

INCH-POUND

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SUPERSEDING
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DETAIL SPECIFICATION

CHARGE, PROPELLING, M200, FOR 105MM HOWITZER, M119 LOADING, ASSEMBLING AND PACKING

This specification is approved for use by the U.S. Army Armament Research, Development and Engineering Center (ARDEC), and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the loading, assembling and packing for one type of Propelling Charge designated as M200 for the M119 Howitzer.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to: Commander, US Army ARDEC, Attn: RDAR-EIQ-SE, Picatinny Arsenal, New Jersey 07806-5000 or emailed to usarmy.picatinny.ardec.list.ardec-stdzn-branch@mail.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

AMSC N/A

FSC 1315

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the solicitation or contract.

DEPARTMENT OF DEFENSE STANDARDS

- | | | |
|--------------|---|--|
| MIL-A-70625 | - | Automated Acceptance Inspection Equipment Design, Testing and Approval, of |
| MIL-STD-1168 | - | Ammunition Lot Numbering and Ammunition Data Card |
| MIL-STD-1916 | - | DOD Preferred Method for Acceptance of Product |

(Copies of these documents are available online at <http://quicksearch.dla.mil> or from the Standardization Documents Order Desk, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094)

2.2.2 Other Government documents, drawings and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

US ARMY ARMAMENT RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER (ARDEC) DRAWINGS

- | | | |
|-------------|---|---|
| 9217087 | - | Marking Diagram and Sealing of Steel Drums for Shipment of Propellants and Bagged Charges |
| 9281867 | - | Body |
| 9282042 | - | Charge, Propelling M200 Loading Assembly |
| 9282044 | - | Body Assembly |
| 12913756 | - | Cloth, Lead Laminate |
| TOP-4-2-504 | - | Safety Testing of Field Artillery Ammunition |

(Copies of these drawings may be requested online at usarmy.picatinny.ardec.list.drawing-request-help-desk@mail.mil or from US Army ARDEC, ATTN: RDAR-EIS-PE, Picatinny Arsenal, NJ 07806-5000).

CODE OF FEDERAL REGULATIONS

Title 49 Transportation, CFR 49 Part 100-199

(The Interstate Commerce Commission Regulations are now a part of the Code of Federal Regulations, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Orders from the above publications should cite, "49 CFR 100-199". <http://www.gpo.gov>)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Required inspections.

3.1.1 First article. When specified, (see 6.2) a sample shall be subjected to first article inspection in accordance with 4.2.

3.1.2 Conformance. A sample shall be subject to conformance inspection in accordance with 4.3 when applicable.

3.2 Propelling charge assembly.

3.2.1 Body. Body shall be in accordance with 9281867.

3.2.2 Laminated lead cloth. Laminated lead cloth shall be in accordance with 12913756.

3.2.3 Body and liner assembly. Body and liner assembly shall be in accordance with 9282044.

3.2.4 Charge, propelling, M200 assembly. Charge, propelling, M200 assembly shall be in accordance with 9282042.

3.3 Propellant weight. The net weight of the propellant shall not differ by more than the 0.07 ounce from that specified in the loading authorization.

3.3.1 Minimum propellant weight. The minimum propellant weight shall not be less than 3.8 oz. from that specified in the loading authorization.

3.4 Proving ground. The propelling charge, shall be fired in the M119 Howitzer and with the weight of projectile (33 lbs \pm 0.10 lbs)

3.4.1 Permissible Individual Maximum Pressure (+145°F). The propellant charge, at recommended charge weight, shall not produce a Permissible Individual Maximum Pressure (PIMP) greater than 57,000 psi at +145°F when fired in a M119 Howitzer.

3.4.2 Average pressure (+145°F). The propelling charge, at recommended charge weight, shall not produce an average chamber pressure greater than 54,000 psi at +145°F when fired in a M119 Howitzer.

3.4.3 Average pressure (+70°F). The propelling charge, at recommended charge weight, shall function and not produce an average chamber pressure greater than 46,500 psi when fired in a M119 Howitzer.

3.4.4 Muzzle velocity and velocity standard deviation. The muzzle velocity at 70°F shall not be less than 2,052 feet per second and not greater than 2,102 feet per second and the standard deviation of the lot shall not be greater than 8 feet per second.

3.5 Tolerance. A tolerance of +5°F applies to all -60°F and +5°F to all +145°F requirements and a tolerance of plus or minus 2 ½ °F to all 70°F requirements.

3.6 Marking. In addition to any marking by the contract or order, marking shall be in accordance with 9217087 except that the Department Of Transportation (DOT) nomenclature shall be “PROPELLANT EXPLOSIVES, SOLID CLASS B” and have Storage Compatibility Group “C” and Quantity Distance “1.3”.

3.7 Workmanship. The propellant grains shall be free of dirt and foreign material. The cloth and thread used for the manufacture of propelling charge bags shall be void of grease, oil, dirt, foreign material, holes, rips or tears.

3.8 Fiber drums. Fiber drums shall comply with DOT Specification 21C, 250 pounds, Minimum, Code of Federal Regulations, Title 49, Parts 100-199, and the following additional requirements. Size shall be 15½ ± ½ inches in diameter by 26 ± 1 inches in height, inside dimensions. The drum shall have a 23 or 24 gauge steel cover with rubber gasket, lever locking band with provision for sealing wire and wire bottom chime (2 inch minimum formed height). All metal parts shall be hot-dipped galvanized. Top and bottom chime shall be 23 or 24 gauge steel and shall be welded. The body shall be wound with a hot melt or thermoplastic adhesive. The bottom shall be a waterproof laminated fiberboard. Body and bottom disc shall also have a laminated aluminum foil barrier. The bottom crimp shall be caulked. The finished drum with closure assembled shall be moisture proof and leak tight. The fiber drums may be reused if the drums comply with the inspection requirements of 4.3.2.8.

3.8.1 Alternative fiber drum. Alternatively, fiber drums shall be constructed as specified in 3.8 except that a layer of aluminum foil 0.010 thick shall be laminated to the inside of the body and the aluminum foil between the layers of Kraft paper in the body shall not be required.

4. VERIFICATION

TABLE I. Requirement/verification cross reference matrix.

<u>METHOD OF VERIFICATION</u> 1 – Analysis 2 – Demonstration 3 – Examination 4 – Test		<u>CLASSES OF VERIFICATION</u> A – First article B - Conformance						
Section 3 Requirement	Description	Verification Methods				Verification Class		Section 4 Verification
		1	2	3	4	A	B	
3.1.1	First article inspection			X	X	X		4.2
3.1.2	Conformance inspection			X	X		X	4.3
3.2.1	Body			X	X	X	X	4.3.2.1, 4.4.1
3.2.2	Cloth, Lead, Laminated			X	X	X	X	4.3.2.2
3.2.3	Body and liner assembly			X	X	X	X	4.3.2.3
3.2.4	Charge, propelling, M200 assembly			X	X	X	X	4.3.2.4
3.3	Propellant weight			X	X	X	X	4.3.3.1-4.3.3.2, 4.4.2
3.4	Proving ground			X	X	X	X	4.3.3.2, 4.4.3
3.4.1	PIMP pressure (+145°F)			X	X	X	X	4.4.3.2.1
3.4.2	Average pressure (+145°F)			X	X	X	X	4.3.3.2.1
3.4.3	Average pressure (+70°F)			X	X	X	X	4.3.3.2.1.1
3.4.4	Muzzle velocity			X	X	X	X	4.3.3.2.2
3.5	Tolerance			X	X	X	X	4.4.3
3.6	Marking			X	X	X	X	4.5
3.7	Workmanship			X	X	X	X	4.3.2.1-4.3.2.4
3.8	Fiber drum			X	X	X	X	4.3.2.5-4.3.2.8 4.6

4.1 Classification of inspections. The verification requirements specified herein are classified as follows:

- a. First article inspection (see 4.2).
- b. Conformance inspection (see 4.3).

4.2 First article.

4.2.1 First article quantity. First article verification shall be performed on the quantity of items as indicated in Table II and when required Table III (see 6.10).

4.2.2 Inspection to be performed. The first article inspection shall consist of 100% examination for defects of all drawing requirements including workmanship requirements for the

parts and assemblies listed in 3.2 and the conduct of all test specified in Table II and when required Table III (see 6.10).

4.2.3 First article rejection. If any item fails to comply with requirements, the first article sample shall be rejected.

TABLE II. First article inspection.

Examination or Test	Number of Sample Units	Requirement Paragraph	Inspection Method Reference	Conformance Criteria
<u>Body</u> (Dwg. 9281867) Examination of defects	15	3.2.1	4.3.2.1	100%
<u>Laminated lead cloth</u> (Dwg. 12913756) Examination of defects	15	3.2.2	4.3.2.2	100%
<u>Body and liner assembly</u> (Dwg. 9282044) Examination of defects	15	3.2.3	4.3.2.3	100%
<u>Charge, propelling, M200, assembly (1/)</u> (Dwg. 9282042) Examination of defects	15	3.2.4	4.3.2.4	100%
<u>Propellant weight from assembled propelling charge</u>	100%	3.2	4.4.2.1	100%
1/ Propellant charge assemblies shall be packed in a fiber drum.				

The following test program should be used for the initial production test:

TABLE III. Initial production test.

Test Phase	Temperature (Deg F)	No. Control Rounds	No. Test Rounds	TECOM TOP
Propellant Checkout	70		10	TOP-4-2-504
	145		10	TOP-4-2-504
	-60		10	TOP-4-2-504
Sequential Environmental	145	15	60	TOP-4-2-504
	-60	15	60	TOP-4-2-504

4.3 Conformance inspection.

4.3.1 Inspection lot formation. Inspection lots shall comply with the lot formation provisions of MIL-STD-1916 and lot numbering shall comply with MIL-STD-1168. In addition, inspection lots of propellant shall contain M30 propellant, Type I, from not more than one lot from one manufacturer. An entire lot of propellant shall be utilized in the formation of one lot of propelling charges unless otherwise specified in the contract.

4.3.2 Classification of characteristics.

a. Sampling requirements. Inspection sampling requirements for critical, major and minor characteristics are defined in MIL-STD-1916. Unless otherwise specified, Inspection Level VII in addition to 100% inspection shall be used for all characteristics defined as Critical, Inspection Level IV shall be used for all characteristics defined as Majors, and Inspection Level II for all Minor characteristics.

b. Conformance inspection. Conformance inspection shall be performed in accordance with paragraph 4.3.2.1 through 4.3.2.8.

c. Alternative inspection. Alternative conformance inspections shall be submitted and approved in accordance with MIL-STD-1916.

4.3.2.1	<u>Body.</u>			Drawing Number 9281867
				Next Higher Assembly 9282044
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u> 101	Cloth improper	Level IV	3.2.1	4.4.1
<u>Minor</u> 201	Marking missing, misleading or unidentifiable	Level II	3.2.1	Visual
202	Evidence of poor workmanship	Level II	3.7	Visual

4.3.2.2	<u>Cloth, lead, laminate.</u>			Drawing Number 12913756
				Next Higher Assembly 9282044
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u> 101	Established length	Level IV	3.2.2	Gage/ Scale
102	Established width	Level IV	3.2.2	Gage/ Scale
<u>Minor</u> 201	Evidence of poor workmanship	Level II	3.7	Visual

4.3.2.3	<u>Body and liner assembly.</u>			Drawing Number 9282044
				Next Higher Assembly 9282042
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u>				
101	Broken or incomplete stitches	Level IV	3.2.3	Visual
102	Foil missing or improperly assembled	Level IV	3.2.3	Visual
103	Body seam improperly assembled	Level IV	3.2.3	Visual
<u>Minor</u>				
201	Evidence of poor workmanship	Level II	3.7	Visual

4.3.2.4	<u>Charge, propelling M200 loading assembly.</u>			Drawing Number 9282042
				Next Higher Assembly N/A
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>				
1	Pressure exceeds PIMP at 145 degrees F	4.3.3.2	3.4.1	4.4.3.2.1
2	Minimum propellant weight	100%	3.3.1	4.4.2.1
3	Assembly damaged to the extent that propellant can escape	100%	3.2.4	AAIE <u>2</u> / Visual
<u>Major</u>				
101	Weight of propellant	100%	3.3	Scale/4.4.2/ 4.3.3.1
102	Any seam or opening incompletely stitched	Level IV	3.2.4	Visual
103	Thread broken	Level IV	3.2.4	Visual
104	Muzzle velocity and muzzle velocity standard deviation	4.3.3.2	3.4.4	4.4.3.2.2
105	Excessive thread used in tacking operation	100%	3.2.4	Visual/Manual
<u>Minor</u>				
201	Evidence of poor workmanship, <u>1</u> /	Level II	3.7	Visual

1/ Some delamination and tearing of lead foil is expected during loading and is not a cause for rejection.
2/ Automated Acceptance Inspection Equipment shall be in accordance with MIL-A-70625

4.3.2.5	<u>Fiber drum (prior to filling).</u>			Drawing Number N/A
				Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u>				
101	Foreign material in drum	Level IV	3.8	Visual
102	Gasket missing or damage	Level IV	3.8	Visual
103	Holes in cover or end	Level IV	3.8	Visual
104	Locking device damage	Level IV	3.8	Visual
<u>Minor</u>				
201	Nicks, dents, body damage or scratches	Level II	3.8	Visual

4.3.2.6	<u>Unsealed fiber drum.</u>			Drawing Number N/A
				Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u>				
101	Contents missing	Level IV	3.8	Visual, 4.6
102	Packing component missing	Level IV	3.8	Visual
<u>Minor</u>				
201	Packing component improperly assembled	Level II	3.8	Visual

4.3.2.7	<u>Sealed fiber drum.</u>			Drawing Number N/A
				Next Higher Assembly
Category	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u>				
101	Contents move when drum is tilted	Level IV	3.8	Manual
102	Locking device damaged or improperly closed	Level IV	3.8	Visual
103	Holes or breaks in cover or body	Level IV	3.8	Visual
104	Damage to coating or cover	Level IV	3.8	Visual
<u>Minor</u>				
201	Marking missing, misleading or illegible	Level II	3.8	Visual
202	Exterior, torn or delaminated	Level II	3.8	Visual

4.3.2.8	<u>Applicable to reusable fiber drums before filling.</u>			Drawing Number N/A
				Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Critical</u>	None defined			
<u>Major</u>				
101	Top chime bent, deformed or cut	100%	3.8	Visual
102	Bottom chimes collapsed (annular groove closed or partially closed) or deformed	100%	3.8	Visual
103	Body bulged, cut or dented	100%	3.8	Visual
104	Gasket in cover missing or damaged	100%	3.8	Visual
105	Cover bent, creased or deformed in gasket area or around edge	100%	3.8	Visual
106	Locking ring damaged so as to prevent closing	100%	3.8	Visual
<u>Minor</u>				
201	Outer body surface seriously scuffed or metal scratched	Level II	3.8	Visual
202	Nicks or dents in chimes or cover not affecting function	Level II	3.8	Visual
203	Locking rings bent or deformed	Level II	3.8	Visual

4.3.3 Testing.

4.3.3.1 Propellant weight. – Major defect. Propellant charge shall be weighed and checkweighed 100% prior to filling the bag. Any propellant charge that does not comply with the weight requirements of 3.3 shall be rejected and removed from the filling operation.

4.3.3.2 Proving ground.

4.3.3.2.1 PIMP (+145°F) and average pressure (+145°F)– Major defects. For the first three lots manufactured a ballistic quantity of twenty (20) charge assemblies shall be randomly selected from each lot. If any individual pressure exceeds the requirement specified in 3.4.1, or if the average pressure exceeds the requirement specified in 3.4.2, the lot shall be rejected.

4.3.3.2.1.1 Consecutive lots. After three (3) consecutive lots have complied with the criteria of 4.3.3.2.1, a quantity of ten (10) charge assemblies randomly selected from each lot shall be submitted. If any individual pressure exceeds the requirement specified in 3.4.1, or if the average pressure exceeds the requirement specified in 3.4.2, the lot shall be rejected. If lot failure occurs with three lots in succession, the sampling provisions shall revert back to 4.3.3.2.1.

4.3.3.2.2 Muzzle velocity and muzzle velocity standard deviation. All muzzle velocity and muzzle velocity standard deviation samples shall be ballistic tested at 70 degrees F. Fifteen (15) charges shall be fired for muzzle velocity and muzzle velocity standard deviation. If the sample is determined unacceptable the lot shall be rejected. In addition, if the velocity standard deviation of the sample multiplied by the factor 0.76 exceeds the applicable lot requirement, the lot shall be rejected. Fifteen (15) calibration charges shall be fired alternately with the test samples and the muzzle velocity and pressure of all the test charges shall be corrected to standard conditions.

4.3.3.2.2.1 Consecutive lots. After three consecutive lots have met the criteria of 4.3.3.2.2, the sampling plan as above shall be used except that the sample size code letter shall be changed to Code Letter F. In addition, if the standard deviation of the sample muzzle velocities multiplied by the factor (see 6.6) exceeds the applicable requirements, the lot shall be rejected. If lot failure occurs with three lots in succession, the sampling provisions shall revert back to 4.3.3.2.2.

4.3.4 Inspection equipment. The inspection equipment required to perform the examination and tests prescribed herein is described in the “Paragraph/Inspection Method” column in paragraph 4.3.2.1 through 4.3.2.8.

4.4 Tests methods and procedures.

4.4.1 Cloth. At the time cloth is introduced to the sewing and/or cutting operation, identification shall be made for each roll to verify that proper material is used. Any cloth failing to be identified as proper material in accordance with drawings and specifications shall be rejected from the lot.

4.4.2 Propellant weight. The propellant charge placed in a container, shall be weighed and then checked weighed in a different balance. If the weighing is performed manually, use another operator for checkweighing. The propellant charges that are not within the limits shall be rejected.

4.4.2.1 Propellant weight from assembled propelling charge.

4.4.2.1.1 Average weight of propellant bags. A minimum of four (4) weighings must be made of empty bags during each shift to check for variation from nominal weight. Two (2) of these weighings shall be made during the first half of the shift and the other two weighings shall be made in the second half of the shift. Additional bag weights shall be taken, as required.

4.4.2.1.2 Procedure. Accurately weigh the assembled charge on a balance. Then, calculate the net weight of the propellant by difference using the average weight of the empty bags (as determined in 4.4.2.1.1). The calculation may also be performed by using the tare as marked on the individual bag instead of the average weight of the empty bags.

4.4.3 Proving ground.

4.4.3.1 Assembled charge assemblies. The charge assemblies shall be assembled in cartridge cases, inert filled projectiles and dummy fuzes at ambient temperature. Condition the complete rounds at the required temperatures prior to firing. Fire the complete rounds, within five minutes after removal from the conditioning chamber. The rounds shall be fired in an M20A1 tube which has a tube wear of no less than 50% of life remaining.

4.4.3.2.1 PIMP pressure and average pressure (+145°F). Condition the rounds for 16 hours minimum for zone 8 firings, at +145°F + 5°F. Determine the pressure for each round. Calculate the mean pressure and pressure standard deviation.

4.4.3.2.2 Muzzle velocity and pressure (+70°F). Condition the rounds for 16 hours minimum, for zone 8 firings at 70°F ± 2½°F. Calculate the mean muzzle velocity, muzzle velocity standard deviation, mean pressure and pressure standard deviation.

4.5 Packing. Level B- Twenty eight (28) propelling charges shall be packed in fiber drums and visually verified as described in section 3.8. Fiber drums are approved for truck or trailer on flat car (TOFC) shipment only and for storage not exceeding two years.

4.6 Marking. All required marking shall be neat and sharply defined.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The components covered by this specification are intended for use on the one type of Propelling Charge designated as M200 for the M119 Howitzer. The components and assemblies covered by this specification are military unique and have no commercial applications.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Propelling Charge designated as M200 for the M119 Howitzer. Parts, Loading, Assembling and Packing, MIL-DTL-48360, October 10, 2012.
- b. Provisions for submission of first article samples (See 4.2).
- c. Requirements for Ammunition Lot Numbering (See 4.3.1).
- d. Requirement for acceptance inspection equipment (AIE) designs.
- e. Certificate of Conformance for each lot or shipment of product.
- f. Requirements for submission of explosive description sheets in accordance with MIL-STD-1171.
- g. Initial Production Test. See 6.10

6.3 Inspection equipment. The inspection equipment required to perform the examinations and tests described herein is described in the 'Paragraph Reference/Inspection Method' column in the table starting with paragraph 4.3.2.1. The contractor should submit for approval inspection equipment designs in accordance with the terms of the contract. See MIL-STD-1916 and section 6.3.1.

6.3.1 Submission of inspection equipment designs for approval. Submit equipment designs as required per the Contract Data Requirements Lists (DD Form 1423).

6.4 Critical characteristics justification.

Critical examination/test	Justification
Pressure exceeds PIMP at 145°F + 5°F (4.4.3.2.1)	If the propellant charge, at recommended charge weight produces a PIMP (permissible individual maximum pressure) greater than 57,000 psi at +145°F when fired in a M119 Howitzer, damage to the Howitzer may result and is likely to cause serious injury or death to friendly troops.
Minimum propellant weight (4.4.2, 4.3.3.1)	If propellant charge weight is significantly below the minimum authorized loading weight, a short round will occur, which is likely to cause serious injury or death to friendly troops.
Assembly damaged to the extent that propellant can escape (4.3.2.4)	Damage such that propellant can escape can lead to low propellant weight. If propellant charge weight is significantly below the minimum authorized loading weight, a short round will occur, which is likely to cause serious injury or death to friendly troops

6.5 Standard deviation. The standard deviation should be calculated with (n-1) as the divisor in a standard statistical technique to the shown in MIL-STD-1916.

6.6 Factors. The factors as taken from Table A-21 of AMC Pamphlet 706-114 using the 95 percent upper confidence limit (A.05) and n-1 degrees of freedom make allowance for the probability that a standard deviation exceeds the true standard deviation by chance alone. The factor for a normal 20 round group is 0.79 and the factor for a normal 10 round group is 0.73.

6.7 Proving ground test summary.

Test	Temperature (°F)	Requirement	Sample Size (Tightened Insp)	Sample Size (Normal Inspect)
PIMP Pressure	+145	57,000 psi	20	10
Av. Pressure max.	+145	54,000 psi	Same sample as above	Same sample as above
Av. Pressure max.	70	46,500 psi	15	10
Muzzle Velocity (individual)	70	2052 to 2102 fps	Same sample as above	Same sample as above
Standard Deviation Lot	70	σ lot \leq 8 fps	Same sample as above	Same sample as above

6.8 Submission of test data. In addition to the normal distribution of records, when the propellant charge assembly is procured by the Department of the Army, one copy of all ballistic

test data should be forwarded to: Commander, ARDEC, Attn: RDAR-QEM-A and one copy to Attn: RDAR-MEE-W, Dover, NJ 07801.

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

6.10 Initial production test. The initial production test is a onetime qualification test for a new contractor to load, assemble and pack acceptable M200 propelling charges. Once a contractor has demonstrated the ability to load, assemble and pack the propelling charges, the initial production test may be waived by the contracting officer. The following test program should be used for the initial production test:

TABLE IV. Initial production test.

Test Phase	Temperature (Deg F)	No. Control Rounds	No. Test Rounds	TECOM TOP
Propellant checkout	70		10	TOP-4-2-504
	145		10	TOP-4-2-504
	-60		10	TOP-4-2-504
Sequential Environmental	145	15	60	TOP-4-2-504
	-60	15	60	TOP-4-2-504

6.11 Subject term (key word) listing.

Lead Foil
Lead Laminate Cloth
M200

6.12 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodian:
Army-AR

Preparing activity:
Army-AR
(Project Number: 1315-2014-004)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.