

MIL-B-48177(MU)  
30 March 1973  
SUPERSESION  
(see 6.4)

## MILITARY SPECIFICATION

### BARIUM SULFATE

#### 1. SCOPE

1.1 This specification covers one type of barium sulfate (Barytes) for use in the formulation of ammunition inert fillers.

#### 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

##### FEDERAL

PPP-D-723 - Drums, Fiber

#### STANDARDS

##### MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes (ABC-STD-105)
- MIL-STD-109 - Quality Assurance Terms and Definitions
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-1168 - Lot Numbering of Ammunition
- MIL-STD-1235 - Single and Multilevel Continuous Sampling Procedures and Tables for Inspection by Attributes

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

FSC: 1376

MIL-B-48177 (MU)

2.2 Other publications.-The following documents, also 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.

American Society for Testing and Materials - ASTM Standards

(Copies may be purchased directly from ASTM, 1916 Race Street, Philadelphia 3, Pa.)

### 3. REQUIREMENTS

3.1 The material shall consist of barium sulfate without any admixture of other materials not naturally occurring in the barite ore, and which conform to the following requirements:

Property	Min	Max	Applicable Paragraph
Purity, Percent	95	-	4.3.1
Total Residue Retained on a No. 325 Sieve, Percent	-	0.5	4.3.2
Specific gravity	4.39	4.41	4.3.3
Oil absorption, lbs. oil/100 lbs 9.0	9.4		4.3.4

3.2 Workmanship.-The composition shall be free of dirt, chips, grease and other foreign matter.

3.3 First article testing.-This specification makes provisions for first article testing. Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

### 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 use 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. Reference shall be made to MIL-STD-109 to define terms used herein.

4.1.1 Submission of product.-At the time each completed lot of items deliverable under the contract is submitted to the Government for acceptance, the contractor shall

MIL-B-48177 (MU)

supply the following information accompanied by a certificate which attest that the information provided is correct and applicable to the product being submitted:

- a. A statement that the lot complies with all of the quality assurance provisions specified in this specification.
- b. Specification number and date, together with identification and date of changes thereto.
- c. Certificates of analysis on all materials used directly by the contractor when such materials is controlled by Government specifications shall be made available upon request by the Contracting Officer.
- d. Quantity of product in the lot.
- e. Date submitted

The certificate shall be signed by a responsible agent of the certifying organization. The initial certificate submitted shall be substantiated by evidence of the agent's authority to bind his principal. Substantiation of the agent's authority will not be required with subsequent certificates unless, during the course of the contract, this authority is vested in another agent of the certifying organization.

#### 4.2 First article inspection

4.2.1 Submission.-Prior to the start of regular production the contractor shall submit a first article sample (see 6.1) to a Government approved facility as designated by the contracting officer for evaluation in accordance with the provisions of 4.2.2. The first article shall consist of 1 pound of barium sulfate in accordance with instructions issued by the Contracting Officer. All samples submitted shall have been produced by the contractor using the same production processes, procedures, and equipment as will be used in fulfilling the contract. All materials, including packaging and packing, shall be obtained from the same sources of supply as will be used in regular production. The sample shall be accompanied by certificates of analysis. A first article quantity, or portion thereof, as directed by the Contracting Officer, shall also be submitted whenever there is a lapse in production for a period of excess of 90 days, or whenever a change occurs in manufacturing process, material used, drawing, specification or source of supply as to significantly affect production uniformity as determined by the Government. Prior to submission, the contractor shall inspect the sample to the degree necessary to assure that it conforms to the requirements of the contract and submit a record of this inspection with the sample. A sample containing known defects will not be submitted unless specifically authorized by the Contracting Officer.

MIL-B-48177 (MU)

4.2.2 Inspections to be performed.-The sample will be subjected by the Government to any or all of the examination or tests specified in 4.3 of this specification.

4.2.3 Rejection.-If any sample fails to comply with any of the applicable requirements, the first article quantity shall be rejected. The Government reserves the right to terminate its inspection upon any failure of a sample to comply with any of the stated requirements.

#### 4.3 Inspection provisions

4.3.1 Lot formation.-A lot shall consist of one or more batches, of barium sulfate produced by one manufacturer, in accordance with the same specification, or same specification revision, under one continuous set of operating conditions. Each lot shall consist of that quantity of barium sulfate that has been subjected to the same unit chemical or physical mixing process intended to make the final product homogeneous. The product shall be submitted for inspection in accordance with MIL-STD-105. The criteria and procedures for the assignment of lot numbers shall be in accordance with Standard MIL-STD-1168.

4.3.2 Examination.-Sampling plans and procedures for the following classifications of defects shall be in accordance with MIL-STD-105 (ABC-STD-105), except that inspection for critical defects shall be 100 percent. Contractor's sampling plans, if used, shall be approved by the Government and shall provide, as a minimum, the protection afforded the Government by the sampling plans in MIL-STD-105. Continuous sampling plans in accordance with MIL-STD-1235 may be used if approved by the procuring activity. Also, at the option of the procuring activity, AQL's and sampling plans may be applied to the individual characteristics listed, using an AQL of 0.40 percent for each Major defect, and an AQL of 0.65 percent for each Minor defect, except where 100 percent inspection is specified.

##### 4.3.2.1 Drums, prior to filling (Polyethylene liner)

Categories	Defects	Method of Inspection	Code No. (see 6.2)
------------	---------	----------------------	--------------------

Critical: None defined.

Major:	AQL 0.40 percent		
101. Liner cut, torn or punctured...	Visual		01001

MIL-B-48177 (MU)

Minor: None defined

## 4.3.2.2 Drums, prior to closing (Polyethylene liner)

Categories	Defects	Method of Inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined

Major:	AQL 0.40 percent		
101.	Liner not completely sealed.....	Visual	02001

Minor: None defined

## 4.3.2.3 Drum, sealed (fiber)

Categories	Defects	Method of Inspection	Code No.
------------	---------	----------------------	----------

Critical: None defined

Major:	AQL 3.40 percent		
101.	Weight of contents.....	Scale	03001
102.	Closure of incomplete or damaged to the extent that contents sift out.....	Visual	03002

Minor:	AQL 0.65 percent		
201.	Markings misleading or unidentifiable.....	Visual	03003

4.3.3 Sampling.-All sampling of individual containers shall be accomplished in such a manner that the sample is representative of the entire contents of the container. Individual or composite samples shall be identified in such a manner as to provide positive identification as to the container or containers represented by each sample. For the chemical composition tests, the lot shall be divided up into two (2) parts. From each part, a composite sample shall be prepared in the following manner. A random sample of filled containers shall be selected in accordance with MIL-STD-105. However, if each part comprises less than five (5) containers, all containers shall be selected. Approximately equal portions shall be taken from the selected containers in such quantities that the aggregate

MIL-B-48177 (MU)

weight of such portions shall be approximately 1 pound. These portions shall then be thoroughly mixed to form a composite sample. For the physical tests, the lot shall be divided up into four (4) parts. For each part, a composite sample shall be prepared in the same manner as described above. The aggregate weight of each composite sample shall be approximately 1 pound. If any of the above samples fails to meet any of the requirements specified in Section 3, the lot shall be rejected. The following defects shall be used for the test specified:

Tests	Defects	Code No.
Purity	Major	04001
Granulation	Major	05001
Specific Gravity	Major	06001
Oil Absorption	Major	07001

#### 4.3 Test methods and procedures

4.3.1 Purity.-The purity shall be determined in accordance with ASTM Designation D 715-63.

4.3.2 Granulation.-Determine the coarse particles in accordance with ASTM Designation D: 185-45.

4.3.3 Specific gravity.-Determine the specific gravity in accordance with ASTM Designation D: 153-54.

4.3.4 Oil absorption.-Determine the oil absorption in accordance with ASTM Designation D: 281-31.

#### 5. PREPARATION FOR DELIVERY

##### 5.1 Packing

5.1.1 Drums.-Unless otherwise specified in the contract or purchase order, the barium sulfate shall be packed in non-returnable fiber drums in accordance with Specification PPP-D-723, (Type III, Grade A). The drums shall be finished with a nominal 0.004 inch thick polyethylene liner, properly heat sealed or otherwise closed to afford protection to the contents equivalent to that given by a heat seal closure.

5.1.2 Level C.-The barium sulfate shall be packed to afford protection against damage during direct shipment from supply source to the first receiving activity or immediate use. Containers shall comply with Uniform Freight Classification Rules and Container Specifications for rail shipments or National Motor Freight Rules and Container Specifications for truck shipment as applicable.

MIL-B-48177 (MU)

5.2 Marking.-In addition to any special markings required by the contract or purchase order, containers shall be marked in accordance with MIL-STD-129. Marking shall include, but is not limited to the following information:

- a. Manufacturers name
- b. Product designation
- c. Lot number
- d. Date of manufacture
- e. Number of this specification

## 6. NOTES

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

- a. Title, number, class and date of this document
- b. Provision for submission of first article samples

6.2 Inspection code numbers.-The five digit code numbers assigned to the inspection herein are to facilitate future data collection and analysis by the Government.

6.3 Intended use.-The barium sulfate covered in this specification is intended to be used as an ingredient in the manufacture of inert fillers for ammunition.

6.4 Supersession Data.-This specification includes the requirements of Purchase Description PA-PD=2766 dated 10 Feb 1966.

CUSTODIAN:  
ARMY-MU

PREPARING ACTIVITY:  
ARMY-MU

PROJECT NUMBER: 1376-A006

<b>SPECIFICATION ANALYSIS SHEET</b>		Form Approved Budget Bureau No. 22-R255
<p><b>INSTRUCTIONS:</b> 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. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.</p>		
SPECIFICATION		
ORGANIZATION		
CITY AND STATE		CONTRACT NUMBER
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> 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? <input type="checkbox"/> YES <input type="checkbox"/> 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 - Optional)		DATE

DD FORM 1426  
1 JAN 66

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.