AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5783B

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WELDING ELECTRODES, COATED, STEEL, CORROSION AND HEAT RESISTANT 19Cr - 9Ni - 1.5W - 1(Cb+Ta) - 0.5Mo

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

2. APPLICATION: Primarily for welding corrosion and heat resistant alloys and steels.

3. COMPOSITION: Electrodes shall be capable of depositing weld metal of the following composition:

Carbon	0.07 - 0.13
Manganese	1.0 - 2.5
Silicon	1.0 max
Phosphorus	0.04 max
Sulfur	0.03 max
Chromium	18.0 - 21.0
Nickel	8.0 - 9.5
Molybdenum	0.35 - 0.65
Tungsten	1.25 - 1.75
Columbium + Tantalum	0.75 - 1.2
Titanium	0.15 max
Copper	0.5 max

3.1 Weld Pads for Chemical Analysis: The referee procedure for making pads of weld metal and removing samples for chemical analysis shall be ASTM A298-48T.

4. TYPE:

4.1 Coating shall be suitable for the following usability characteristics:

Type Designation	Weld Position	Current
A	Flat, Vertical, Overhead and Horizontal	DC
B	Flat, Vertical, Overhead and Horizontal	DC - AC
C	Horizontal Fillets, Flat	DC
D	Horizontal Fillets, Flat	DC - AC

4.1.1 When DC is specified, reverse polarity (electrode positive) is required.

4.1.2 Unless otherwise specified, lime type coatings are required for Types A and C electrodes.

4.2 Unless otherwise specified, Type A shall be supplied.

5. TECHNICAL REQUIREMENTS:

5.1 Weldability: Electrodes shall demonstrate good weldability and shall flow smoothly and evenly under the conditions specified in 4.1.

5.2 Burn-Off: The coating shall be consumed uniformly on all sides and shall not burn back from the core wire under proper welding conditions. Heating of the electrode during welding shall not cause injurious blistering of the coating within the ranges of current values recommended by the manufacturer.

5.3 Grip Portion and Arc Ends: A portion of the electrode 0.75 to 1.25 in. long on end grip rods and 1.5 to 2 in. long on center grip rods shall be bare to permit good electrical contact with the electrode holder. The arc end of the electrodes shall be sufficiently bare to permit easy striking of the arc, but the length of this bare section as measured from the end of the electrode to the point where the full cross-section of the coating begins shall not exceed the diameter of the bare wire, and in no case shall it exceed 1/8 inch.

5.4 Cleaning: Slag produced during welding shall be readily removable with hand tools.

6. QUALITY:

6.1 The core wire shall be uniform in quality and condition, clean, sound, and free from foreign materials and from defects detrimental to weld quality.

6.2 The coating shall be uniform in quality, tightly adherent, and free from abnormal scabs, blisters, pockmarks, bruises and other surface defects and shall withstand normal handling without damage. It shall not be harmfully hygroscopic and shall not adversely affect weld quality.

7. STANDARD SIZES AND LENGTHS: The following sizes and lengths are standard:

Nominal Diameter of Core Wire, Inch		Length, Inches
ø	1/16, 5/64	9 and 18
	3/32	9, 12, and 18
	1/8, 5/32, 3/16, 1/4	14

7.1 Unless otherwise specified, end grip electrodes shall be supplied in all lengths except 18 in. where center grip electrodes are required.

8. TOLERANCES:

8.1 Unless otherwise specified, electrodes shall not vary in length more than plus and minus 1/8 in. from the length ordered.

8.2 Electrode core wire shall not vary in diameter more than plus and minus 0.002 in. from the size ordered.

8.3 Over-all diameter of the coated electrodes shall not vary more than 4% from that of the approved sample.

8.4 Coating shall be concentric with the core wire to the extent that the maximum core-plus-one-coating dimension shall not exceed the minimum core-plus-one-coating dimension by more than 5% of the minimum core-plus-one-coating dimension.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of electrodes shall furnish with each shipment three copies of a report stating that the electrodes conform to the requirements of this specification. This report shall include the purchase order number, material specification number, control number, size, and quantity. Control number shall be a designation indicating batch processing and core wire heat number. When requested by the purchaser, the vendor shall also include in the report the composition of the deposited weld metal for each heat in the shipment.

9.2 When assemblies requiring use of these electrodes are supplied, the assembly manufacturer shall inspect each lot of electrodes to determine conformance to the requirements of this specification and shall furnish with each shipment three copies of a report stating that the electrodes conform to this specification. This report shall include the purchase order number, material specification number, part number, and quantity.

10. PACKAGING:

10.1 Packaging shall be accomplished in such a manner as to ensure that the electrodes, during shipment and storage, will be protected against mechanical injury and exposure to moisture. Such packaging shall not cause loss of moisture from the coating to the extent that use of the electrodes may be impaired.

10.2 Each container shall be legibly marked with the following information; indivdual packages in the shipment shall be identified with the control number:

WELDING ELECTRODES
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ELECTRODE DIAMETER AND LENGTH _____
QUANTITY _____
TYPE DESIGNATION _____
RECOMMENDED CURRENT VALUE _____
CONTROL NUMBER _____
MANUFACTURER'S NAME OR TRADE MARK _____

11. APPROVAL:

11.1 To assure adequate performance characteristics, sample electrodes shall be approved by purchaser before electrodes for production use are supplied, unless such approval be waived.

11.2 Vendor shall use the same manufacturing procedures and processes for production electrodes as for approved sample electrodes. If necessary to make any change, vendor shall obtain permission from purchaser prior to incorporating such change.