MIL-W-438B
6 May 1965
SUPERSEDING
MIL-W-438A
20 September 1955

MILITARY SPECIFICATION

WIRE; PRIMER, ELECTRICAL

This specification is mandatory for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers the requirements for electrical wire suitable for ignition or bridge wire in electrical primers.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-14232	Parts, Equipment and Tools for Ordnance Materiel, Packaging of
MIL-I-45607	Inspection Equipment, Supply and Maintenance of

STANDARDS

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-109	Quality Assurance Terms and Definitions
MIL-STD-129	Marking for Shipment and Storage

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

FSC 6145

2.2 Other publications.- The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated the issue in effect on date of invitation for bids shall apply.

CONSOLIDATED CLASSIFICATION COMMITTEE
Uniform Freight Classification Rules

(Application for copies should be addressed to the Official Classification Committee, One Park Avenue at 33rd Street, New York 16, N. Y.)

AMERICAN TRUCKING ASSOCIATIONS, INC.
National Motor Freight Classification No. A-13 and No. 13

(Application for copies of the above publications should be addressed to the American Trucking Associations, Inc., Traffic Department, 1424 16th Street, N.W., Washington, D. C.)

U. S. POST OFFICE DEPARTMENT
Parcel Post Regulations

(Application for copies should be obtained from any first class U. S. Post Office.)

3. REQUIREMENTS

3.1 Material.- The wire shall be an alloy of approximately 90 percent platinum and 10 percent iridium virgin metal or virgin metal and scrap of known and approved composition.

3.2 Diameter.- The diameter of the wire shall be 0.002 ± 0.0005 inches.

3.3 Breaking strength.- The wire shall be capable of withstanding a force of at least 6 ounces without breaking when pulled at a rate of 12 inches per minute.

3.4 Electrical resistance.- The wire shall have an electrical resistance ranging from 28 to 31 ohms per foot at 20 degrees Centigrade.

3.5 Workmanship.- The wire shall be clean, smooth, and free from cracks or other defects that may affect its serviceability.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 General provisions.- The quality assurance provisions of this specification and of other documents referenced herein form the basis for inspection to be performed by the supplier. Definitions of inspection terms not otherwise defined herein shall be as listed in MIL-STD-109.

4.2 Inspection provisions.

4.2.1 Inspection lot.- Unless otherwise specified by the contracting officer, inspection lot size, formation, and presentation of lots shall be in accordance with "Submission of Product" as specified in MIL-STD-105.

4.2.2 Sampling.- Samples shall consist of 5 feet of wire from each spool randomly selected. Each sample shall be clearly identified from the spool which it was taken as to the type of material, manufacturer, contract or order number. Care should be taken to avoid bending or otherwise injuring the wire. Sample length for "Breaking Strength" test shall be 12 inches in length.

4.2.3 Examination and tests.- The wire samples shall be inspected in accordance with the inspection provisions contained herein. Examinations and tests related to Section 3 herein shall be performed on a defect (individual characteristic) basis in accordance with MIL-STD-105, and the inspection level and sampling plans specified in Table I titled "Classification of Defects". Examinations and tests for packaging, packing and marking shall be in accordance with MIL-P-14232 and Section 5 herein. The tabulated classification of defects shall constitute the minimum inspection to be performed by the supplier prior to Government acceptance or rejection by lot. The Government reserves the right to inspect for any applicable requirement, and to reject individual non-conforming items.

TABLE I - CLASSIFICATION OF DEFECTS

Use Inspection Level II of Table I with
Sampling Plan Table II-A of MIL-STD-105

CRITICAL: NONE

MAJOR: AQL 1.0%	REQUIREMENT	TEST PROCEDURE
101. Diameter	3.2	4.5.2
102. Electrical resistance	3.4	4.5.4

MINOR: NONE

4.2.4 Disposition of non-conforming product.- Rejected lots shall be screened for all defective characteristics. Removal or correction of defective units and resubmittance of rejected lots shall be in accordance with "Acceptance and Rejection" as specified in MIL-STD-105.

4.3 Control tests.- One sample as specified in 4.2.2 shall be selected at random as a control sample from each 50 spools produced, or from each months production, whichever occurs first. The control sample shall have successfully met all other acceptance tests specified herein, and shall then meet the following requirements and tests:

CONTROL TEST	REQUIREMENT	TEST PROCEDURE
Material	3.1	4.5.1
Breaking strength	3.3	4.5.3
Workmanship	3.5	4.5.5

4.3.1 Control test failure.- Should any one item of a control test sample fail to meet the specified test requirements, acceptance of the product will be suspended by the Government until necessary corrections have been made by the contractor and the resubmitted samples have been approved.

4.4 Inspection equipment.- Except as otherwise provided for by the contract, the contractor shall maintain all required measuring and testing equipment in accordance with the applicable requirements specified in MIL-I-45607. The Government reserves the right to use the test equipment for its own independent inspections to the extent that such use will not unduly interfere with the contractor's delivery schedule.

4.4.1 Government furnished inspection equipment.- Where the contract provides for Government furnished test equipment, care and maintenance of test equipment shall be in accordance with the applicable requirements specified in MIL-I-45607.

4.5 Test methods and procedures.

4.5.1 Material.- Laboratory tests shall be made to determine the composition of the material by approved analytical methods. The composition shall be in accordance with 3.1. Laboratory designation shall be as specified in 6.2.

4.5.2 Diameter.- The diameter as specified in 3.2 shall be measured on the samples specified in 4.2.2 using standard measuring equipment that is accurate to within .0001 inch. At least two readings shall be taken 90 degrees apart at the same location on the diameter being measured. Each sample shall have at least three measurements equally spaced over the entire length.

4.5.3 Breaking strength.- Breaking strength as specified in 3.3 shall be determined using standard measuring equipment of a pendulum type tensile testing machine reading to an accuracy of at least 5 grams and having the pulling clamp moving at a uniform rate of 12 inches per minute. The test specimen shall be free of bends, kinks or other imperfections. Tests in which the specimen breaks at a point less than 1/2 inch from the clamp shall be disregarded.

4.5.4 Electrical resistance.- Resistance values specified in 3.4 shall be checked using standard measuring equipment, the accuracy of which shall be within 10 percent of the 30 to 80% scale range. The measured resistance shall be the average reading of not less than five 12 inch samples.

4.5.5 Workmanship.- Workmanship shall be visually examined to determine conformance with the requirements specified in 3.5.

5. PREPARATION FOR DELIVERY

5.1 Packaging.- The wire shall be wound on spools in a manner to permit the taking of 1 inch samples from the inner ends (continuous spooling - without cutting the spools apart - may be specified). The spooled wire shall be packaged in accordance with the manufacturer's commercial practice which shall prevent deterioration of the item during shipment for immediate use.

5.2 Packing.- Spools of wire shall be packed in accordance with the manufacturer's commercial practice which shall afford adequate protection against deterioration and physical damage from the supply source to the receiving activity. Containers shall be in accordance with Uniform Freight Classification Rules, Motor Freight Regulations or Parcel Post Regulations whichever is applicable.

5.3 Marking.

5.3.1 Spools.- Each spool shall be marked with the name of the material, manufacturer, contract or order number, the weight of the lot, and the electrical resistance in ohms.

5.3.2 Shipping containers.- In addition to any markings required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use.- The electrical wire covered by this specification is intended for use as the ignition or bridge wire in electrical primers.

6.2 Ordering data.- Procurement documents should specify the following:

(a) Title, number and date of this specification.
(b) Spool size, capacity, and approximate weight.
(c) Place of inspection and tests.

6.3 All wire destroyed or consumed in conducting the tests required by this specification should be in addition to the quantity of wire ordered and the cost thereof should be included in the contract or order.

Custodians:
Army - MU
Navy - WP
Air Force - 85

Review:
Army - EL
Navy - WP
Air Force - 85

User:
Army - MI, MO
Navy - WP, MC

Preparing activity:
Army - MU

Project No. 6145-0274

To detach this form, cut along this line

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 119-R004

INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity.

SPECIFICATION

ORGANIZATION | CITY AND STATE

CONTRACT NO. | QUANTITY OF ITEMS PROCURED | DOLLAR AMOUNT $

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO IF "YES", IN WHAT WAY?

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity)* | DATE

DD FORM 1 OCT 64 1426