UU-S-48F
June 1, 1973
SUPERSEDING
Fed. Spec. UU-S-48E
October 30, 1969

FEDERAL SPECIFICATION

SACKS, SHIPPING, PAPER

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers new multiwall paper shipping sacks.

1.2 Classification. Paper shipping sacks covered by this specification shall be of the following types, styles, and sack construction numbers as specified (see tables I and II, and 6.2).

1.2.1 Types and styles.

I - Pasted bottom, open mouth (see 3.3.1)
II - Sewn bottom, open mouth (see 3.3.2)
III - Pasted valve (see 3.3.3)
IV - Sewn valve (see 3.3.4)
V - Sewn open corner (see 3.3.5)
VI - Pinch type (see 3.3.6)

Style A - Flat tube paper shipping sacks
Style B - Gusseted tube paper shipping sacks

1.2.2 Sack construction number and minimum walls (see tables I and II).

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:

Federal Specification:

PPP-B-601 - Boxes, Wood, Cleated, Plywood.

Federal Standard:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers, at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Ft. Worth, Denver, San Francisco, Los Angeles, and Seattle, Washington.

(Federal Government Activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specification:

MIL-T-21330 - Treatment: Insect Resistant For Paper.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

LAWS AND REGULATIONS

21 CFR - Federal Food Drug and Cosmetic Act and Regulations Promulgated Thereunder.
49 CFR 78 - Department of Transportation Rules and Regulations for Transportation of Explosives and Other Dangerous Articles.

(The code of Federal Regulations (CFR) and the Federal Register (FR) are on sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for the issuance thereof.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply:

Technical Association of the Pulp and Paper Industry (TAPPI) Publication:

T402 - Standard Conditioning and Testing Atmospheres for Paper, Board, Pulp Handsheets, and Related Products.
T404 - Tensile Breaking Strength of Paper and Paperboard.
T410 - Weight per Unit Area (Basis Weight or Substance) of Paper and Paperboard.
T414 - Internal Tearing Resistance of Paper.
T456 - Wet Tensile Breaking Strength of Paper and Paperboard.
T464 - Water Vapor Transmission Rate of Sheet Materials at High Temperatures and High Humidity.
T483 - Odor of Packaging Materials.
T494 - Tensile Breaking Properties of Paper and Paperboard.
T512 - Creasing of Flexible Packaging Material Specimens for Testing.
T634 - Drop Melting Point of Petroleum Wax, Including Petrolatum.

(Copies may be obtained from the Technical Association of the Pulp and Paper Industry, One Dunwoody Park, Atlanta, GA 30341.)

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, D.C. 20036.)

Uniform Classification Committee, Agent

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Materials. The nominal basis weight of paper used for shipping sacks shall be in multiples of 10 pounds. The ream size and count for basis weight of the paper components shall be 24 by 36 inches--500 sheets. All basis

weights shall have a tolerance of minus 5 percent, unlimited plus, except that paper used in outer walls shall have a tolerance of minus 10 percent, unlimited plus. When sacks are to be used for packing unpackaged food items, the sack materials shall conform to the Federal Food, Drug, and Cosmetic Act, and Regulations Promulgated Thereunder (see 6.2), and shall not impart a foreign odor to the contents when tested as specified in 4.4.

3.1.1 Paper wall components. Paper used as walls in the fabrication of paper shipping sacks shall be either those listed in 3.1.1.1 meeting the requirements of table I, or those listed in 3.1.1.2 meeting the requirements of table II, and, when specified (see 6.2), the moisture barrier (MB) requirements of table III.

TABLE I. Sack constructions, basis weights, and test values for sacks made of heavy duty shipping sack kraft paper

Sack No.	Construction and basis weight requirements: Min. No. of walls	Minimum basis weight of all walls: Total	Minimum basis weight of all walls: Outer wall	Total test requirements for all walls: Minimum average dry tensile strength per inch of width (pounds): CD*	Total test requirements for all walls: Minimum average dry tensile strength per inch of width (pounds): Total CD* + MD*	Total test requirements for all walls: Minimum average dry tearing strength (grams): MD*	Total test requirements for all walls: Minimum average dry tearing strength (grams): Total MD* + CD*	Outer wall (wet strength kraft), minimum average wet tensile strength per inch width (pounds) for level A packing: CD*
1	3	180	50	61	171	360	774	4.5
2	3	190	50	65	181	380	817	4.5
3	3	200	50	68	190	400	860	4.5
4	3	210	50	71	199	420	903	4.5
5	4	220	60	75	209	440	946	5.4
6	4	230	60	78	218	460	989	5.4
7	4	240	60	82	228	480	1032	5.4
8	4	250	60	85	237	500	1075	5.4
9	4	260	60	88	247	520	1118	5.4
10	4	270	60	92	257	540	1161	5.4
11	4	280	60	95	266	560	1204	5.4
12	5	290	60	99	276	580	1247	5.4
13	5	300	60	102	285	600	1290	5.4
14	5	310	60	105	294	620	1333	5.4
15	5	320	60	109	304	640	1376	5.4
16	5	330	60	112	313	660	1429	5.4
17	5	340	60	116	323	680	1472	5.4
18	5	350	60	119	333	700	1515	5.4

* CD - Cross direction; MD - Machine direction.

TABLE II. Sack constructions, basis weights and test values for sacks made of extensible heavy duty shipping sack kraft paper

Sack No.	Construction and basis weight requirements: Min. No. of walls	Minimum basis weight of all walls: Total	Minimum basis weight of all walls: Outer wall	Total paper test requirements for all walls: Minimum average dry tensile energy absorption strength per square foot (foot pounds): CD*	Total paper test requirements for all walls: Minimum average dry tensile energy absorption strength per square foot (foot pounds): Total MD* + CD*	Total paper test requirements for all walls: Minimum average dry tearing strength (grams): MD*	Total paper test requirements for all walls: Minimum average dry tearing strength (grams): Total CD* + MD*	Outer wall (wet strength kraft extensible), minimum average wet tensile energy absorption strength per square foot (foot pounds) for level A packing: CD*
1X	2	150	50	16	48	300	645	1.8
2X	2	160	50	17	51	320	688	1.8
3X	2	170	50	18	54	340	731	1.8
4X	2	180	50	19	57	360	774	1.8
5X	3	190	60	20	60	380	817	2.1
6X	3	200	60	21	63	400	860	2.1
7X	3	200	60	21	63	400	860	2.1
8X	3	210	60	22	66	420	903	2.1
9X	3	220	60	23	69	440	946	2.1
10X	3	230	60	24	72	460	989	2.1
11X	3	240	60	25	75	480	1032	2.1
12X	3	250	60	26	78	500	1075	2.1
13X	3	250	60	26	78	500	1075	2.1
14X	4	260	60	27	82	520	1118	2.1
15X	4	270	60	28	85	540	1161	2.1
16X	4	280	60	29	88	560	1204	2.1
17X	4	290	60	30	91	580	1247	2.1
18X	4	300	60	32	95	600	1290	2.1

* CD - Cross Direction: MD - Machine direction.

TABLE III. Moisture barrier performance requirements 1/ 2/

Grade of MB protection	Maximum average water vapor transmission rate at 90 percent R.H. 100° F., g./100 sq. in./24 hrs. (see 4.4)	
	Uncreased	Creased
1	3.0	6.0
2	2.0	4.0
3	1.0	2.0
4 3/	0.05	0.10

1/ Unless otherwise specified in the commodity table XII, placement of the MB wall shall be next to the outer wall for level A and is optional for level B sack constructions other than the outer wall.

2/ For MB grade 4: Unless otherwise specified the MB shall be next to the inner wall.

3/ Grade 4 is for ammunition packing (see table XII).

3.1.1.1 Papers applicable to table I requirements.

(a) Heavy duty shipping sack kraft paper.
(b) Heavy duty shipping sack kraft wet strength paper.
(c) Heavy duty shipping sack kraft paper coated or laminated.
(d) Insect resistant treatment (IRT) heavy duty shipping sack kraft paper or heavy duty shipping sack wet strength kraft paper.

3.1.1.2 Papers applicable to table II requirements.

(a) Heavy duty shipping sack kraft, paper extensible.
(b) Heavy duty shipping sack kraft paper, extensible, wet strength.
(c) Heavy duty shipping sack kraft paper, extensible, coated or laminated.
(d) IRT heavy duty shipping sack kraft paper, extensible or heavy duty shipping sack wet strength kraft paper, extensible.

3.1.2 Adhesive. Adhesive used for seams and closures shall be water resistant to the extent that there will be not more then 25 percent of adhesive failure of the bonded area when tested as specified in 4.4.2.1. For IRT sacks the

adhesive used for the longitudinal seam of the outer wall, tape over sewing (TOS), ends or pinch type closure shall be hot melt or thermoplastic adhesives or other adhesives equivalent in performance as specified herein.

3.1.3 Dipping or sealing compound. The compound used for dipping or sealing the ends of MB sacks shall be an amorphous compound or a blend of microcrystalline wax modified by polyethylene having a melting point of not less than 140° F., when tested as specified in 4.4. Sealing or dipping compounds shall remain flexible at a temperature between minus 7° F. and minus 10° F. when tested as specified in 4.5.

3.1.4 Tape. Tape used to cover the sewn ends of shipping sacks shall be nominal 70 pounds basis weight heavy duty shipping sack kraft paper, flat, extensible or creped. The width of the tape shall be not less than two inches. The tape used for the sewn ends of TOS IRT sacks shall be treated on one side in accordance with MIL-T-21330. The width of the tape shall be not less than 2-1/2 inches. Tape used to cover sewn ends on MB TOS sacks shall conform to MB grade 1 (see table III), when MB grade 1 sacks are required. When MB grades 2 or 3 are required, the tape shall be not less than MB grade 2, and MB 4 for MB 4 sacks. The width of the tape shall be sufficient to comply with 3.2.4.1.

3.1.5 Thread. The thread shall be commercial minimum 12/5 cotton needle thread and 12/4 cotton looper thread, or other equivalent thread for sack constructions 1-1X through 8-8X. For sack constructions 9-9X through 18-18X, minimum 12/6 commercial cotton needle thread and 12/5 cotton looper thread or other equivalent thread shall be used.

3.1.6 MB materials. Where MB grades are specified in table XII to be incorporated in the sack construction, the MB material shall meet the performance requirements of table III (see 3.4.2).

3.2 Construction and manufacturer's closures.

3.2.1 Sack wall construction. The walls shall be arranged and fabricated in tube form nested one with the other. The minimum number of walls and location, as applicable, shall be as specified in tables I, II, and XII. Seams in successive walls shall be arranged in a staggered pattern in the sack construction. Unless otherwise specified (see 6.2), spot pasting between the various walls shall be provided at or near the top or open end of the sack to facilitate opening the sack for filling. On type VI, style B IRT sacks, other than baler sacks, the gusset shall not exceed 4 inches.

3.2.2 Seam strength. The adhesive specified in 3.1.2 applied to seams, shall give seam strength at least equal to the wall of the sack paper when

tested as specified in 4.4.2.2. The seam shall have a continuous bond. The overlap of paper at the seam on other than IRT sacks shall be not less than 1/2 inch. There shall be not more than 3/16 inch of unsealed edge on the exposed edge of the longitudinal seam of IRT sacks.

3.2.3 Sewing of sack closures. The stitches (see 3.1.5) used for manufacturer's closure seams shall be either a lock or chain stitch spaced 3.0 to 3.6 to the inch. Stitches shall be reinforced on the needle side of the sewing with paper band or filler cord. The sew line of the closure shall be between 3/8 inch and 3/4 inch from the end of the sack.

3.2.4 Tape application for manufacturer's closures.

3.2.4.1 TOS. After closing the manufacturer's ends of sacks by sewing (see 3.2.3), the tape specified in 3.1.4, as applicable, shall be folded over the sewn end of the sack to provide a continuous bonded area using the adhesive specified in 3.1.2. The width of the bonded area shall be not less than 5/16 inch between the sew line and the edge of the tape. The tape shall extend the length of the sewn closure and extend between 1/2 inch and 2 inches beyond each side edge of the sack.

3.2.4.2 SOT. Tape specified in 3.1.4 shall be folded over the bottom end of sacks. The closure shall then be made by sewing (see 3.2.3), through the folded-over tape and all walls of the sack. The tape and sewing shall extend between 1/2 inch and 2 inches beyond each edge of the sack.

3.2.5 Moisture barrier manufacturer's sack closures (MB ends).

3.2.5.1 Types II, IV, and V sacks. When MB ends are specified in table XII, the manufacturer's sewn SOT end of style A or B sacks shall be sealed by dipping in a sealing compound specified in 3.1.3 to a depth of not less than 1/8 inch beyond the edge of the kraft tape on the sack body after the sack is filled. Alternatively, the ends of nongusseted sacks may be sealed with tape conforming to 3.1.4 and applied as specified in 3.2.4.1.

3.2.5.2 Types I, III, and VI sacks. Where MB ends are specified in table XII, the underside of the folds of the pasted ends shall be glued in position with an adhesive specified in 3.1.2. Type VI sacks shall be sealed as specified in 3.3.6.

3.3 Manufacturer's closures of sacks.

3.3.1 Type I, pasted bottom, open mouth sacks. The open end of the sack, other than baler sacks, shall be made without a thumb cut. The manufacturer's closed end shall be continuously bonded so that the various walls of paper will be securely anchored, one to the other, providing a strong bottom closure.

3.3.2 Type II, sewn bottom, open mouth sacks. The open end of the sack shall be made without a thumb cut. The manufacturer's closed end shall be sewn through all walls of the sack not less than 3/8 nor more than 3/4 inch from the end of the sack. A strip of tape (see 3.1.4) shall be incorporated into the sewn end of the sack in such a way that it folds over the end of the sack (see 3.1.5, 3.2.3 and 3.2.4). The thread and sewing shall conform to 3.1.5 and 3.2.3.

3.3.3 Type III, pasted valve sacks. The top and bottom ends shall be continuously bonded with adhesive so that the various walls of paper will be securely anchored, one to the other, providing strong closures. One top corner shall not be pasted shut so as to provide a filling valve.

3.3.3.1 Tuck-in-sleeves. When type III or IV sacks are used and tuck-in-sleeves are specified in table XII, the sacks shall be provided with tuck-in-sleeves constructed of creped or extensible kraft paper of not less than 70 pounds basis weight. When MB tuck-in-sleeves are specified in table XII, valve sacks shall be provided with tuck-in-sleeves constructed of extensible or creped kraft paper meeting the barrier requirements of table III, grade 2. Tuck-in-sleeves of other types of paper of equal weight or greater performance are acceptable.

3.3.4 Type IV, sewn valve sacks. The manufacturer's closed bottom and top of the sack shall be sewn closed as specified for the bottom manufacturer's closure in 3.3.2, except that a filling valve shall be provided in one top corner of the sack. Unless otherwise specified (see 6.2 and table XII), the valve shall have a tuck-in-sleeve (see 3.3.3.1).

3.3.5 Type V, sewn open corner sacks. The manufacturer's closed top and bottom of the sack shall be sewn as specified for the manufacturer's bottom closure in 3.3.2.

3.3.6 Type VI, pinch type sacks. The underside of the stepped folds of the manufacturer's closure of the sack shall be continuously sealed with an adhesive conforming to 3.1.2 to the opposite face of the sack. The outer wall of the sack shall be stepped at the top and bottom fold over flap beyond all inner plies to provide a positive seal over the ends of the inner walls. The fold line shall be 1-5/8 inches $\pm$ 1/4 inch below the top edge of the long side of the sack and not less than 1/4 inch below the top edge of the innermost ply of the short side of the sack. The outer edge of the long side of the sack shall extend not less than 3/4 inch beyond the topmost edge of the short side of the sack. The closure shall have no peeled corner or corners, open channels, or unsealed edge greater than 3/16 inch.

3.3.7 IRT sacks.

3.3.7.1 Type II, style A. The end shall be sewn in accordance with type II sacks (see 3.3.2.). The stitches shall be covered with flat or extensible kraft paper tape conforming to 3.1.4, and applied in accordance with 3.2.4.1. The treated surface of the tape shall be the outside surface after it is applied to the sack. There shall be not more than 3/16 inch of unbonded edge of the tape beyond the adhesive line in order to minimize the harboring of insects under the tape. The tape extensions of the sack manufacturer's closure shall be folded back and glued to the body of the sack.

3.3.7.2 Type VI, style B. The manufacturer's closure of IRT sacks shall be as specified in 3.3.6.

3.4 Physical characteristics.

3.4.1 Physical requirements of kraft paper. Kraft paper walls of shipping sacks shall meet the requirements of tables I and II, as applicable. Values in tables I and II are for the total combined values of all walls of the sack, except the wet strength requirements shall apply only to the outer wall. Sack construction for level A packing shall have a wet strength outer wall.

3.4.2 MB wall. When MB grades are specified in table XII, the MB wall must meet the performance requirements of table III for the MB grade specified in the sack construction. When barrier walls are made of kraft paper laminated with asphalt or other barrier material, or of kraft paper coated or lined with a barrier material, the barrier wall shall be considered as if it were heavy duty shipping sack kraft paper or heavy duty shipping sack kraft paper, extensible, and shall be considered as part of the sack construction in determining conformance of the sack with the requirements of table I or II, subject to the additional provisions of 3.4.2.1 and 3.4.2.2. A barrier wall that contains no kraft paper component, such as free films shall be considered a part of the sack only for determining conformance of the sack with the barrier requirements of table III, and shall not be considered as satisfying any of the requirements of table I or II. The testing for values in table III shall be made through the MB wall, or combined MB walls of the sack, as applicable.

3.4.2.1 Asphalt laminated kraft paper. Asphalt laminated kraft used as a wall in the fabricated sack shall consist of two plies of kraft paper, with the total basis weight of the two plies not less than 50 pounds per ream, continuously bonded together. Only the weight of the two kraft paper plies, after extraction of the asphalt in accordance with 4.4.1.1 shall be included in the total basis weight of all walls for determining compliance with the total sack basis weight requirements of table I or II. For purpose of computing minimum number of walls, the asphalt laminated wall shall be considered as one wall. The melting point of the asphalt shall be not less than 140°F.

3.4.2.2 MB coated kraft. In determining the total basis weight of sacks containing a coated or lined MB kraft wall, only the weight of the base kraft sheet, after removal of the coating or film will be included in the total basis weight of all walls for determining compliance with the total sack basis weight requirements of table I or II (see 4.4.1.2).

3.4.2.3 Heat resistance. There shall be no delamination of plies of the laminated material, no blistering and no visual bleeding of the asphalt or other combining agents (excluding small pinhole transfers) to the outside surfaces of the sack paper when tested as specified in 4.4.4.

3.4.3 Marking of wet strength (WS) paper. All WS paper shall be distinctly marked for identification by longitudinal stripes spaced not less than 2 inches nor more than 10 inches on centers across the paper width, and each stripe shall be not less than 1/8 inch in width. No other grade of paper used in the sacks shall be striped in this manner. When WS paper is used as the outer wall, the identification marking shall appear on the external surface of the sack.

3.5 Capacity and size of sacks. The purchaser shall specify the material and weight of material for which the sacks are to be used. The capacity and size of the sacks shall be such as to contain the specified weight of the material and specified closures. Size and capacity of the sacks shall be as specified in the contract or order (see 6.2).

3.6 Odor. Materials used in construction of sacks for food products shall impart no foreign odor to the contents of the sacks when tested as specified in 4.4.

3.7 Insect resistant treatment (IRT). When IRT is specified (see 6.2 and table XII) one side of the outside wall of the shipping sack shall be treated as specified in MIL-T-21330. The IRT surface shall be the outside surface of the sack. The shipping sack shall be fabricated not more than 60 days prior to shipment of the contents. Any subsistence item shall be separated from the IRT surface by at least two plies of untreated paper.

3.8 Baler sacks. Sacks used as balers for a number of small filled sacks shall contain not more than 60 pounds of product, and the baler shall be not less than construction No. 9 or 9X, MB grade 2 for level A packing, and shall be not less than construction No. 4 or 4X, MB grade 1 for level B packing. Fabrication and manufacturer's end closure shall conform with the requirements of type I, II, or VI sacks, as applicable.

3.9 Marking. Each shipping sack shall be plainly printed or stenciled in accordance with the requirements specified in the invitation for bids, contract, or order (see 6.2). The ink used shall be commercially waterfast and sunfast and shall print on WS paper when WS paper is used as the outer wall of the sack.

3.9.1 Bag maker's certificate (freight classification applying to rail or motor shipments in the U.S.A.). When a certificate is required, it shall be in the form, size, and wording as provided in the Uniform Freight or Motor Freight Classification Rules.

3.9.2 Sack manufacturer's identification and markings. In addition to the markings which may be required by the purchaser, each shipping sack shall be marked on one side only with the following: Specification number, the sack manufacturer's name and address, the sack construction when applicable, and the words "FOR OCEAN SHIPMENT" on level A sacks and level B sacks for ocean shipment. All markings shall be placed in a conspicuous position, not less than 5-1/2 inches from the bottom of the sack, in block letters not less than 5/16 inch high, except that the words "FOR OCEAN SHIPMENT" shall be in letters 1 to 1-1/2 inches high. Arrangement of markings shall be as follows: (Example only)

COMPLIES WITH
FED. SPEC. UU-S-48F
JOHN DOE SACK CO.
CHICAGO, ILLINOIS
SACK NO._____
FOR OCEAN SHIPMENT

In addition, when IRT sacks (see 3.7) are specified (see 6.2), the following statement in letters not less than 1/2 inch high shall appear on each sack directly under the above marking or directly under the marking specified in 50.1 or 50.2, as applicable, and shall be applied at the time of manufacture of the sacks.

IRT Sack Fabricated (Month) - (Year)

3.9.3 Registration and marking of IRT sacks. When IRT sacks (see 3.7) are specified (see 6.2), the following statement, or a similar statement approved by the Environmental Protection Agency must be imprinted on each sack at time of manufacture of the sacks:

The outer ply of this shipping sack has been treated with synergized pyrethrins to increase its resistance to penetration by insects under normal shipping, handling and storage conditions. Tight end closures and specially designed longitudinal seams assist in protecting the contents, providing the sack is otherwise intact. This sack has been registered with the Pesticide Regulation Division, Environmental Protection Agency, Washington, D.C., 20460 under EPA Registration No._____ (number to be inserted).

3.10 Workmanship. The sacks shall be free from defects affecting their appearance and serviceability. All seams shall be continuously bonded. The sacks shall be clean, made of new material and shall have no tears, splits or holes in any wall.

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.

4.2 Inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

4.2.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.2.1.1 Testing of materials and components. Testing of materials and components described in this specification and changes in the testing of components listed in subsidiary specifications shall be as shown in table IV. A lot shall consist of all of the particular component material that is presented for delivery at one time for the purpose of determining conformance with test requirements applicable to lot averages. The sample unit for each component is defined in table IV.

TABLE IV. Instructions for testing

Component	Characteristic	Requirements applicable to		Sample size	Results reported as	
		Ref. par.	Test method		Pass or fail	Numerically to nearest
Dipping or sealing compound (pounds)	Melting point	3.1.2	4.4	1/2 lb.	--	Degree
	Flexibility	3.1.3	4.4.3	6 pieces	X	--
Tape (rolls)	Basis weight (24 by 36-500)	3.1.4	4.4	3 yds	--	Pound

TABLE IV. Instructions for testing (cont'd)

Component	Characteristic	Requirements applicable to Ref. par.	Test method	Sample size	Results reported as Pass or fail	Numerically to nearest
Tuck-in-sleeve paper (rolls or pkgs. of sheets)	Basis weight (24 by 36-500)	3.3.3.1	4.4	Area equiv. to 864 sq. ins.	--	Pound

4.3 Examination.

4.3.1 Examination of the end item. The end item shall be examined in accordance with the defects set forth in tables V, VI, VII, and VIII. The inspection levels and the acceptable quality levels (AQL's), expressed as defects per hundred units, shall be as shown in table IX. The lot shall be expressed in units of sacks for examination under tables V, VI, and VII, and in units of bales under table VIII.

4.3.1.1 Examination of the end item for defects in material, workmanship, and construction. The sample unit for this examination shall be one sack.

TABLE V. Examination of the end item exterior

Examine	Defect	Classification Major	Minor
Type	Not type, style, construction, and size specified (see 1.2)	101	
	Successive wall seams not staggered (include outer wall) (see 3.2.1)	102	
	MB positioned (other than specified in table XII)	103	
Workmanship	Not clean (see 3.10)		201
	Not new (see 3.10)	104	
	Any tear, split, slit, or hole (see 3.10)	105	
Longitudinal seam (outer wall)	Not continuously sealed (see 3.2.2)		202

TABLE V. Examination of the end item exterior (cont'd)

Examine	Defect	Classification Major	Minor
Sack manufacturer's identification	Missing, incorrect, illegible, or incomplete (see 3.9.2)	106	
	Markings not arranged as specified in 3.9.2	107	
	Not on one side only (see 3.9.2)		203
	Not block letters (see 3.9.2)		204
Construction:			
Type I	Not open mouth (see 3.3.1)	108	
	Not pasted closed bottom seam (between walls) (see 3.3.1)	109	
	Any thumb cut in mouth (see 3.3.1)		205
	Spot gluing between the various walls of paper at or near the open end missing (when applicable) (see 3.2.1)	110	
Type II	Not sewn through all walls at bottom (see 3.3.2)	111	
	Not open mouth (see 3.3.2)	112	
	Any thumb cut in mouth (see 3.3.2)		206
	Spot pasting between the various walls of paper at or near the open end missing (when applicable) (see 3.2.1)		207
Type III	Filling valve missing, pasted shut, torn, or contains holes (see 3.3.3)	113	
	Valve not tuck-in-sleeve style (when required) (see 3.3.3.1)	114	
Type IV	Not completely and securely sewn through all walls across at top and bottom except for filling valve at one corner (see 3.3.4)	115	
	Filling valve missing, sewn shut, torn (see 3.3.4)	116	
	Valve not tuck-in-sleeve style (when required) (see 3.3.3.1)	117	

TABLE V. Examination of the end item exterior (cont'd)

Examine	Defect	Classification Major	Minor
Construction: (cont'd)			
Type V	Not completely and securely sewn through all walls across at top and bottom except for filling corner (see 3.3.5)	118	
	Filling corner sewn over (see 3.3.5)	119	
Type VI	Closure not a continuous seal (see 3.3.6)	120	
	Outer wall of sack not stepped at the top and bottom fold over flap beyond all inner plies (see 3.3.6)	121	
Tape used on sewn sacks	Missing from sewn ends (see 3.2.4.1)	122	
	Not kraft paper (see 3.1.4)	123	
	Tape not properly folded over sewn ends of sack (see 3.2.4.1)	124	
	NOTE: On type V sacks, the tape shall be continued across the end of the sacks where the sewing does not close the mouth of the sack.		
Stitching on the ends of sewn sacks	Not lock or chain stitched (see 3.2.3)	125	
	Not reinforced on needle side of stitching (see 3.2.3)	126	
Tuck-in-sleeves (when specified)	Missing (see 3.3.3.1)	127	
	Not clean (see 3.10)	128	
	Any hole, tear, or slit (see 3.10)	129	
Bottom closures sewn method	Not sewn through all walls (see 3.3.2)	130	
	Tape strip missing (see 3.3.2)	131	
Adhesive (when specified)	Does not form continuous bond closure (see 3.2.2)	132	

TABLE V. Examination of the end item exterior (cont'd)

Examine	Defect	Classification Major	Minor
"Bag Makers Certificate" (when required)	Not in form, size and wording as provided in Rail Freight or Motor Freight Classification (see 3.9.1)	133	
IRT sacks	IRT treatment not on outside surface (see 3.3.7.1)	134	

4.3.1.2 Examination of the end item for defects in appearance, workmanship, and construction. The lot size shall be expressed in units of sacks. The sample unit shall be one sack.

TABLE VI. Examination of end item interior

Examine	Defect	Classification Major	Minor
Walls	Less than minimum number of walls specified	101	
	MB wall does not consist of 2 sheets of kraft paper laminated with asphalt (when asphalt laminated sheet is used) (see 3.4.2.1)	102	
Workmanship (inner walls)	Not clean (see 3.10)	103	
	Not new (see 3.10)	104	
	Any tear, split, or hole in any wall (see 3.10)	105	
Striping of WS paper	Missing (see table XII)		201
	Not longitudinal stripes (see 3.4.3)		202
	Not definite and distinct (see 3.4.3)		203
	Not colored, stained, printed, or marked for identification (see 3.4.3)		204
	Not on exterior surface of sack when required for level A pack (see 3.4.3)		205

4.3.1.3 Examination of the end item for defects in dimensions. The lot size for this examination shall be expressed in units of sacks. The sample unit for this examination shall be one sack. Dimensions shall be reported to the nearest 1/16 inch.

TABLE VII. Examination for dimensional defects

Examine	Defect	Classification Major	Classification Minor
Width of tape at top and bottom of sack (used on sewn sacks)	Less than 2 inches (see 3.1.4)		201
Distance of stitching from bottom of sack and from top of sack (when required)	Less than 3/8 inch (see 3.2.3)	101	
	More than 3/4 inch (see 3.2.3)	102	
Spacing of stitches on the ends of sewn sacks	Less than 3.0 per inch (see 3.2.3)	103	
	More than 3.6 per inch (see 3.2.3)	104	
Extension of tape beyond both edges of sewn sacks	Less than 1/2 inch or more than 2 inches (see 3.2.4.1 and 3.2.4.2)		202
Sack manufacturer's identification			
Spacing of all markings	Less than 5-1/2 inches from bottom of sack (see 3.9.2)		203
Height of lettering, except the words of "FOR OCEAN SHIPMENT"	Less than 5/16 inch high (see 3.9.2)	105	
Height of lettering of "FOR OCEAN SHIPMENT"	Less than 1 or more than 1-1/2 inches high (see 3.9.2)	106	
Marking of striping for WS walls	Stripes less than 1/8 inch wide (see 3.4.3)		204
	Stripes spaced more than 10 or less than 2 inches apart (except at longitudinal seam (see 3.4.3)		205

TABLE VII: Examination for dimensional defects (cont'd)

Examine	Defect	Classification Major	Minor
Longitudinal seam (outer wall)	Not overlapped minimum of 1/2 inch for other than IRT sacks (see 3.2.2)		206
Tape used on sewn sacks	Does not extend completely across face of sack at sewn ends (except valve area) plus 1/2 to 2 inch extension on each side (see 3.2.4.1)	107	
IRT sacks	Longitudinal seam has more than 3/16 inch of unglued edge on outer surface (see 3.2.2)	108	
	Fold over flap of the pinch style closures not 1-5/8 inch ± 1/4 inch (see 3.3.6)	109	
	The fold line of the fold over flap less than 1/4 inch below the top edge of the innermost ply of the sack (see 3.3.6)	110	
	Less than 5/16 inch bonded area between sew line and edge of tape (see 3.2.4.1)	111	
	Height of lettering of IRT sacks (Month, Year) less than 1/2 inch (see 3.9.2)	112	

TABLE VIII. Examination for defects in packing and marking

Examine	Defect	Classification Major	Minor
Sacks	Not all same type, size (see 5.1.1 and 5.1.2)	101	
Weight	Gross weight greater than 80 pounds per bale (see 5.1.1 and 5.1.2)	102	
Wrap	Less than three sheets of paper (level A) (see 5.1.1)	103	

TABLE VIII. Examination for defects in packing and marking (cont'd)

Examine	Defect	Classification Major	Minor
Wrap (cont'd)	Less than two sheets of paper (level B) (see 5.1.2)	104	
	Sheets not material specified (see 5.1.1 and 5.1.2)	105	
	Sheets not placed successively as specified (see 5.1.1 and 5.1.2)	106	
Packing	Shipping container not type and style specified for level A (see 5.2.1)	107	
Marking	Omitted, incomplete, incorrect, illegible, of improper size, location, sequence, or method of application (see 5.3)	108	

4.3.2 Inspection levels and AQL's. Inspection levels and AQL's expressed in defects per 100 units shall be as specified in table IX. The same sample may be used for all examinations under table V, VI and VII.

TABLE IX. Inspection levels and AQL's

Table No.	Inspection levels	AQL Major	Total
V	S-4	2.5	6.5
VI	S-4	2.5	6.5
VII	S-4	2.5	6.5
VIII	S-3	2.5	6.5

4.3.3 Testing of the end item. The end item shall be tested for the characteristics listed in table X. The lot size shall be expressed in units of sacks. The sample unit shall be one sack. The inspection level for each test applicable to the sample unit shall be S-1. The AQL for each characteristic applicable to the sample unit shall be 2.5 defects per 100 units. For purposes of determining conformance with test requirements applicable to the lot averages, the sample shall consist of 10 sample units randomly selected from the lot. Specimens for testing shall be taken only from uncreased areas.

4.3.4 Examination of preparation for delivery of Government purchases of unfilled sacks. The sample unit for this examination shall be one bale for examination in table VIII.

TABLE X. Instructions for testing the end item

Characteristic	Reference to requirements paragraph	Test procedure paragraph	Requirements applicable to: Sample unit	Requirements applicable to: Lot average	Number of determinations per wall in each sample unit	Results reported as: Pass or fail	Results reported as: Numerically to nearest
On outer wall Basis weight (24 by 36-500)	3.1 & Table I or II	4.4		X	1		Pound
If outer wall is WS kraft, wet tensile strength	Table I	4.4		X	1		0.1 pound
If outer wall is extensible WS kraft, wet tensile energy absorption	Table II	4.4		X	1		0.1 ft.-lb/ sq.ft.
On MB wall Moisture vapor transmission rate Uncreased	3.4.2 & Table III	4.4		X	2 1/		0.1 g.
Creased	3.4.2 & Table III	4.4		X	2 1/		0.1 g.
If asphalt laminated paper, basis weight (24 by 36-500) both component paper sheets	3.4.2.1	4.4.1.1		X	2		Pound
Heat resistance	3.4.2.3	4.4.4		X	1	X	
If MB coated paper, basis weight (24 by 36-500) base sheet	3.4.2.2	4.4.1.2		X	1		Pound

TABLE X. Instructions for testing the end item (cont'd)

Characteristic	Reference to requirements paragraph	Test procedure paragraph	Requirements applicable to: Sample unit	Requirements applicable to: Lot average	Number of determinations per wall in each sample unit	Results reported as: Pass or fail	Results reported as: Numerically to nearest
Sum total of all walls Basis weight (24 by 36-500)	3.1 & Table I or II	4.4		X	1		Pound
Tearing strength	Table I or II	4.4		X	1		Gram
Dry tensile strength	Table I or II	4.4		X	1		0.1 pound
Dry tensile energy absorption	Table I or II	4.4		X	1		0.1 ft.-lb/ sq.ft.
Waterproofness of adhesive	3.1.2	4.4.2.1	X		10 2/	X	
Strength of longitudinal seams	3.2.2	4.4.2.2	X		1	X	
Odor (applicable to sacks used for food products)	3.6	4.4	X		1	X	

1/ Make one determination for each side and average the values, excepting for those MB walls having one hydrophobic side in which case the hydrophobic side shall be oriented to the higher relative humidity for both determinations.

2/ Applicable to outer wall only.

4.4 Tests. Specimens shall be tested in accordance with the following test methods shown in table XI after preconditioning and conditioning to equilibrium in accordance with TAPPI Method T402 (as applicable), and in accordance with 4.3.3.

TABLE XI. Test standards of TAPPI

Test	TAPPI standards
Conditioning Paper and Paperboard for Testing	T402
Tensile Breaking Strength of Paper and Paperboard	T404
Basis Weight of Paper and Paperboard	T410
Internal Tearing Resistance of Paper 3/	T414
Wet Tensile Breaking Strength of Paper and Paperboard 1/, 2/	T456
Water Vapor Transmission Rate of Sheet Materials at High Temperatures and High Humidity 1/	T464 4/
Odor of Packaging Material	T483
Tensile Energy Absorption of Paper	T494
Melting Point of Petrolatum and Microcrystalline Wax	T634

1/ Standard conditioning not required before testing.

2/ 120 ± 5 minutes immersion in distilled water at room temperature.

3/ All tearing strength resistance measurements shall be made in accordance with TAPPI T414 utilizing the Elmendorf tearing strength reading where the specimen rubs against the sector. (Some Elmendorf tearing strength instruments have been manufactured with the sector cut away in such a manner as to reduce friction between the paper specimens and the paper clamp bracket on the sector. These modified instruments give lower tearing strength results than the original instruments and are not suitable for determining conformance with specifications contained herein which are based on test results using the unmodified instrument.)

4/ See TAPPI Method T512.

4.4.1 Basis weight of MB kraft paper.

4.4.1.1 Asphalt laminated MB paper (see 3.4.2.1). Cut specimens, with a total area of not less than 16 square inches. Obtain the total weight of the samples after conditioning (see 4.4), and place them in a suitable extraction apparatus, such as the underwriters, and extract the asphalt with a suitable solvent such as petroleum, ether, or carbon tetrachloride, until the extract is practically colorless. Allow the paper to dry, recondition, and reweigh. From this weight, calculate the ream basis weight of the combined plies of the base paper. Duplicate determinations shall be made and the average of the test values shall be reported.

4.4.1.2 Basis weight of MB coated or lined shipping sack paper (see 3.4.2.2). Cut specimens, each with an area of not less than 16 square inches. Remove the film or lining in a Soxhlet type apparatus using a suitable solvent. Allow the paper to dry, recondition, and reweigh. From this weight, calculate the ream basis weight of the base paper.

4.4.2 Adhesive tests.

4.4.2.1 Water resistance (see 3.1.2). Water resistant adhesive of outer ply longitudinal seams or pasted end closures shall be tested for resistance to water in accordance with TAPPI T456 (Wet Tensile Test), except as follows:

Cut test specimens 1 inch wide so that the longitudinal seam or pasted end closure runs perpendicular to and is centered relative to the long dimension of the specimen. The test specimen shall encompass all adhesive bonded areas included in fabricating the seam or end closure. In the case of multi-ply end closures clamp all plies in the jaws of the tester. Immerse the specimens in not less than 1 inch of the distilled water for 24 hours. Run a wet tensile test. A test specimen fails the test if failure occurs with the separation of the seam or closure and less than 25% of the separated adhesive area shows fiber tear. Failure of more than 10% of the specimens shall be reported as failure of the adhesive.

4.4.2.2 Seam test. The tensile strength of glued seam of the outer wall shall be tested for strength as follows (see 3.2.2). The test shall be made in accordance with TAPPI T404. The specimen shall be cut so that the seam runs perpendicular to the long dimension of the specimen. When clamped in the machine for testing, the seam shall be located midway plus or minus 1/2 inch between the two jaws of the tensile testing machine. If upon conclusion of the test, failure occurs with the separation of the seam, the specimen shall be acceptable if the separated adhesive area shows not less than 75 percent fiber failure rather than adhesive failure. Seam strength requirements shall be satisfactory if specimen failure occurs in areas other than seam separation.

4.4.3 Flexibility of dipping compound. Six pieces of 50 pound basis weight kraft paper, 1 by 16 inches, shall be conditioned and shall then be dipcoated at a temperature not to exceed 200°F. by drawing the strip lengthwise through sealing compound contained in a tray of sufficient size to permit free movement. The sealing compound on the strip shall be allowed to set and the dipping operation repeated, if necessary, to obtain a coating not less than 3 mils thick on each side of the panel. (Other procedures of coating may be employed provided the applied coating has a minimum thickness of 3 mils.) Precautions should be taken to insure that the thickness of the coating at the ends of the paper strips is not less than 3 mils thick. It may be necessary to cut the strip into 2 pieces at a point where the desired thickness is located. After cooling to room temperature, the strips shall have one end wrapped approximately 1/4 of a turn around a 1/2 inch wood dowel and fastened in place with adhesive tape. Weights of approximately 200 g. each shall be hung on the bottom of each of the strips. The dowel and strips shall be conditioned in a cold chamber at a temperature between minus 7°F. and minus 10°F. for not less than two hours. While in the cold chamber, the wood dowel shall be turned slowly for one revolution (approximately 2 seconds). The compound shall be examined for flaking. Any flaking on one or more strips shall be considered cause for rejection.

4.4.4 Heat resistance test. Cut one 6 inch by 6 inch specimen from the unit that is free of printing, seam joints or sealing material and condition the specimen in a forced draft oven for 5 hours at 150° ± 2°F. The specimen shall be so arranged in the oven as to avoid contact with other specimens being tested and to permit circulating air to contact on all of its surfaces. After the conditioning period the specimen shall be immediately examined visually (see 3.4.2.3).

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A, B, or C as specified (see 6.2). Baling requirement (paragraph 5.1.1) shall apply to all levels of packaging.

5.1.1 Baling of shipping sacks. A uniform number of sacks of one type construction number, and size only shall be packaged in a bale for shipment. The gross weight per bale shall not exceed 80 pounds. Bales shall be wrapped with not less than 4 inch overlap of paper. Baling cord shall have a tensile breaking strength of not less than 200 pounds and all intersections of cord shall be interlocked at each intersection. All bales shall have at least two cords crosswise and one lengthwise. Where the length of the bale exceeds 36 inches, at least three cords shall be used crosswise. Where the width of the bale exceeds 15 inches, at least two cords shall be used lengthwise. The spacing of the baling cord shall be such as to maintain the wrapping securely in position and to retain the shape and structure of the package.

5.1.2 Level A. Wrapping shall be done with not less than three sheets of paper. The inner sheet shall be MB grade 1 kraft paper (see table III). The next or middle sheet shall be not less than 60 pounds basis weight kraft paper. The outer sheet shall be not less than 60 pounds basis weight, WS, kraft paper.

5.1.3 Level B. A uniform number of sacks of each type, construction number, and size shall be packed in a bale for shipment. The weight per bale shall not exceed 80 pounds gross weight. Wrapping shall be done with not less than two sheets of paper with the inner sheet of MB grade 1 kraft paper (see table III) and the outer sheet of not less than 60 pounds basis weight kraft paper.

5.1.4 Level C. Wrapping shall be done with a single sheet of kraft paper of not less than 60 pounds basis weight.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. Shipping sacks, baled as specified in 5.1, shall be overpacked in a wood cleated plywood box conforming to PPP-B-601, overseas type, style I up to the weight limitation of the container.

5.2.2 Level B. Shipping sacks, baled as specified in 5.1, shall be shipped without any additional packing.

5.2.3 Level C. Shipping sacks, baled as specified in 5.1, shall not require any additional packing.

5.3 Marking for Government purchase of unfilled sacks.

5.3.1 Civil agencies. Each bundle or bale shall be plainly marked with black ink to indicate the name, size, type, and construction number of the sacks and the quantity contained therein, as defined by the contract or order under which the shipment is made; the name of the contractor and the number of the contract or order shall be in accordance with the requirements of Fed. Std. No. 123.

5.3.2 Military requirements.

5.3.2.1 For levels A, B, and C packing. In addition to any special marking which may be required, the bales shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Paper shipping sacks are intended for packing the commodities listed in table XII for level A (see 6.1.1), level B (see 6.1.2), and level C (see 6.1.3) packing.

6.1.1 Level A packing. The degree of packing required for protection against the most severe conditions known or anticipated to be encountered during shipment, handling, and storage.

6.1.2 Level B packing. The degree of packing required for protection under conditions known to be less severe than those requiring level A, but more severe than those for which level C is adequate.

6.1.3 Level C packing. The degree of packing required for protection under known favorable conditions during shipment, handling, and limited tenure of storage.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

(a) Title, number, and date of this specification.
(b) Type, construction number, size, and capacity of sacks, and style as applicable (see 1.2.1, 1.2.2; tables I and II, and 3.5).
(c) When sacks are to be packed with unpackaged food items (see 3.1).
(d) When ends are to be sealed with a dipping compound (MB) (see 3.1.3).
(e) When spot pasting of the mouth walls of type I sacks is not required (see 3.2.1).
(f) When tuck-in-sleeve is not required for type III sacks (see 3.3.3).
(g) When tuck-in-sleeve is not required for type IV sacks (see 3.3.4).
(h) Commodity to be packaged and the content weight (see 3.5).
(i) When IRT is required (see 3.7 and table XII).
(j) When a bagmaker's certificate is required (see 3.9.1).
(k) Marking on sacks (see 3.9).
(l) Selection of applicable levels of packaging and packing for unfilled sacks (see 5.1 and 5.2).
(m) When other than commercial marking is required for level C packing for the Military (see 5.3.2.1).

6.3 Sack capacities for commodities in ocean shipments. For ocean shipments, it is recommended that wherever possible capacities of sacks be limited to 50 pounds for bulk loads and 60 pounds for balers. However, there may be instances where packers may not be able to adhere to 50 pounds capacity limits for bulk loads due to limitations of packing equipment or density of commodities to be packed. For such cases, sack specifications are provided herein for 50 to 60 pounds, 61 to 80 pounds capacities, and 81 to 110 pounds.

Custodians:

Army - GL
Navy - SA
Air Force - 69

Review activities:

Army - EL, MD, ME, MU, SM, WC
Navy - SH, YD
Air Force - 84

User activities:

Navy - AS, MC, OS,
Air Force - 80, 82

Preparing activity:

Army - GL

Civil Agency Interest:

AGR - AMS
GSA - FSS
HEW - FDA
JUS - FPI
VA - DMS

Project No. 8105-0236

APPENDIX

10. SCOPE AND USE OF SACKS

10.1 Scope. This appendix covers the use of paper shipping sacks and requirements for closures after the sacks are filled, and the inspection of closures.

10.2 Use. Shipping sacks are used to pack materials in bulk for world wide shipments in sack constructions for various materials as specified in table XII. When specified in contract or purchase order, sacks are constructed to protect materials from moisture pickup or loss, and treated to protect against insect invasion. Baler sacks are used for overpacking of prepacked 5, 10 and 50 pound bags for some materials.

20. APPLICABLE DOCUMENTS (see 2.1)

30. REQUIREMENTS FOR CLOSURES AFTER FILLING

30.1 Closures.

30.1.1 Sewn closures for open mouth sacks, type I and type II.

30.1.1.1 SOT closure. Open mouth sacks shall be closed by SOT type of manufacturer's closed end specified in 3.2.4.2.

30.1.1.2 TOS closure. Open mouth sacks shall be closed by TOS type of closure specified for manufacturer's closed end in 3.2.4.1.

30.1.2 Type I, baler sack closure. Pasted closure for type I baler sacks may be closed as specified for the manufacturer's closed end in 3.3.1.

30.1.3 Type III, pasted valve closure. After filling, pasted valve sacks with tuck-in-sleeves shall be closed by folding the sleeve extension down and into the valve space directly under the sleeve in a manner that will provide a securely held, positive closure against sifting. Pasted valve sacks with or without tuck-in-sleeves are closed by the internal pressure of the contents so that excessive leakage of the contents does not occur during subsequent handling.

30.1.4 Type IV, sewn valve closure. After filling, sewn valve sacks with tuck-in-sleeves shall be closed by folding the sleeve extension down and into the valve space directly under the sleeve in a manner that will provide a securely held, positive closure against sifting. Sewn valve sacks with or without tuck-in-sleeves are closed by the internal pressure of the contents so that excessive leakage of the contents does not occur during subsequent handling.

30.1.5 Type V, sewn open corner closure. After the sack is filled the top end of the sack shall be closed with tape as specified in 3.2.4.1.

30.1.6 Type VI. Pinch type sacks shall be closed as specified for the manufacturer's closed end in 3.3.6.

30.1.7 MB sack closures.

30.1.7.1 SOT MB sack closure. SOT MB sacks shall have both ends of the sack dipped in sealing compound specified in 3.1.3. The ends shall be dipped to a depth of not less than 1/8 inch beyond the bottom edge of the closure tape.

30.1.7.2 Type VI pinch type MB sack closures. The MB pinch type sack closure shall be closed in accordance with the pinch type manufacturer's closure specified in 3.3.6.

30.1.7.3 TOS MB closures. MB TOS sacks shall be style A flat tube shipping sacks. The sacks shall conform to the manufacturer's closure specified in 3.2.4.1 using MB tape specified in 3.1.4.

30.1.8 IRT sacks.

30.1.8.1 Type VI, pinch type sacks. The closure of pinch style sacks shall be made with gussets tucked in and with adhesive conforming with 3.1.2 applied in accordance with 3.3.6. The closure shall contain no apertures through the bonded area that permits insect infestation.

30.1.8.2 IRT TOS closure. The closure shall be made in accordance with the manufacturer's closed end specified in 3.2.4.1 using tape specified in 3.1.4, except that the taped ears shall not be pasted to the sack body. The treated surface of the tape shall be the outside surface after it is applied to the sack. The closure shall contain no apertures through the taped area that permits insect infestation.

30.1.9 Baler sacks. The closure of baler sacks after filling shall conform to the requirements of the manufacturer's closed end in 3.8.

30.1.10 Refill sacks. The contractor shall provide empty open mouth refill sacks for resacking of filled sacks damaged in transit. The number of empty refill sacks to accompany each shipment of packaged material shall be not less than 1 percent of the number of filled sacks in the shipment.

30.1.11 Requirements for overpacking of filled textile bags. Textile inner bags containing 5, 10, or 50 pounds of the product shall be packed in the shipping sacks in the quantities as specified in product specifications. The arrangement of the 10 pound bags within the shipping sack shall be one on top of the other

with faces of the inner bags down and ends of the inner bags adjacent to the side edges of the shipping sack. The fit of the twelve 5 pound bags or six 10 pound bags, as specified, in the contract or order shall be such that they are tightly enclosed to minimize shifting within the shipping sack during handling. The textile inner bag containing 50 pounds of the product shall be inserted into the shipping sack with the bag manufacturer's closed end down and the side edges adjacent to the side edges of the shipping sack. The relative size of the 50 pound inner bag and its shipping sack shall be such that the inner bag will assume its full size and shape without placing undue strain on the outer sack. This shall be accomplished by making the shipping sack not less than 2 inches greater in circumference and 2-1/2 inches longer than the inner bag.

40. INSPECTION PROCEDURES FOR FILLED SACKS

40.1 Inspection. Filled and closed sacks shall be examined to determine compliance with the requirements of this appendix. Sampling shall be in accordance with MIL-STD-105.

40.1.1 Inspection for closures. Unless otherwise specified in the commodities specification, filled and closed sacks, shall be examined for closures in accordance with the defects set forth below. The sample unit shall be one sack filled and closed. The lot size shall be expressed in the number of filled sacks prepared for shipment at one time. The inspection level shall be I with an acceptable quality level (AQL) of 6.5 defects per one hundred units.

Examine	Defect
SOT closure	Thread not as specified. Tape less than 2 inches in width. Stitches less than 3 per inch, more than 3.6 per inch.
TOS closure	Tape less than 2 inches in width. Stitches less than 3 per inch, more than 3.6 per inch. Thread not as specified. Tape not continuously bonded. Tape does not cover all stitches. Tape extends less than 1/2 inch or more than 2 inches beyond sack edges.
Pasted closures	Not continuously bonded. Not pasted completely closed permitting sifting.
MB dipped end closure	Not SOT closure. Not dipped (both ends) to a depth of 1/8 inch beyond the bottom edge of the tape.

Examine	Defect
MB pinch type closure	Not glued as specified. Not continuously bonded permitting sifting.
MB TOS closures	Tape less than 2 inches wide. Not MB 1 or 2 grade tape, as applicable. Tape not continuously bonded to sack top. Tape positioned less than 3/8 or more than 3/4 inch from top of sack.
Type VI IRT sacks	Not a pinch type sack. Fold line not 1-5/8 inch ± 1/4 inch below the top edge of the long side of the sack. Peeled corners. Unsealed edge of the closure greater than 3/16 inch. Open channel in the closure. Fold line less than 1/4 inch below the top edge of the innermost wall of the short side of the sack. Outer edge of the long side of the sack extends less than 3/4 inch beyond the topmost edge of the short side of the sack. Adhesive bond not continuous.
TOS IRT sacks	Width of tape less than 2-1/2 inches. Tape not located as specified. Bonded area less than 5/16 inch wide. Tape extends less than 1/2 inch or more than 2 inches beyond each end of the sack. More than 3/16 inch of unbonded tape edge beyond the adhesive line of the tape. Tape not IRT and treated surface not outside surface.
Valve closures	Valve not completely closed. Evidence of sifting of contents.
Sewn open corner	Tape not applied as specified after filling.
Baler sack closure	Not type I, II, or VI sack closure.

50. MARKING

50.1 Civil agencies. In addition to any special marking required by the contract or order, the marking of the filled sacks shall be in accordance with Fed. Std. No. 123. The markings for level of package and pack and date of pack (month and year) shall be located above the contract marking and within 12 inches from the bottom of the bag.

50.2 Military agencies. In addition to any special marking required by the contract or order, the marking of the filled sacks shall be in accordance with MIL-STD-129. The markings for level of package and pack and date of pack (month and year) shall be located above the contract marking and within 12 inches from the bottom of the bag.

TABLE XII. Commodities and their minimum sack requirements

Minimum sack requirements for the products listed shall be a composite of a construction requirement from table I or II, a MB requirement from table III, as applicable, and the general features listed for A and B levels of packing unless modified by the exceptions.

Level C packing shall be the commercial packing of the commodity industry conforming to the applicable carrier rules and regulations.

	Level A packing					Level B packing				
	Minimum sack construction from table I or II. MB requirement from table III. Basic requirements. MB wall, next to outer wall. MB ends on MB grades (see 3.2.5.1 and 3.2.5.2). MB sleeve on valve type sacks, type III or IV (see 3.3.3.1). WS kraft outer wall (see 3.1.1).					Minimum sack construction from table I or II. MB requirements from table III. Creped or extensible sleeve on valve sacks, type III or IV (see 3.3.3.1). MB ends on MB grades (see 3.2.5.1 and 3.2.5.2).				
Commodity	50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Alfalfa meal	10-10X	---	---	MB 1	2/	6-6X	---	---	---	2/
Aluminum fluoride	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Aluminum hydrate	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Aluminum nitrate	8-8X	13-13X	17-17X	MB 2		4-4X	9-9X	13-13X	MB 2	
Aluminum oxide	8-8X	13-13X	---	MB 1		6-6X	9-9X	---	---	
Aluminum stearate	8-8X	---	---	MB 1		4-4X	---	---	---	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Aluminum sulfate	8-8X	13-13X	15-15X	MB 2	No MB ends required	4-4-X	10-10X	14-14X	MB 2	No MB ends required
Ammonium chloride	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Ammonium nitrate	8-8X	13-13X	17-17X	MB 3		4-4X	9-9X	13-13X	MB 2	
Ammonium nitrate (fertilizer grade)	8-8X	13-13X	17-17X	MB 3		4-4X	9-9X	13-13X	MB 2	
Ammonium phosphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Ammonium sulfate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Ammonium sulfate nitrate	8-8X	15-15X	17-17X	MB 3		4-4X	9-9X	13-13X	MB 2	
Antimony oxide	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Asbestos fiber	8-8X		15-15X	MB 2		4-4X	---	9-9X	MB 2	
Asphalt roofing-post hardening	---	---	9-9X	---	Silicone release sheet inner wall	---	---	8-8X	---	Silicone release sheet inner wall

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Asphalt roofing-post hardening (cont'd)					type V open corner mouth					type V open corner mouth
Barium chloride	8-8X	13-13X	18-18X	MB 1		7-7X	10-10X	16-16X	MB 1	
Barium chromate	8-8X	13-13X	18-18X	MB 1		7-7X	10-10X	16-16X	MB 1	
Barium nitrate for ammunition	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					
Barium nitrate	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Barley, pearl	9-9X	14-14X	17-17X	MB 1	2/	5-5X	11-11X	15-15X	MB 1	2/
Barytes	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Basic slag	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Beans	9-9X	---	---	MB 2	2/	5-5X	11-11X	15-15X	MB 1	2/
Bentonite	6-6X	9-9X	14-14X	MB 1		4-4X	7-7X	10-10X	MB 1	
Blanc fixe	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Bone meal	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Borax	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Boric acid	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Bran shorts	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Calcium ammonium nitrate	8-8X	13-13X	15-15X	MB 1		4-4X	9-9X	13-13X	MB 1	
Calcium carbonate (commercial ground limestone)	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Calcium carbonate fine (precipitated) (carbonate of lime)	8-8X	---	---	MB 1		4-4X	---	---	---	
Calcium chloride for ammunition	10-10X	16-16X	17-17X	MB 4	MB next to inner wall Two outer walls 60#W.S.					
Calcium chloride	10-10X	16-16X	17-17X	MB 2	MB next to inner wall Two outer walls 60#W.S.	9-9X	13-13X	16-16X	MB 2	MB next to inner wall

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Calcium chromate	8-8X	---	---	MB 1		4-4X	---	---	---	
Calcium cyanamid	8-8x	13-13X	17-17X	MB 3	MB next to inner wall	4-4X	9-9X	13-13X	MB 2	MB next to inner wall
Calcium hydroxide (hydrated lime)	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required
Calcium nitrate	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Calcium oxide (quicklime)	16-16X	---	---	MB 2	MB next to inner wall Two outer walls 60#W.S.	13-13X	---	---	MB 2	MB next to inner wall
or						8-8X	---	---	MB 3	MB next to inner wall
Calcium phosphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Calcium silicate (silicate of lime)	8-8X	13-13X	---	MB 1		4-4X	6-6X	---	---	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing					Level B packing				
	50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Calsomine	8-8X	---	---	MB 1		4-4X	---	---	MB 1	
Casein, dry	8-8X	13-13X	15-15X	MB 1	2/	4-4X	10-10X	14-14X	MB 1	2/
Cellulose acetate	18-18X	---	---	MB 1	MB next to inner wall	18-18X	---	---	MB 1	MB next to inner wall
Cement, Portland, or high early			17-17X	MB 2; MB 3 for high temperature, rainfall and humidity areas	No sleeve required			14-14X	MB 1	No sleeve required
NOTE: When prepacked in storage in 9-9X sacks, the cement shall be overslipped with 11-11X outer sack. Exceptions of combined sacks to equal exceptions of 17-17X										
Cement, refractory	9-9X			MB 2		4-4X			MB 1	No sleeve required
Charcoal, powdered for ammunition	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					
Charcoal powdered	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	14-14X	MB 1	
Chemical agent CS1 for ammunition	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Chemical agent DM1 for ammunition	8-8X	13-13X	17-17X	MB 4	MB next to inner liner					
Chocolate pudding powder	13-13X	---	---	MB 1	2/	10-10X	---	---	MB 1	2/
Clay, fire and refractory	9-9X	---	---	MB 2		4-4X	---	---	MB 1	
Clay (Kaolin and air floated)	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required
Clay, other than air floated	8-8X	13-13X	---	MB 1		4-4X	6-6X	---	---	No sleeve required
Cocoanut, shredded	---	---	18-18X	---	3 mil min. inner ply or liner (Poly) 2/	---	---	13-13X	---	3 mil min. inner ply or liner (Poly) W.S. outer ply 2/

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Coffee bean, green	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Coffee bean, roasted	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Copper sulfate (penta)	11-11X	14-14X	17-17X	MB 1	MB next to product Oiled or acid resistant thread	9-9X	12-12X	14-14X	MB 1	MB next to product Oiled or acid resistant thread
Corn cob meal	9-9X	---	---	MB 1	2/	4-4X	---	---	---	No sleeve required 2/
Corn, cracked	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Corn meal	9-9X	---	---	MB 2	1/ 2/	4-4X	6-6X	9-9X	---	1/ 2/
Corn, shelled	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Cottonseed meal	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	No sleeve required 2/
D.D.T. 100 percent	13-13X	18-18X	---	MB 1		9-9X	14-14X	---	---	
Diatomaceous earth	8-8X	---	---	MB 1		4-4X	---	---	---	
Dishwashing compound	14-14X	---	---	MB 2		9-9X	---	---	MB 2	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Disodium phosphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Dog food, dry	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Doughnut mix	14-14X	---	---	MB 3 & MB 1	MB next to product next to outer wall 2/	9-9X	---	---	MB 3	MB next to product 2/
Dyes, powdered	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					
Feed, mill, mixed	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Feed, mineral (animal or poultry)	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Feldspar	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Fertilizer, mixed	8-8X	12-12X	15-15X	MB 1		5-5X	9-9X	12-12X	MB 1	
Flour, potato	9-9X	---	---	MB 2	1/ 2/	4-4X	6-6X	9-9X	MB 1	1/ 2/
Flour, wheat	9-9X	---	---	MB 2	1/ 2/	4-4X	6-6X	9-9X	MB 1	1/ 2/
Fullers earth	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Fullers earth granular	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Granular meal	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Glues and pastes dry, animal	9-9X	14-14X	17-17X	MB 1		5-5X	11-11X	15-15X	MB 1	
Glues and pastes dry, vegetable	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Graphite	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Grits, edible	9-9X	---	---	MB 1	2/	4-4X	9-9X	14-14X	---	2/
Grog (insulating) granular, calcined	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required
Guanidine nitrate	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Gypsum	6-6X	9-9X	14-14X	MB 1		4-4X	7-7X	10-10X	MB 1	No sleeve required
Hexachloroethane for ammunition	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Hominy	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Iron oxide	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Iron oxide, black, for ammunition	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					
Lead formate	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Lead oxide	8-8X	13-13X	---	MB 1		4-4X	6-6X	---	---	
Lead stearate	8-8X	---	---	MB 1		4-4X				No sleeve required
Lead sulfate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Lead, white, dry	8-8X	13-13X	---	MB 1		4-4X	6-6X	---	---	
Lignin pitch	10-10X	---	---	MB 2		9-9X	---	---	MB 2	
Litharge, dry	8-8X	13-13X	---	MB 1		4-4X	6-6X	---	---	
Lithopone	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required
Magnesite, dead, burned	---	18-18X	---	MB 1	MB next to inner wall	---	16-16X	---	---	
Magnesium carbonate, light	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Magnesium carbonate, for munitions	8-8X	13-13X	17-17X	MB 4	MB next to inner wall					
Magnesium oxide (commercial) magnesium quick-lime see calcium oxide quick-lime	16-16X	---	---	MB 2	MB next to inner wall	13-13X	---	---	MB 2	MB next to inner wall
Magnesium silicate	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Magnesium stearate	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required
Magnesium sulfate (epsom salts)	9-9X	14-14X	17-17X	MB 1		5-5X	11-11X	15-15X	MB 1	
Malt	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Mica	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing					Level B packing				
	50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Milo	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Mortar cement	8-8X	13-13X	---	MB 1		4-4X	10-10X	---	MB 1	No sleeve required
Mortar, refractory (heat setting)	8-8X	13-13X	---	MB 1		4-4X	10-10X	---	MB 1	No sleeve required
Nickel oxide	8-8X	---	---	MB 1		4-4X	---	---	---	No sleeve required
Nitrate fertilizer mixture (applies only to materials classed as "dangerous" under definition in DOT Reg. 173.150)	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Nitrate of soda and potash	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Oatmeal	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Oats	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Ochre	8-8X	13-13X	---	MB 1		4-4X	10-10X	---	MB 1	
Onions	---	---	---	---		1-1X	---	---	---	All walls 60 # W.S. ventilated
Oyster shells, crushed	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Peanuts, shelled	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Peanuts, whole	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	No sleeve required 2/
Peas	9-9X	---	---	MB 2	2/	5-5X	11-11X	15-15X	MB 1	2/
Phosphate, collodial	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Phosphate, fused	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Plaster, building	6-6X	9-9X	14-14X	MB 1		4-4X	7-7X	10-10X	MB 1	No sleeve required
Plaster, magnesium	6-6X	---	---	MB 1		4-4X	---	---	MB 1	No sleeve required
Potassium aluminum sulfate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Potassium bicarbonate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potassium bichromate	8-8X	13-13	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potassium carbonate commercial potash	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potassium chloride	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potassium chromate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potassium magnesium sulfate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potassium nitrate	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Potassium sulfate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Potatoes	---	---	---	---		1-1X	---	---	---	All walls 60% W.S. ventilated
Pumice	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Rice	9-9X	---	---	MB 2	2/	5-5X	11-11X	15-15X	MB 1	2/
Rock wool, loose	6-6X 40 lbs	---	---	MB 1		3-3X 40 lbs	---	---	---	No sleeve required

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Rosin post hardening	---	---	14-14X	---	Type V Only	---	---	9-9X	---	Type V Only
	Sewn open corner sack, not less than 2 plies to be dense highly sized, highly kraft. Double weight filter cord.				inner finished	Sewn open corner sack, not less than 2 plies to be dense highly sized, highly kraft. Double weight filter cord.				inner finished
Rye	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Salt, table	9-9X	---	---	MB 1	No MB ends required	4-4X	10-10X	14-14X	MB 1	No MB ends required
Sand, dry	---	13-13X	15-15X	MB 1		---	9-9X	13-13X	---	
Seeds, grass, vegetable	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Silica, pulverized (for molding and core work)	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Soap, pure, powdered and flake	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Soda ash, granular (dense)	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Soda, ash, light	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Sodium bicarbonate	8-8X	13-13X	15-15X	MB 3		4-4X	10-10X	14-14X	MB 3	
Sodium bichromate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Sodium chloride (salt) fine, granular (other than table salt)	8-8X	13-13X	15-15X	MB 1	No MB ends required	4-4X	10-10X	14-14X	MB 1	No MB ends required
Sodium chloride (rock salt)	8-8X	13-13X	15-15X	MB 1	No MB ends required	4-4X	10-10X	14-14X	MB 1	No MB ends required
Sodium meta silicate	8-8X	13-13X	15-15X	MB 2		4-4X	10-10X	14-14X	MB 2	
Sodium nitrate	8-8X	13-13X	17-17X	MB 1		4-4X	9-9X	13-13X	MB 1	
Sodium phosphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Sodium resinate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Sodium silicates	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Sodium silico-fluoride	13-13X	13-13X	17-17X	MB 1	MB next to product	9-9X	12-12X	14-14X	MB 1	MB next to product

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Sodium sulfate (anhydrous)	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Sodium sulfate (Glaubers salt)	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Sodium sulfite; thiosulphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Soya bean flour	8-8X	13-13X	18-18X	MB 1	When fat content is 10 percent or more the inner ply shall be plastic coated MB 2, in place of the MB 1 specified. 2/	4-4X	10-10X	14-14X	---	When fat content is 10 percent or more the inner ply shall be plastic coated MB 1. 2/ No sleeve required
Starch, laundry; powdered	8-8X	13-13X	15-15X	MB 1		4-4X	9-9X	14-14X	---	
Stearic acid, flake or powdered	8-8X	25 lbs only		MB 1		4-4X	25 lbs only		---	
Sugar, granulated or	9-9X	---	---	MB 2		4-4X 4-4X	--- ---	14-14X 14-14X	--- MB 1	
Sugar powdered	9-9X	---	---	MB 2		4-4X	10-10X	14-14X	MB 1	

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Sulfur, refined ground	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Superphosphate, granular; pulverized; triple	9-9X	13-13X	17-17X	MB 2	MB next to product Oiled or acid resistant thread	6-6X	11-11X	14-14X	MB 2	MB next to product Oiled or acid resistant thread
or	5-5X	---	---	MB 3		4-4X	6-6X	9-9X	MB 3	"
Talc	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required
Tapioca flour	8-8X	13-13X	15-15X	MB 1	2/	4-4X	9-9X	14-14X	---	2/
Tetra sodium pyrophosphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Thermit	---	15-15X	---	MB 1		---	9-9X	---	---	
Titanium dioxide	8-8X	---	---	MB 1		4-4X	---	---	---	
Tripoli powder (tripolite)	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	No sleeve required

TABLE XII. Commodities and their minimum sack requirements (cont'd)

Commodity	Level A packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions	Level B packing 50-60 lb.	61-80 lb.	81-110 lb.	MB grade	Exceptions
Trisodium phosphate	8-8X	13-13X	15-15X	MB 1		4-4X	10-10X	14-14X	MB 1	
Urea	8-8X	13-13X	17-17X	MB 3	MB next to inner wall	4-4X	9-9X	13-13X	MB 2	MB next to inner wall
Wheat	8-8X	13-13X	15-15X	MB 1	2/	4-4X	6-6X	9-9X	---	2/
Zinc chromate	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X	---	
Zinc oxide	8-8X	13-13X	15-15X	MB 1		4-4X	6-6X	9-9X		
Baler sacks (for packing a number of smaller packages)	9-9X	---	---	MB 2	Type I only 3/	4-4X	---	---	MB 1	Types I and II only 3/

1/ When packing bulk, the gussets of pasted open mouth, IRT sacks, shall not exceed 4 inches.

2/ Sacks containing 50 pounds and over of these items shall be in accordance with paragraphs 3.3.7, 3.7 and 30.1.8.

3/ When used for the items designated under footnote 2/, the provisions of footnote 2/ shall apply.

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 55 cents each.

U. S. GOVERNMENT PRINTING OFFICE : 1971 O - 446-569/1238

FOLD

DEPARTMENT OF THE ARMY
U. S. ARMY NATICK LABORATORIES
NATICK, MASS. 01760

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

AMXRET-EQS

POSTAGE AND FEES PAID
DEFENSE SUPPLY AGENCY
DoD - 304

U.S. MAIL

Commander
US Army Natick Laboratories
ATTN: AMXRET-EQS
Natick, MA 01760

FOLD

☆ U.S. GOVERNMENT PRINTING OFFICE 1978— 773-1

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 22-R255

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. 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.

SPECIFICATION

Sacks, Shipping, Paper UU-S-48F

ORGANIZATION

CITY AND STATE

CONTRACT NUMBER

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 - Optional)*

DATE

DD FORM 1 JAN 66 1426

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.