 in. from the length ordered.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the chemical composition and technical requirements of this specification. This report shall include the purchase order number, material specification number, size, and quantity.

8.2 Unless otherwise specified, when parts made of this wire or assemblies requiring the use of this welding wire are supplied, the part or assembly manufacturer shall inspect each lot of wire to determine conformance to this specification, and shall furnish with each shipment three copies of a report stating that the wire conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, part or assembly number, and quantity.

9. PACKAGING AND MARKING: Packaging shall be accomplished in such a manner as to ensure that the wire, during shipment and storage, will be protected against mechanical injury, contamination, and moisture.

9.1 Cut Lengths:

9.1.1 Wire shall be furnished in standard containers of approximately 5, 10, or 50 lb net weight, as specified.

9.1.2 When specified, cut lengths shall be marked (Code 413), cleaned, and packaged in accordance with the latest issue of AMS 2815.

9.2 Spooled Wire:

9.2.1 Spools shall be of such material and construction as to provide adequate strength and rigidity to prevent damage or distortion in normal handling and use, and to insulate the wire from the spindle.

9.2.2 Unless otherwise specified, spool dimensions shall conform to the approximate dimensions shown in Fig. 1. Barrel diameter B shall be such as to permit proper feeding of the wire. Holes shall be provided in the flange at the surface of the hub and near the OD of the flange for the start and finish ends of the wire. These holes need not be in line.