Downloaded from http://www.everyspec.com

MIL-C-60896A(AR)
12 April 1985
SUPERSEDING
MIL-C-60896(MU)
22 May 1968

MILITARY SPECIFICATION

CARTRIDGE, 7.62mm, NATO, REFERENCE

This specification is approved for use by the US Army Armament, Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers a cartridge to be used for calibration purposes in 7.62mm acceptance testing equipment.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-A-48078	-	Ammunition, Standard Quality Assurance Provisions, General Specification for

STANDARDS

MILITARY

MIL-STD-105	-	Sampling Procedures and Tables for Inspections of Attributes
MIL-STD-109	-	Quality Assurance Terms and Definitions

FSC 1305

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Armament Research and Development Center, Attn: AMSMC-QA, Dover, New Jersey 07801-5001 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

Downloaded from http://www.everyspec.com

MIL-STD-636	-	Visual Inspection Standards for Small Arms Ammunition Through Caliber .50
MIL-STD-644	-	Visual Inspection Standards andInspection Procedures for Inspection of Packaging, Packing and Marking of Small Arms Ammunition
MIL-STD-1168	-	Lot Numbering of Ammunition
MIL-STD-1170	-	Visual Standards and Comparison of Methods for Evaluating Grain Configuration in 7.62mm Cartridge Cases

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

DRAWINGS

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT CENTER (ARDC)

7643674	-	Classification of Cartridge Case Defects for Small Arms Ammunition
8594374	-	Packing and Marking, Cartridges, 7.62mm, NATO, Reference; Cartons; Box, Ammunition, M2A1; Box, Wirebound
8594377	-	Packing and Marking, Cartridges, 7.62mm, NATO, Reference; Cartons; Box, Ammunition, M2A1
8596190	-	Cartridge, 7.62mm, NATO, Reference (Propellant, WC 846)
LI-8596190	-	Index of Inspection Equipment Lists, Cartridge, 7.62mm, NATO, Reference (Propellant, WC 846)

PUBLICATIONS

SCATP-7.62mm	-	Ammunition Ballistic Acceptance Test Methods, Test Procedures for 7.62mm Cartridges

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

Downloaded from http://www.everyspec.com

CODE OF FEDERAL REGULATIONS

49 CFR-100-199 - Interstate Commerce Commission Rules and Regulations for the Transportation of Explosive and Other Dangerous Article

(The Interstate Commerce Commsision regulations are now part of the Code of Federal Regulations (1967 editions and revisions) available from the Superintendent of Documents, Government Printing Office, Washington, DC 20315. Orders for the above publications, cite 49CFR-100-199 (latest revision).

2.1.3 Other publications. The following documents form a part of this specification to the extent specified herein in the issue of documents which are indicated as DOD adopted shall be the issue listed in the current DoDISS and supplement thereto if applicable:

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM E92 - Standard Test Method for Vickers Hardness of Metallic Materials

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 General. The cartridge shall comply with drawing 8596190, referenced specifications and the following:

3.2 Bullet extraction. The force required to extract the bullet from the cartridge case shall be not less than 60 pounds.

3.3 Residual stress. The cartridge case shall not split or crack when subjected to one percent mercurous nitrate solution for 15 minutes.

3.4 Waterproof. The cartridge shall not release more than one bubble of air when subjected to a pressure differential of 7 1/2 pounds per square inch (psi) for 30 seconds.

3.5 Accuracy. The average of the mean radii of all targets of the sample cartridges fired at 600 yards shall not exceed 6 inches.

3.6 Action time. The action time (overall primer ignition, propellant burning and bullet-barrel time) of the cartridge, conditioned at 70°F, shall not exceed 4 milliseconds.

Downloaded from http://www.everyspec.com

3.7 Velocity. The grand average of the velocities of all the sample cartridges, conditioned at 70° Fahrenheit (F), shall be 2750 feet per second (ft/sec) plus or minus 20 ft/sec, at 78 feet from the muzzle of the weapon. The average of the standard deviations of the velocities for fifteen 20-round series shall not exceed 20 ft/sec.

3.8 Chamber pressure. The average chamber pressure of the sample cartridges, conditioned at 70°F, shall not exceed 50,000 psi. The average of the standard deviations of chamber pressures for fifteen 20-round series shall not exceed 2,000 psi.

3.9 Port pressure. The average port pressure of the sample cartridges, conditioned at 70°F, shall be 12,500 ± 2,000 psi.

3.10 Function and casualty. The cartridge shall function without casualty when conditioned at 70°F.

3.11 Grain configuration. The grain configuration of the sidewall of the finished cartridge case shall fall within the range defined by the grain configuration standards illustrated in MIL-STD-1170, Figures 1 through 6.

3.12 Workmanship. The metal parts of the cartridge shall be free of cracks, splits, perforations, burrs and foreign matter. The cleaning method used shall not be injurious to any part, nor shall the parts be contaminated by any cleaning agent. All parts and assemblies shall be fabricated, loaded and assembled in a thorough and workmanlike manner. In addition, the cartridge shall comply with the standards specified in the 7.62mm section of MIL-STD-636. Extreme care should be exercised to avoid contamination of primers or propellant by oil, grease or other foreign matter.

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 in the contract or order, the supplier may utilize his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by 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.

Downloaded from http://www.everyspec.com

4.1.1 Quality assurance terms and definitions. Reference shall be made to MIL-STD-109 to define quality assurance terms used.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

Quality Conformance Inspection (see 4.3)

4.3 Quality Conformance Inspection.

4.3.1 Lot formation. In accordance with MIL-A-48078.

4.3.1.1 Lot submission. The product shall be submitted in accordance with MIL-STD-105. The entire lot of reference cartridges shall be assembled and charged on a single loading machine. (See 6.8)

4.3.1.2 Component parts. Unless otherwise specified, component lots shall be homogeneous and of a size convenient to the contractor and inspected, tested and accepted by the contractor. The cartridge lot shall not contain:

a. Cartridge cases from more than one lot interfix number from one manufacturer.

b. Primers from more than one lot and more than one manufacturer.

c. Bullets from more than one interfix number from one manufacturer.

d. Propellant from more than one lot and more than one manufacturer.

4.3.1.3 Lot identification. Each lot of ammunition shall be identified as to type, caliber and model, as well as a lot number in accordance with MIL-STD-1168.

4.3.2 Examination for defects.

a. Major and minor defects. Examination for major and minor defects shall be performed on a class basis in accordance with classification of defects using applicable sampling plans and acceptance criteria of MIL-STD-105. The Acceptable Quality Level (AQL) for the major class shall be 0.25 percent and the AQL for the minor class shall be 1.50 percent unless otherwise specified. All non-conforming cartridges shall be rejected.

Downloaded from http://www.everyspec.com

b. Critical defects. Unless otherwise specified, one hundred percent examination shall be performed for all critical defects. If a visual critical defect is found in a sample either just prior to a firing test or after a firing test (and the defect is not due to the firing), the lot shall be rejected. The lot shall then be rescreened and resubmitted for visual inspecton of critical defects. If a critical defect is found during packing, the portion of the lot that has been packed or is in the process of being packed shall be rejected. In addition, the portion of the lot remaining to be packed shall be rejected. The lot shall then be rescreened and resubmitted for visual inspection of critical defects.

Downloaded from http://www.everyspec.com

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-C-60896A(AR)

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.3.2.1	Cartridge, 7.62mm, NATO, Reference	1 OF 3	8596190
			NEXT HIGHER ASSEMBLY: Not applicable

CATEGORY	EXAMINATION OR TEST 1/	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE 2/ /INSPECTION METHOD
Critical					
1.	Case split in K, L or M location (6)		100%	3.1	Visual
2.	Case split in I, S or J location with loss of powder (6)		100%	3.1	Visual
3.	Perforated case (7)		100%	3.1	Visual
4.	Primer missing (32)		100%	3.1	Visual
5.	Primer cocked (33)		100%	3.1	Visual
6.	Primer inverted (34)		100%	3.1	Visual
7.	Weight, under min 3/		100%	3.1	Balance
Major	(Class AQL - .25% except for Major 101)				
101.	Case split in I, S, or J location with no loss of powder (6)		100%	3.1	Visual
102.	Corroded or stained cartridge, (if etched) case (2)			3.1	Visual
103.	Round head, case (4)			3.1	Visual
104.	Dented case (5)			3.1	Visual
105.	Draw scratch in case (8)			3.1	Visual
106.	Beveled underside of head (10)			3.1	Visual

NOTES: 1/ Numbers after defect descriptions refer to visual defect standards in MIL-STD-636 (NATO Caliber 7.62mm Section).
2/ Refer to MIL-STD-636 (NATO Caliber 7.62mm Section) for visual defect standards. In the event of conflict between paragraph 4.3.2.1 of this specification and MIL-STD-636 as to defect classification the classification specified in paragraph 4.3.2.1 shall apply.
3/ Each lightweight cartridge shall be disassembled and the propellant weighed. Any cartridge containing less than 25 grains of propellant shall be classed as a critical defect. Any cartridge containing 25 grains or more of propellant shall be classed as a major defect.

Downloaded from http://www.everyspec.com

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.3.2.1	Cartridge, 7.62mm, NATO, Reference	2 OF 3	8596190
			NEXT HIGHER ASSEMBLY: Not applicable

CATEGORY	EXAMINATION OR TEST 1/	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE 2/ /INSPECTION METHOD
107.	Case mouth not crimped in cannelure (11)			3.1	Visual
108.	Scaly metal on case (12)			3.1	Visual
109.	No chamfer on head (rim) (13)			3.1	Visual
110.	No visible evidence of mouth anneal (21)			3.1	Visual
111.	Split bullet jacket (24)			3.1	Visual
112.	Loose bullet (25)			3.1	Visual/Manual
113.	Missing cannelure (26)			3.1	Visual
114.	Scaly metal on bullet (27)			3.1	Visual
115.	Loose primer (35)			3.1	Visual/Manual
116.	Total length			3.1	Gage
113.	Cartridge profile failure (requiring more than 20 lbs dead weight to insert in profile and alignment gage)			3.1	Gage
118.	Diameter of extractor groove, max			3.1	Gage
119.	Diameter of head			3.1	Gage
120.	Thickness of head			3.1	Gage
121.	Length to shoulder datum			3.1	Gage
122.	Depth of primer			3.1	Gage

NOTES:

Replaces DRSMC-QA (D) Form 160, 1 Aug 83, which may not be used.

Downloaded from http://www.everyspec.com

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-C-60896A(AR)

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.3.2.1	Cartridge, 7.62mm, NATO, Reference	3 OF 3	8596190
			NEXT HIGHER ASSEMBLY: Not applicable

CATEGORY	EXAMINATION OR TEST 1/	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE 2/ /INSPECTION METHOD
Minor	(Class AQL - 1.5%)				
201.	Discolored, dirty, oily, or smeared (waterproofing) (1)			3.1	Visual
202.	Dented case (5)			3.1	Visual
203.	Draw scratch in case (8)			3.1	Visual
204.	Scratch in case (9)			3.1	Visual
205.	Scaly metal on case (12)			3.1	Visual
206.	Fold, wrinkle, buckle or bulge in case (14, 15, 16, 17)			3.1	Visual
207.	Head stamp missing or illegible (18)			3.1	Visual
208.	Defective head (19)			3.1	Visual
209.	Defective mouth (20)			3.1	Visual
210.	Dented bullet (22)			3.1	Visual
211.	Bullet scratched (23)			3.1	Visual
212.	Scaly metal on bullet (27)			3.1	Visual
213.	Upset (crooked) point (28)			3.1	Visual
214.	Exposed steel (clad jacket) (29)			3.1	Visual
215.	Blunt point (30)			3.1	Visual
216.	Defective cannelure (31)			3.1	Visual
217.	Nicked or dented primer (36)			3.1	Visual
218.	No waterproofing material (primer pocket joint) (37)			3.1	Visual
219.	Defective crimp (38)			3.1	Visual
220.	Diameter of extractor groove, min			3.1	Gage
221.	Evidence of poor workmanship 4/			3.12	Visual

NOTES:

4/ Defects other than those listed in MIL-STD-636 (7.62mm section).

DRDAR-QA Form 160 Jul 77

Downloaded from http://www.everyspec.com

4.3.3 Testing. Testing is described in the Quality Conformance Inspection Tables (4.3.3.1). Testing shall be conducted in accordance with the methods and procedures specified in 4.4.

a. Test samples. The quantities for the various tests shall be as specified in paragraph 4.3.3.1. Only cartridges having met the visual and dimensional requirements shall be used in the ballistic tests, and shall have been selected in such a manner that the sample is representative of the entire lot. Sufficient cartridges shall be selected such that all testing (including testing of second samples where applicable) can be performed. The cartridges shall be thoroughly mixed before being divided into samples for the various tests.

b. Firing defects and associated acceptance-rejection criteria are specified in Table I.

Downloaded from http://www.everyspec.com

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-C-60896A(AR)

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.3.3.1	Cartridge, 7.62mm, NATO, Reference	1 OF 2	8596190
			NEXT HIGHER ASSEMBLY: Not applicable

CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
	TESTS				
	Bullet extraction	25	1/	3.2	4.4.1
	Residual stress (mercurous nitrate)	20	1/	3.3	4.4.2
	Waterproof	50	2/	3.4	4.4.3
	Accuracy	90	3/	3.5	4.4.4
	Action time	50	1/	3.6	4.4.5
	Velocity	300	4/	3.7	4.4.6
	Chamber pressure	300	4/	3.8	4.4.7
	Port pressure	300	4/	3.9	4.4.8
	Function and casualty	1040	5/	3.10	4.4.9
	Grain structure	10	1/	3.11	4.4.10
	Hardness				
	Head	10	1/	3.1	4.4.11.1
	Sidewall	10	3/	3.1	4.4.11.2

NOTES:

DRSMC-QA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

Downloaded from http://www.everyspec.com

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.3.3.1	Cartridge, 7.62mm, NATO, Reference	2 OF 2	8596190
			NEXT HIGHER ASSEMBLY: Not applicable

CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
	1/ Failure of two or more cartridges to comply with the applicable requirement shall be cause for rejection of the lot. If one cartridge fails in the first test, a second sample consisting of double the number of cartridges in the first sample shall be tested. If any failing cartridges are found in the second sample, the lot shall be rejected.				
	2/ Failure of ten or more cartridges to comply with the applicable requirement shall be cause for rejection of the lot. If more than three but less than ten cartridges fail in the first test, a second sample consisting of double the number of cartridges in the first sample shall be tested. The lot shall be rejected if, in the combined first and second sample, ten or more cartridges fail to comply with the applicable requirement.				
	3/ Failure of one or more cartridges to comply with the applicable requirements shall be cause for rejection of the lot subject to testing of a second sample consisting of double the quantity of cartridges used in the first test. Failure of the cartridges in the second sample to comply with the applicable requirement shall be cause for rejection of the lot.				
	4/ Failure of the cartridges to comply with the applicable requirements shall be cause for rejection of the lot. (see 6.7.2)				
	5/ Examination for firing defects shall be made during the firing of all ballistic tests. The lot shall be rejected when firing defects exceed the acceptance number in Table III.				

NOTES:

DRSMC-QA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

Downloaded from http://www.everyspec.com

TABLE I

Firing defect classification and accept-reject criteria

Defect Class	Defect Description	ACC	REJ
	CARTRIDGE FAILURES		
Critical	a. Bullet in bore	0	1
Critical	b. Misfire - Vent hole missing or blocked 1/	0	1
Major	c. Misfire - (excluding b. above)	1	2
	Primer Failures		
Major	a. Perforation of firing pin ident in primer cup	3	4
Major	b. Escape of gas through primer cup (excluding a above)	1	2
Major	c. Loose primer 2/	5	6
Major	d. Blown primer 2/	0	1
Major	e. Dropped primer 2/	0	1
	f. Escape of gas around primer cup		
Major	(1) 50% or more than than 50% of periphery	10	11
Minor	(2) Less than 50% of periphery	20	21
	Case Casualties 3/		
I. Longitudinal split			
Major	a. Body (J)	2	3
Major	b. Body (K)	1	2
Major	c. to head (L)	0	1

Downloaded from http://www.everyspec.com

Major	d. Through head (M)	0	1
Minor	e. Neck and shoulder (I or S)	20	21
II. Circumferential Rupture			
Major	a. Partial, shoulder or body (J & S)	1	2
Major	b. Partial, body (K)	0	1
Major	c. Partial, head (L)	0	1
Major	d. Complete	0	1
Total of Defects - Primer Failure f. and Case Casualty I.e.		30	31
Total of all other defects		5	6

Note 1/ Each cartridge that misfires shall be disassembled and examined for a blocked or missing vent hole. If the vent hole is blocked or missing the lot shall be rejected.

Note 2/ Primer Defect Description:

a. Loose primer. The fired primer shall be called loose when it protrudes above the case head or movement of the primer can be observed by applying pressure on the primer by means of a probe, thumbnail or fingertip.

b. Blown primer. A primer which, when the cartridge is fired, is separated completely from the head of the cartridge case, and both the head of the case and the primer pocket are grossly distorted and deformed. The severity of this condition is such that it is readily detectable with the naked eye.

c. Dropped primer. A primer which falls from the primer pocket after the cartridge is fired.

Note 3/ For location of defects indicated by letters in parenthesis, see Drawing 7643674.

4.3.4 Packaging, packing, and marking. During or immediately prior to the packaging operation, 100% examination of the cartridges shall be performed to ascertain that the cartridge type conforms to the drawing. Occurrence of a high pressure test cartridge shall be classed as a critical defect. Occurrence of any type other than high pressure test shall be classed as a major defect. All non-conforming cartridges shall be rejected.

Downloaded from http://www.everyspec.com

Inspection for packaging, packing and marking shall be in accordance with MIL-STD-644 as applicable to the drawing or as required by the contract.

4.3.5 Inspection equipment. The inspection equipment required to perform the examination and test prescribed herein is described in the Paragraph Reference/Inspection method column in the tables starting with Paragraph 4.3.2.1. The contractor shall submit for approval inspection equipment designs in accordance with the terms of the contract. See Section 6 of MIL-A-48078 and 6.2 herein.

4.3.5.1 Inspection equipment list. The examination and tests shall be made using equipment listed on LI-8596190, except as specified in 4.3.

4.4 Methods of inspection.

4.4.1 Bullet extraction. The cartridges shall be tested in an approved bullet extractor machine. The rate of travel of the test head shall be not less than 3 nor more than 6 inches per minute. The test shall be conducted in accordance with SCATP-7.62.

4.4.2 Residual stress (Mercurous nitrate). Tests shall be conducted in accordance with SCATP-7.62.

4.4.3 Waterproof. The test shall be conducted in accordance with SCATP-7.62. The container shall be evacuated to a pressure of 7 1/2 pounds per square inch (15 inches of mercury) below atmospheric pressure and held at that pressure for 30 seconds.

4.4.4 Accuracy. The test shall be conducted in accordance with SCATP-7.62, utilizing the longest range available up to 600 yards. Ranges shorter than 200 yards shall not be used. When accuracy testing is conducted on ranges shorter than 600 yards, the average of the mean radii of the targets shall be multiplied by the applicable conversion factor given below.

Range (yards)	200	300	400	500
Factor	3.20	2.13	1.60	1.28

4.4.5 Action time. Prior to this test, cartridges shall be conditioned at 70°F ± 2°F for two hours minimum. The test shall be conducted in accordance with SCATP-7.62.

4.4.6 Velocity. Prior to this test, cartridges shall be conditioned at 70°F ± 2°F for two hours minimum. The test shall be conducted in accordance with SCATP-7.62 and the following: The five velocity barrel assemblies specified in paragraph 2.7.2.2 of the SCATP shall be selected from a quantity

Downloaded from http://www.everyspec.com

of eight barrel assemblies. Selection of the five barrel assemblies shall be made by firing 30 reference cartridges in each barrel. The five test barrel assemblies that have the lowest standard deviation for velocity shall be selected for the test. Prior to firing of the 30 reference cartridges, each barrel assembly shall be "broken in" by firing 100 standard cartridges. Twenty cartridges shall be fired in each of five pressure-barrel assemblies containing the long piston. The average velocity and standard deviation of velocities for each pressure-barrel assembly and the average velocity for the five assemblies shall be computed. If the average velocity for any pressure-barrel assembly varies from the average for the five assemblies by more than plus or minus 14 feet/second on the first day of firing, then that assembly shall be discarded and another selected and firing conducted therein until the aforementioned condition is met by all five assemblies; thereafter, on the two succeeding days, the same five assemblies shall be used. An additional 20 cartridges shall be fired in the same manner in the same pressure-barrel assemblies on each of two succeeding days. The average velocity and standard deviation of velocities for each 20-round test, the daily average velocity (20-rounds in each of five assemblies), and the grand average for the entire 15 velocity series (five assemblies on each of three days) shall be computed.

4.4.7 Chamber pressure. Prior to this test, cartridges shall be conditioned at 70°F + 2°F for two hours minimum. The test shall be conducted in accordance with SCATP-7.62 and the following: The five chamber (and port pressure) barrel assemblies specified in paragraph 2.7.2.2 of the SCATP shall be selected from a quantity of eight barrel assemblies. Selection of the five barrel assemblies shall be made by firing 30 reference cartridges in each barrel. The five test barrel assemblies that have the lowest standard deviation for chamber pressure shall be selected for the test. Prior to firing of the 30 reference cartridges, each barrel assembly shall be "broken in" by firing 100 standard cartridges. Twenty cartridges shall be fired in each of five pressure-barrel assemblies on each of three days. The average chamber pressure and standard deviation of chamber pressures for each 20-round test, the daily average chamber pressure (20 rounds in each of five assemblies) and the grand average for the entire fifteen chamber pressure series (five assemblies on each of three days) shall be computed. The velocity and pressure tests may be fired alternately in the same test assemblies during the same day.

4.4.8 Port pressure. Prior to this test, cartridges shall be conditioned at 70°F + 2°F for two hours minimum. The tests shall be conducted in accordance with SCATP-7.62. Upon completion, the average port pressure for the entire fifteen pressure series (five assemblies on each of three days) shall be computed.

Downloaded from http://www.everyspec.com

4.4.9 Function and casualty. The test shall be conducted simultaneously with all ballistic tests.

4.4.10 Grain configuration. The test samples shall be prepared and evaluated in accordance with MIL-STD-1170.

4.4.11 Hardness testing. The bullets shall be extracted, the propellant removed and the primers extracted. Each cartridge case of the sample shall be prepared and placed on the appropriate test fixture for testing in accordance with ASTM E92, Standard Test Method for Vickers Hardness of Metallic Materials.

4.4.11.1 Case head. The sectioned halves of each sample case shall be marked in such a manner that both halves can be positively identified as being from the same case. The individual hardness value for each prescribed point on each sample case head shall be recorded. Any value failing to meet the drawing requirement at a prescribed point(s) shall be cause for remeasurement of hardness of the point(s) at the mirror image position on the second half of the sectioned head. The higher of the two measurements shall be recorded as the value of record for determination of conformance to drawing requirements.

4.4.11.2 Case sidewall. The average of the hardness values of the sample cases for each prescribed point along the sidewall exterior surface shall be computed and charted in accordance with the drawing requirements.

4.4.12 Defect penalty. In any ballistic test in which the occurrence of a firing defect prevents the obtaining of a reliable result for the characteristic being tested, an additional shot shall be fired. That particular test shall not be penalized, but the acceptance sample shall be penalized for such defects in accordance with Table I.

5. PACKAGING

5.1 Packaging - level A (worldwide shipment). The cartridges shall be packaged in accordance with Drawing 8594377 and in accordance with Code of Federal Regulations Title 49, Parts 100-199.

5.2 Packing - level A (worldwide shipment). Packing shall be in accordance with Drawing 8594374 and in accordance with Code of Federal Regulations, Title 49, Parts 100-199.

5.3 Marking and labeling. Marking and labeling of the packed cartridges shall be in accordance with Drawing 8594374 and in accordance with Code of Federal Regulations, Title 49, Parts 100-199.

Downloaded from http://www.everyspec.com

6. NOTES

6.1 Intended use. The cartridges covered by this specification are intended for use as reference cartridges for calibration purposes in 7.62mm cartridge acceptance testing.

6.2 Ordering data. Ordering data should include:

a. Title, number and date of this specification.

b. Type and level of packing for the cartridges.

c. Provisions for the submission of Inspection Equipment Designs (DI-R-10054) (see 6.3).

d. Provisions for the submission of acceptance inspection reports containing final inspection results for each lot of ammunition presented to the Government (see 6.6).

6.3 Submission of inspection equipment designs for approval. (See MIL-A-48078). Submit inspection equipment designs as required to Commander, ARDC, ATTN: AMSMC-QAF-I(D), Dover, NJ 07801-5001.

6.4 Hazard notice. The cartridge described herein and some of its components are flammable and explosive and consequently present hazards in manufacture, handling, storage and shipment. The contractor should recognize these hazards and take appropriate measures to prevent fire, explosion, adverse environment, rough handling, corrosive atmosphere, and electrically inducted incidents. Such measures shall include the employment of an effective safety program that addresses the inherent hazards associated with the cartridge.

6.5 Drawings. Drawings listed in Section 2 of this specification under the heading US Army Armament Research and Development Center (ARDC) may also include drawing prepared by, and identified as Edgewood Arsenal, Frankford Arsenal, Rock Island Arsenal, US Army Armament Research and Development Command (ARRADCOM) or Picatinny Arsenal drawings. Technical data originally prepared by these activities is now under the cognizance of ARDC.

6.6 Submission of test data. In addition to the normal distribution of records, when the cartridge is procured by the US AMCCOM, on (1) copy of all ballistic data and the ammunition data card for each lot shall be forwarded to: Commander, ARDC, ATTN: AMSMC-QAF-S(D), Dover, NJ 07801-5001.

Downloaded from http://www.everyspec.com

6.7 In-process controls.

6.7.1 Uniformity of charge. A machine or loading plates shall be chosen which is known to drop charges with better than average uniformity and which gives constant results in the daily production tests. If relative machine performance is unknown, special tests should be fired to assure selection of a good machine.

6.7.2 Loading control. A quantity of 20 cartridges shall be fired for velocity and 20 cartridges for pressure each two hours of an eight hour shift to verify uniformity of charge weight and established velocity pressure values. Charge weight and uniformity of charge weight shall be checked every hour. Charge weight when once established shall not be changed during production of the entire lot.

6.8 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issues due to the extensiveness of the changes.

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 1305-AB29)

Downloaded from http://www.everyspec.com

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document*(s)* or to amend contractual requirements.

(Fold along this line)

(Fold along this line)

DEPARTMENT OF THE ARMY

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 12062 WASHINGTON D. C.
POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE ARMY

COMMANDER
US ARMY ARMAMENT MUNITIONS & CHEMICAL COMMAND
ATTN: AMSMC-QA
DOVER, NJ 07801 5001

Downloaded from http://www.everyspec.com

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-C-60896A	CARTRIDGE, 7,62MM, NATO, REFERENCE

3a. NAME OF SUBMITTING ORGANIZATION

b. ADDRESS *(Street, City, State, ZIP Code)*

4. TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

(TO DETACH THIS FORM, CUT ALONG THIS LINE.)

DD FORM 82 MAR 1426

PREVIOUS EDITION IS OBSOLETE.