

INCH-POUND

MIL-F-43231D
30 September 1992
SUPERSEDING
MIL-F-43231C
30 September 1985

MILITARY SPECIFICATION
FOOD PACKET, SURVIVAL, GENERAL PURPOSE,
PACKAGING AND ASSEMBLY OF

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

1. SCOPE

1.1 Scope. This specification covers the packaging and assembly of food components of the general purpose survival food packet for use by the Department of Defense.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.1).

SPECIFICATIONS

FEDERAL

A-A-20135 - Sugar, Refined and Sugar, Brown

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick Research, Development and Engineering Center, Natick, MA 01760-5018 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8970

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

MIL-F-43231D

- L-P-378 - Plastic, Sheet and Strip, Thin Gauge, Polyolefin
- EE-B-575 - Bouillon (Soup and Gravy Bases)
- NN-P-71 - Pallets, Material Handling, Wood, Stringer Construction, 2-Way and 4-Way (Partial)
- QQ-A-1876 - Aluminum Foil
- MMM-A-250 - Adhesive, Water-Resistant (for Closure of Fiberboard Boxes)
- PPP-B-566 - Boxes, Folding, Paperboard
- PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

- MIL-P-15011 - Pallet, Material Handling, Wood, Post Construction, 4-Way Entry
- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For
- MIL-O-44136 - Oatmeal Cookies and Granola Bars - (Operational Ration Component)
- MIL-T-44284 - Tea Mix, Instant, Sweetened, Lemon Flavored - (Operational Ration Component)
- MIL-C-44389 - Cereal Bars, Ration Lightweight, 30-Day
- MIL-D-44391 - Dessert Bars, Ration Lightweight, 30-Day
- MIL-S-44463 - Shortbread Bar, Food Packet, Survival, General Purpose
- MIL-W-44464 - Wintergreen Bar, Food Packet, Survival, General Purpose

STANDARDS

FEDERAL

- FED-STD-595 - Colors Used in Government Procurement

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads
- MIL-STD-731 - Quality of Wood Members for Containers and Pallets

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

MIL-F-43231D

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

DRAWINGS

U.S. ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

- 13-1-0180 - Figure 1, Food Packet Assembly
- 13-1-0181 - Figure 2, Shipping Container Assembly

(Copies of drawings are available from the U.S. Army Natick Research, Development, and Engineering Center, ATTN: SATNC-EMSS, Natick, MA 01760-5014.)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)

Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder (21 CFR Parts 1-199)

(Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of documents cited in the solicitation (see 6.1).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 1238 - Flow Rates of Thermoplastics by Extrusion Plastometer
- D 1505 - Density of Plastics by Density Gradient Technique
- F 88 - Seal Strength of Flexible Barrier Materials

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc., Traffic Department, 2200 Mill Road, Alexandria, VA 22314.)

MIL-F-43231D

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, 222 South Riverside Plaza, Suite 1120, Chicago, IL 60606.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

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

3. REQUIREMENTS

3.1 Components and materials.

3.1.1 Food component. The component food bars (corn flakes, chocolate chip dessert, granola, shortbread, and wintergreen) shall be unit packed in a laminated pouch in accordance with 3.1.1.1 or 3.1.1.2.

3.1.1.1 Prefomed pouch.

3.1.1.1.1 Pouch material. The prefomed pouch shall be a 3-ply laminate consisting of, from inside to outside, 0.003 to 0.004 inch thick polyolefin, 0.00035 to 0.0007 inch thick aluminum foil, and 0.0005 inch thick polyester. The pouch material shall be FDA approved for food use and shall show no evidence of delamination or degradation when heat sealed or fabricated into pouches. Color shall be applied completely and uniformly to either the exterior or interior surfaces of the polyester lamina. The pouches shall be colored overall with a color in the range of 34079 through 34087, or in the range of 24052 through 24087, or in the range of 30045 through 30118, excluding color 30109 of FED-STD-595. The color application process shall not adversely affect the material performance. The material shall not transfer any foreign odor or flavor to the packaged components.

3.1.1.1.2 Pouch construction. The prefomed pouch shall be a flat style pouch having inside dimensions of 5-1/4 inches (\pm 1/4 inch) in length and 2-3/4 inches (\pm 1/4 inch) in width. The pouch shall be made by heat sealing three edges (two sides and bottom) with 3/8 inch (\pm 1/8 inch) wide seals. The heat seals shall be made in a manner that will ensure hermetic seals. The pouch shall maintain its integrity and air tightness of the side and bottom seals when tested as specified in 4.3.1.2.2. The side and bottom seals shall have an average seal strength of not less than 6.0 pounds per inch and no individual specimen shall have a seal strength of less than

MIL-F-43231D

5.0 pounds per inch when tested as specified in 4.3.1.2.1. A V-shaped, C-shaped, or U-shaped tear notch at least 1/32 inch deep, located 3/4 to 1 inch from the top edge of the pouch (excluding the lip) shall be made on one or both side seals. The distance between the inside edge of the tear notch and the inside edge of the seal shall be no less than 1/8 inch. One side of the open end of the pouch may be provided with an extended or foldover lip, extended not more than 1/8 inch (+ 1/16 inch) to facilitate opening and filling.

3.1.1.1.3 Pouch filling and sealing. Pouches shall be filled in accordance with the net weight requirements of the applicable product documents. The filling operation shall be carefully executed to prevent contamination of the closure seal interface surfaces by contact with the product. The filled pouch shall be hermetically sealed by evacuating the air within a sealing chamber under a vacuum of 25 to 28 inches of mercury, and applying a continuous heat seal closure of not less than 1/8 inch wide extending across the complete width of the pouch. If thermal impulse or a combination (heated curved bar with thermal impulse) sealing is used, any seal width from 1/8 to 7/16 inch will be acceptable. The closure seal shall be free of foldover wrinkles, or entrapped matter that reduces the effective closure seal to less than 1/16 inch wide. The average closure seal strength shall be not less than 6.0 pounds per inch and no individual test specimen shall be less than 5.0 pounds per inch when tested as specified in 4.3.4.

3.1.1.2 Form-fill-seal pouch.

3.1.1.2.1 Form-fill-seal pouch material. The form-fill-seal pouch shall consist of a formed tray-shaped body with a tray-shaped heat sealable cover. The tray-shaped body and the tray-shaped cover shall be fabricated from a 3-ply flexible laminate barrier material consisting of 0.0009 inch thick oriented polypropylene bonded to 0.0007 inch thick aluminum foil with 10 pounds per ream pigmented polyethylene and bonding the opposite side of the aluminum foil to 0.003 inch thick ionomer or a blend of not less than 50 percent linear, low density polyethylene and polyethylene. The linear low density polyethylene portion of the blend shall be the copolymer of ethylene and octene-1, having a melt index range of 0.8 to 1.2 grams per 10 minutes in accordance with ASTM D 1238 and a density range of 0.918 to 0.922 G/CC in accordance with ASTM D 1505. Alternatively, 0.0005 inch thick polyester may be used in place of the oriented polypropylene as the outer ply of the laminate. The color requirements of the exterior (oriented polypropylene or polyester side) of the laminates shall be as specified in 3.1.1.1.1. The laminates shall be suitably formulated for food packaging and shall not impart any odor or flavor to the product being unit packed.

3.1.1.2.2 Form-fill-seal pouch construction. The tray-shaped body and the tray-shaped cover shall be formed by drawing the flexible laminate material into an appropriately shaped cavity. One food bar shall be placed into the tray-shaped body of the pouch. The filled pouch body shall then be hermetically sealed in accordance with the vacuum requirements as specified

MIL-F-43231D

in 3.1.1.1.3. Pouch closure shall be effected by heat sealing the tray-shaped cover to the tray-shaped body along the entire pouch perimeter. The outside pouch width and length shall be not more than 3-5/8 and 6 inches, respectively. The closure seal width shall be a minimum of 1/8 inch. The closure seal shall be free of entrapped matter (for example, food crumbs) that reduces the effective closure seal to less than 1/16 inch wide. The closure seal shall have an average seal strength of not less than 6.0 pounds per inch of width and no individual specimen shall have a seal strength of less than 5.0 pounds per inch (see 4.3.4). One or two tear notches shall be provided on the pouch outside edge to facilitate tear opening in the machine direction of the pouch laminate material. A tear notch shall be placed on one outside edge or two opposite outside edges of the pouch. Each tear notch shall be located not more than 1-1/4 inches or less than 3/4 inch from an outside corner of the pouch. The tear notch shall be at least 1/32 inch deep. The distance between the inside edge of the tear notch and the inside edge of the seal shall be at least 1/8 inch. Alternatively, if the pouch has serrated edges, the serrations may be used as tear notches provided that the serrations are located to effect easy opening in the machine direction of the pouch laminates, the serrations are sharp (no plastic tailing exists), and the serration depth and the minimum seal width at the serrations are in accordance with the above tear notch requirements. The sealed pouch shall not show any evidence of material degradation, aluminum stress cracking delamination or foreign odor when heat sealed into pouches.

3.1.2 Food packet components. The components required in each packet assembly shall be as specified in table I.

TABLE I. Food packet components

Component	Document reference	Quantity in ration
Corn flakes cereal bar	MIL-C-44389, type II	2 bars
Chocolate chip dessert bar	MIL-D-44391, type III	1 bar
Granola bar	MIL-O-44136, type II	1 bar
Shortbread bar	MIL-S-44463	1 bar
Wintergreen bar	MIL-W-44464	1 bar
Bouillon (Soup and Gravy Bases)	EE-B-575	1 envelope
Regular beef flavor powdered	type I, class 1, style A; or	
Regular chicken flavor powdered	type II, class 1, style A	
Tea mix, instant, sweetened, lemon flavored	MIL-T-44284	1 envelope
Sugar, white, granulated	A-A-20135, type I, class 1, 6 grams	1 envelope

3.1.3 Paperboard boxes. Folding paperboard boxes used to contain the individually packaged food packet components shall be constructed of nominal

MIL-F-43231D

0.026 inch thick, full bending chipboard in accordance with variety 2, style I, type A, class a of PPP-B-566. The inside dimensions of the paperboard box shall be 4-1/8 inches in length, 2 inches in width, and 3-3/4 inches in depth as shown in figure 1. The exterior of the box shall be poly-coated, or coated in accordance with process I of PPP-B-566, except the resistant surface shall be on the exterior of the box. The complete exterior of the box shall be uniformly colored in either a natural tan (unbleached) kraft paper), or in the range of 34087 through 34102, or 30045 through 30118 (excluding 30109) of FED-STD-595. The box manufacturer's joint and full overlap end flaps shall be glued with a hot or cold water-resistant adhesive in accordance with MMM-A-250. The band of adhesive shall be continuous and water-resistant to the extent that there shall be not more than 5 percent failure of the bonded area when tested in accordance with PPP-B-566 for water resistance of waterproof adhesive. There shall be no unglued area exceeding 1/2 inch from the end on either of the flaps.

3.2 Food packet assembly. The food packet components indicated in table I shall be inserted into the paperboard box specified in 3.1.3. The components shall be arranged in accordance with the configuration in figure 1. The food packet components shall be inserted in a manner which does not cause the box to bulge. The tea and sugar envelopes shall be inserted along opposite sides of the box's inside length panel. The bouillon (soup and gravy base) envelope shall be placed on top of the packaged components prior to closing the box. The paperboard box shall be sealed closed with hot melt or cold water-resistant adhesive in accordance with MMM-A-250. Bond strength of the dried adhesive in box closure shall be greater than the fiber strength of the paperboard box. The adhesive shall be water-resistant to the extent that there shall be not more than 5 percent failure of the bonded area when tested in accordance with PPP-B-566 for water resistance of waterproof adhesive.

3.3 Plant qualifications. The product shall be prepared, processed, and packaged in establishments meeting the requirements of Title 21, Code of Federal Regulations, Part 110, "Current Good Manufacturing Practice in Manufacturing, Packing or Holding Human Food", and the plant sanitation requirements of the appropriate Government inspection agency.

3.4 Federal Food, Drug and Cosmetic Act. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug and Cosmetic Act and regulations promulgated thereunder.

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the USDA or other Government inspection agency shall not relieve the contractor of the obligation and responsibility to deliver a product complying with all requirements of this specification. The contractor shall ensure product compliance prior to submitting the product to the USDA or other Government inspection agency for any inspection.

MIL-F-43231D

4.2 Inspection and certification. Product acceptability shall be determined by the USDA or other Government inspection agency. The USDA or other Government inspection agency will determine the degree of inspection and supervision to ensure compliance with the requirements of this specification.

4.3 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.3.1 Component and material examination. In accordance with 4.1 or 4.2, as applicable, components and materials shall be examined in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.3.1.1 Material certification. A certificate of compliance may be accepted as evidence that the characteristics listed below conform to the specified requirements.

<u>Material requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
<u>Food pouch.</u>		
Laminated material identification	3.1.1.1.1 and 3.1.1.2.1	Laboratory evaluation.
Polyolefin film and polyester film thickness	3.1.1.1.1 and 3.1.1.2.1	As specified in L-P-378, except that a machinist's micrometer may be used provided that its graduations and accuracy conform to the requirements of L-P-378.
Aluminum foil thickness	3.1.1.1.1 and 3.1.1.2.1	As specified in QQ-A-1876
Color of laminated material	3.1.1.1.1 and 3.1.1.2.1	Visual evaluation
Pouch construction	3.1.1.1.2 and 3.1.1.2.2	Laboratory evaluation.

MIL-F-43231D

<u>Material requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
<u>Paperboard box.</u>		
Material variety, style, type, and class	3.1.3	As specified in PPP-B-566.
Material thickness	3.1.3	A machinist's micrometer may be used to determine thickness.
Color	3.1.3	Visual evaluation.
Water resistance	3.1.3 and 3.2	As specified in PPP-B-566.
Bond strength	3.1.3 and 3.2	As specified in MMM-A-250.

4.3.1.2 Unfilled pouch certification. A certificate of compliance may be accepted as evidence that unfilled pouches conform to requirements specified in 3.1.1.1.1 and 3.1.1.1.2. When deemed necessary by the USDA, testing of the unfilled preformed pouches for seal strength and integrity and air tightness of manufacturer's seals shall be as specified in 4.3.1.2.1 and 4.3.1.2.2.

4.3.1.2.1 Unfilled preformed pouch seal strength testing. The unfilled pouches shall be tested for seal strength in accordance with ASTM F 88, except that the testing speed shall be 10 or 12 inches per minute. Machines that apply the tensile load to the test specimen by movement of the upper or lower clamp may be used. Test specimens shall be cut 1/2 or 1 inch in width and to a length suitable for proper mounting. The lot size shall be expressed in pouches. The sample unit shall be one unfilled pouch. The sample size shall be eight pouches. Three adjacent specimens shall be cut from each of the three sealed sides of each pouch in the sample. The results shall be reported to the nearest 0.1 pound per inch of width. The average seal strength of each seal shall be calculated by averaging the strengths of the three test specimens cut from that seal. Any test specimen failing to meet the individual test specimen seal strength requirement or any seal failing to meet the average seal strength requirement specified in 3.1.1.1.2 shall be classified as a major defect and shall be cause for rejection of the lot.

4.3.1.2.2 Unfilled preformed pouch integrity and air tightness of manufacturer's seals testing. Pouch integrity and air tightness of seals shall be determined by placing rigid material similar in size and shape to the food bars into the pouch and sealing under a vacuum of 25 to 28 inches of mercury. Not less than 96 hours after vacuum sealing, the pouch shall be examined for

MIL-F-43231D

vacuum loss in accordance with the procedure in 4.3.3. The lot size shall be expressed in pouches. The sample unit shall be one unfilled pouch. The inspection level shall be I and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 0.65.

4.3.2 Filled and sealed pouch examination. The filled and sealed pouches shall be examined for the defects listed in table II. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

TABLE II. Filled and sealed pouch defects 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Not clean <u>2/</u>
102		Tear, hole, or open seal
103		Evidence of delamination <u>3/</u>
104		Seal width less than 1/8 inch <u>4/</u>
105		Closure seal not as specified <u>4/</u>
106		Presence of foldover wrinkles, or entrapped matter that reduces the effective closure seal to less than 1/16 inch <u>4/</u>
107		Required labeling or marking missing, incorrect, illegible, or that smudges
108		Presence of stress cracks in the aluminum foil <u>5/ 6/</u>
	201	Pouch has foreign odor
	202	Color of pouch not as specified
	203	Evidence of delamination <u>3/</u>
	204	Closure or top seal extends into or below tear notch location
	205	Tear notch missing or not as specified
	206	Depth of tear notch not as specified

MIL-F-43231D

- 1/ Any evidence of insect or rodent infestation shall be cause for rejection of the lot.
- 2/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (for example, glass, metal fillings) or generally detracts from the clean appearance of the pouch. The following examples shall not be scored as defects for unclean:
- a. Foreign matter which presents no health hazard or potential pouch damage and which can be readily removed by gently shaking the pouch or by gently brushing the pouch with a clean dry cloth.
 - b. Dried product which affects less than 1/8 of the total surface area of one pouch face (localized and aggregate).
 - c. Water spots.
- 3/ Delamination defect classification:

Major - Delamination of the outer ply in the pouch seal area that can be propagated to expose aluminum foil at the food product edge of the pouch after manual flexing of the delaminated area. To flex, the delaminated area shall be held between the thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delamination area shall then be rapidly flexed 10 times by rotating both hands in alternating clockwise - counterclockwise directions. Care shall be exercised when flexing delaminated area near the tear notch to avoid tearing the pouch material. After flexing, the separated outer ply shall be grasped between the thumb and forefinger and gently lifted toward the food product edge of the seal or if the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be scored as a major defect. Additionally, spot delamination of the outer ply in the body of the pouch that is able to be propagated beyond its initial borders is also a major defect. To determine if the delaminated area is a defect, use the following procedure: Mark the outside edges of the delaminated area using a bold permanent marking pen. Open the pouch and remove the contents. Cut the pouch transversely not closer than 1/4 inch (\pm 1/16 inch) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be scored as a major defect.

Minor - Minor delamination of the outer ply in the pouch seal area is acceptable and shall not be scored as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. All other minor

MIL-F-43231D

outer ply delamination in the pouch seal area or isolated spots of delamination in the body of the pouch that do not propagate when flexed as described above shall be scored as a minor defect.

- 4/ The effective closure seal is defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide from side seal to side seal that produces a hermetically sealed pouch.
- 5/ Applicable to form-fill-seal pouches only.
- 6/ To test for stress cracks, the inside surface of both tray-shaped bodies shall be placed over a light source and the outside surface observed for the passage of light. Observation of light through the pouch material in the form of a curved or straight line greater than 2 mm in length shall be evidence of the presence of stress cracks in the aluminum foil.

4.3.3 Pouch vacuum examination. Not less than 96 hours after filling and sealing, the pouches shall be visually examined for conformance to the vacuum requirements in 3.1.1.1.3. The sealed pouch shall continue to exhibit tight adherence to the surface contours of the contents when a pulling force is applied at the center of each side seal. This force shall be applied by holding each side seal between thumb and forefinger of each hand, simultaneously exerting a slight pull with both hands. Any evidence of loss of vacuum shall be classified as a major defect. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65.

4.3.4 Pouch closure seal strength testing. The filled and sealed pouches shall be tested for closure seal strength in accordance with ASTM F 88, except that the testing speed shall be 10 or 12 inches per minute. Machines that apply the tensile load to the test specimen by movement of the upper or lower clamp may be used. Test specimens shall be cut 1/2 inch in width and to a length suitable for proper mounting. Three adjacent specimens shall be cut from each of the three sealed sides of each pouch in the sample. The results shall be reported to the nearest 0.1 pound per inch of width. The average seal strength of each seal shall be calculated by averaging the strengths of the three test specimens cut from that seal. Any test specimen failing to meet the individual test specimen seal strength requirement or any seal failing to meet the average seal strength requirement specified in 3.1.1.1.3 shall be classified as a major defect and shall be cause for rejection of the lot. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The sample size shall be eight pouches.

4.3.5 Paperboard box examination. Filled and sealed paperboard boxes shall be examined for the defects listed in table III. The lot size shall be expressed in boxes. The sample unit shall be one filled and sealed box. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

MIL-F-43231D

TABLE III. Paperboard box defects 1/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
101		Box dimensions not as specified
102		Component missing
103		Box labeling missing, incorrect, or illegible
104		Crushed or torn box
	201	Band of adhesive between inner and outer flaps of box is not continuous or either end of the flaps has an unglued area exceeding 1/2 inch from the end
	202	Adhesive smears in places other than at closure
	203	Misshaped box (bulged)
	204	Box not clean 2/

1/ Any evidence of insect or rodent infestation shall be cause for rejection of the lot.

2/ The following examples shall not be scored as defects for unclean:

- a. Any foreign matter which presents no health hazard or potential box damage and which readily falls off when box is lifted and shaken lightly.
- b. Water spots.

4.3.6 Shipping container examination. Shipping containers shall be examined for defects in assembly, closure, and reinforcement (when applicable) in accordance with PPP-B-636. In addition, the following defects shall be classified as follows:

Major: National stock number, item description, contract number, or date of pack markings missing, incorrect, or illegible.
 Contents not packed or arranged as specified.
 Container not snug-fitting.
 Not number of boxes specified.
 Metal fasteners used in closing the box.

Minor: Other required markings missing, incorrect or illegible.

MIL-F-43231D

4.3.6.1 Examination of adhered sleeve joint. A certificate of compliance may be accepted as evidence that the sleeve glue joint conforms to the requirements for weather-resistant boxes, glue closure examination, as specified in the appendix of PPP-B-636.

4.3.7 Unit load inspection. Inspection of unit loads shall be in accordance with the quality assurance provisions of MIL-L-35078.

5. PACKAGING

5.1 Packing. Packing shall be level A or B as specified (see in 6.1).

5.1.1 Level A packing. Twenty-four food packet component boxes, assembled as specified in 3.2, shall be packed in a snug-fitting fiberboard box constructed and closed in accordance with style RSC-SL, grade V2s of PPP-B-636, except that metal fasteners shall not be used in the closure of the flaps. The component boxes shall be arranged 3 in length, 4 in width, and 2 in depth according to the configuration in figure 2. As an alternative to body joint metal fasteners, adhesive conforming to MMM-A-250, applied in accordance with the "adhesive joint" requirement of PPP-B-636, may be used to secure the manufacturer's joint of the V2s box. The exterior of the fiberboard box shall be taped in accordance with Method V of PPP-B-636. The outside of each fiberboard box shall be fitted with a sleeve conforming to grade V2s of PPP-B-636. As an alternative to sleeve joint metal fasteners, adhesive conforming to MMM-A-250 may be used for securing the joint, except the overlap shall be a minimum of 3 inches wide. The sleeve joint adhesive shall cover a minimum of 90 percent of the sleeve overlap area. Each fiberboard box shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament-reinforced tape in accordance with the appendix of PPP-B-636. The inside dimensions of the fiberboard box shall be 13 inches in length, 8-1/2 inches in width, and 8-1/2 inches in depth.

5.1.2 Level B packing. Twenty-four food packet component boxes, assembled as specified in 3.2, shall be packed in a snug-fitting fiberboard box constructed and closed in accordance with style RSC, grade V3c, V3s, or V4s of PPP-B-636, except that metal fasteners shall not be used in the closure of the flaps. The component boxes shall be arranged 3 in length, 4 in width, and 2 in depth according to the configuration in figure 2. When metal fasteners are used in the box manufacturer's joint, the fasteners on the inside of the box shall be covered with pressure-sensitive tape. After closing, the fiberboard box shall be taped in accordance with Method V of PPP-B-636. Each fiberboard box shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament-reinforced tape in accordance with the appendix of PPP-B-636. The inside dimensions of the fiberboard box shall be 13 inches in length, 8-1/2 inches in width, and 8-1/2 inches in depth.

5.1.3 Packing for shipment to assembler. Not more than 200 pouches (of the same component) shall be packed in a manner to ensure carrier acceptance and safe delivery at destination at the lowest transportation rate for such

MIL-F-43231D

supplies. The fiberboard shipping container shall comply with the National Motor Freight Classification or Uniform Freight Classification, as applicable, except the closure of the fiberboard box shall be in accordance with Method II as specified in the appendix of PPP-B-636. When metal fasteners are used in the box manufacturer's joint or setup, the fasteners on the inside of the box shall be covered with tape or paperboard.

5.2 Unit loads. When specified (see 6.1), the product, packed as specified in 5.1.1, or 5.1.2, or 5.1.3, shall be palletized on a 4-way entry pallet conforming to NN-P-71 or MIL-P-15011. The pallet shall be fabricated from wood groups I or II of MIL-STD-731. Pallet pattern shall be number 22 in accordance with the appendix of MIL-STD-147. The fiberboard boxes shall be arranged so that the markings of at least one side of each box are visible. Fiberboard boxes shall be secured under the top deck of the pallet base by means of a 0.006 inch thick polyethylene shrink wrap, in accordance with L-P-378, type IV, class 3, grade A, finish 1. When intended for Navy use, the unit load shall not be shrink wrapped. Alternatively, each prepared load shall be bonded with primary or secondary straps in accordance with the bonding means C and D of MIL-STD-147.

5.3 Labeling and marking.

5.3.1 Food pouches. Pouches shall be labeled in a permanent, contrasting color directly on the pouch material in a manner that does not damage the pouch, with a food compatible ink which is free of carcinogenic elements or ingredients. No marking shall be closer than 1/16 inch to any seal. Pressure-sensitive labels may be used instead of marking directly on the pouch material. Labels shall be of a water-resistant grade of paper or film and coated on one side with pressure-sensitive adhesive. The texture of the material shall permit flexibility. Labels shall be suitable for printing or writing on with ink without feathering or spreading. The adhesive shall be of a pressure-sensitive permanent type, must be suitable for use with food products, and shall be free of carcinogenic elements or ingredients. The adhesive shall be water-insoluble, homogenous, and shall be coated in a smooth layer on one side of the label. The adhesive shall require no solvent, heat, or other preparation prior to application. Adhesive shall be of a type that will adhere to the pouch surface under high or low temperatures. Dimensions of the label shall not be larger than the dimensions of the surface of the product where the label is applied on the package. Letter size shall be no less than 1/16 inch high. The following information must be included:

Item name
 Rehydration instructions (when applicable)
 Date of production/lot number (Julian Date) 1/
 Name of contractor

1/ The lot number shall be expressed as a four digit Julian code. The first digit shall indicate the year of production and the next three digits

MIL-F-43231D

shall indicate the day of the year (Example, March 19, 1992 would be coded as 2078). The Julian code shall represent the day the product was packaged and processed. Sub-lotting (when used) shall be represented by an alpha character immediately following the four digit Julian code.

5.3.1.1 Item names and rehydration instructions. Each pouch containing a food bar shall display the item name and rehydration instructions (when applicable):

CORN FLAKES CEREAL BAR - May be crumbled and rehydrated with a small amount of water

GRANOLA BAR - May be crumbled and rehydrated with a small amount of water

WINTERGREEN BAR

SHORTBREAD BAR

CHOCOLATE CHIP DESSERT BAR

5.3.2 Paperboard boxes. Paperboard boxes shall be marked in accordance with MIL-STD-129 and shall include the following information:

FOOD PACKET SURVIVAL GENERAL PURPOSE

INSTRUCTIONS

The food in this packet is especially designed for survival use. All of the bars can be eaten as is. If desired, the corn flakes cereal and granola bars can be rehydrated with a small amount of water. The food can be eaten even when water supply is limited. The soup base may be made into a broth by adding hot water. All food packet components should be eaten. Swapping or discarding components could result in adverse health effects. Eating food bars slowly will give more satisfaction.

CAUTION

If you are exposed to salt water spray or have swallowed salt water, do not use the soup and gravy base.

(Name and Address of the Assembler)

[Date of Pack (Julian Code)]

5.3.3 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129 and as specified in the contract.

5.3.4 Unit loads. Unit loads shall be marked in accordance with MIL-L-35078 and as specified in the contract.

MIL-F-43231D

6. NOTES

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

6.1 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.1.2).
- c. Level of packing required (see 5.1).
- d. Type of unit load required (see 5.2).

6.2 Subject term (key word) listing.

Field feeding
Pouch

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

Custodian:

Air Force - 50

Review activities:

Army - MD, QM
Navy - MC, SA
DP - SS

Preparing activity:

Army - GL

(Project 8970-0168)

MIL-F-43231D

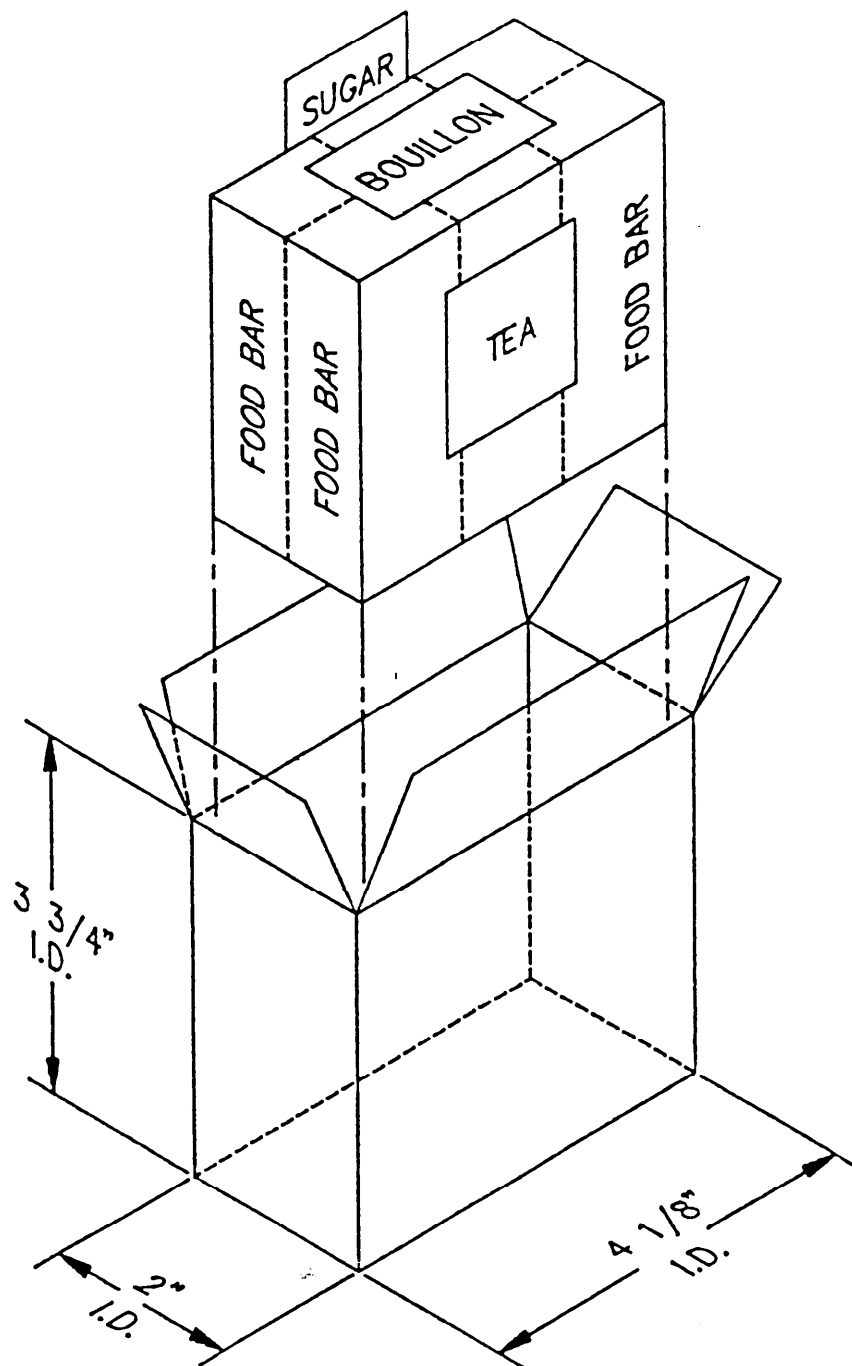


FIGURE 1. FOOD PACKET ASSEMBLY

MIL-F-43231D

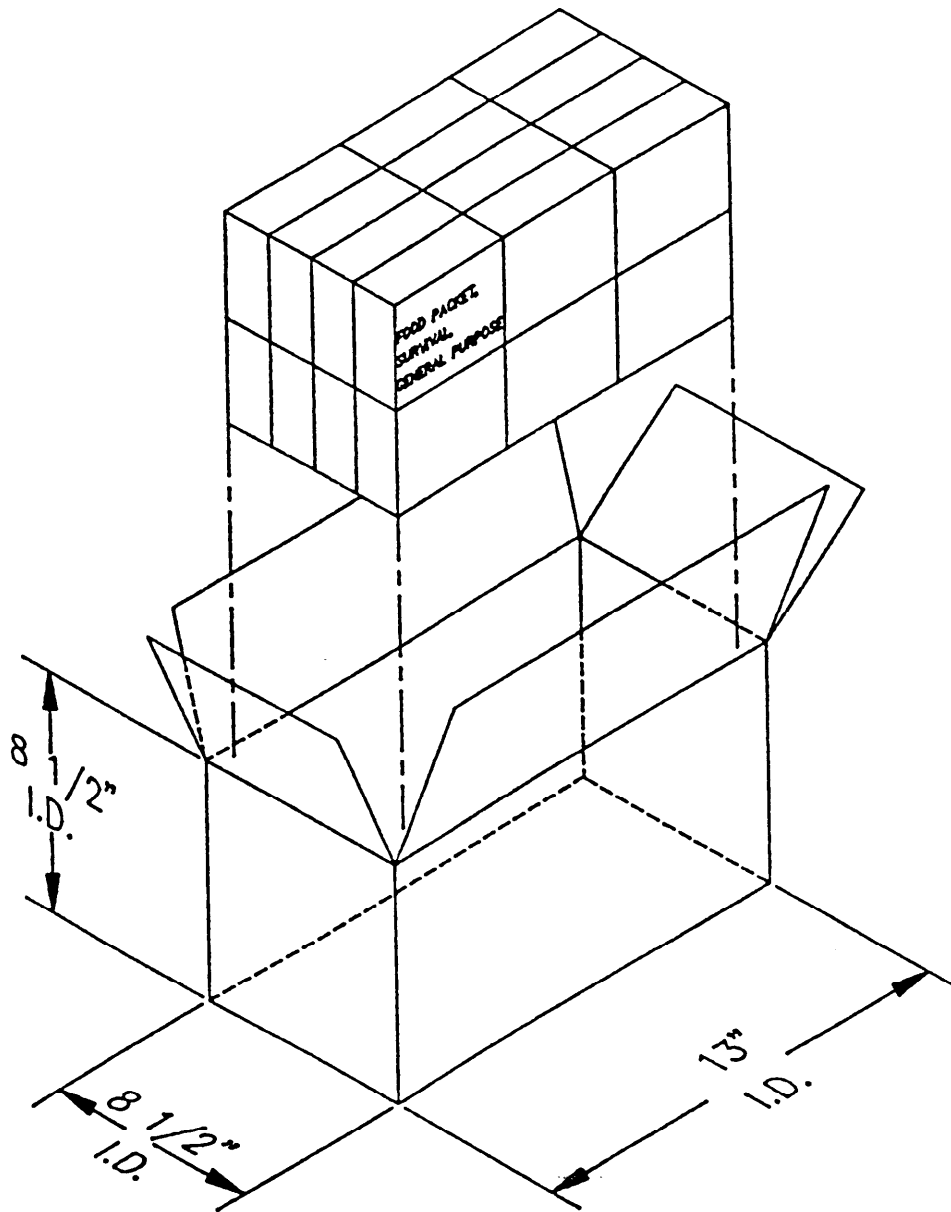


FIGURE 2. SHIPPING CONTAINER ASSEMBLY

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-F-43231D	2. DOCUMENT DATE (YYMMDD) 1992 September 30
3. DOCUMENT TITLE FOOD PACKET, SURVIVAL, GENERAL PURPOSE, PACKAGING AND ASSEMBLY OF		
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (include Zip Code)	d. TELEPHONE (include Area Code) (1) Commercial (2) AUTOVON (if applicable)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY		
a. NAME U.S. Army Natick RD&E Center	b. TELEPHONE (include Area Code) (1) Commercial 508-651-4501 (2) AUTOVON/DSN 256-4501	
c. ADDRESS (include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: SATNC-WTP Natick, MA 01760-5018	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	