

INCH-POUND

MIL-R-44398B
20 September 1993
SUPERSEDING
MIL-R-44398A
10 July 1990

MILITARY SPECIFICATION

RATION SUPPLEMENT, FLAMELESS HEATER, FOR MEAL, READY-TO-EAT

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

1. SCOPE

1.1 Scope. This specification covers a water activated exothermic-chemical heater packaged in a plastic heating bag which functions as a container for heating the Meal, Ready-to-Eat (MRE).

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 6.2).

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.

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SPECIFICATIONS

FEDERAL

- PPP-B-26 - Bag, Plastic (General Purpose)
- PPP-B-636 - Boxes, Shipping, Fiberboard

STANDARDS

FEDERAL

- FED-STD-313 - Material Safety Data Sheets Preparation and the Submission of
- FED-STD-595 - Colors Used in Government Procurements

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletization Requirements
- MIL-STD-731 - Quality of Wood 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.)

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

- 6-1-8920 - Bag, Ration Heater
- 13-1-0184 - Figure 1, "DO NOT EAT" Pictograph

(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), U.S. FOOD AND DRUG ADMINISTRATION (FDA)

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder (21 CFR Parts 170-189)

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U.S. DEPARTMENT OF TRANSPORTATION (DOT)

Research and Special Programs Administration (49 CFR Parts 171-180)

(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 the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D 775 - Drop Test for Loaded Boxes
- ASTM D 999 - Vibration Testing of Shipping Containers
- ASTM D 4727 - Corrugated and Solid Fiberboard Sheet Stock
(Container Grade) and Cut Shapes
- ASTM E 162 - Flame Spread Index
- ASTM E 662 - Specific Optic Density

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

NATIONAL MOTOR 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.)

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.

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3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3 and 4.3.1.

3.2 Materials and components. The materials and components shall be as specified herein and on the applicable drawings. Where materials are not definitely specified, they shall be of the quality normally used for the purpose in commercial practice provided the end items comply with all requirements of this document and do not degrade the operational suitability or effectiveness of the heater. It is encouraged that recycled material be used when practical as long as it meets the requirements of this document.

3.2.1 Supercorroding alloy. The supercorroding alloy shall be Mg-5atomic%Fe produced from magnesium metal powder and food grade electrolytic iron powder by solid state blending in a vibratory ball mill. The alloy shall be of such purity and uniformity that the performance of the finished ration heater will meet all requirements of this document.

3.2.2 Alloy additives. Fillers, binders, and additives, including electrolytes, wetting agents, and flow agents used in the heater construction shall be of such purity and uniformity that the performance of the heater will meet the requirements of this document.

3.2.3 Paperboard cover. After forming, each pad shall be contained within and protected by a folded paperboard cover. The cover shall be 0.014 inch to 0.018 inch in thickness and shall have nine 1/4 inch diameter holes in each side. The holes shall be spaced 1-1/4 inches apart in a 3 by 3 pattern. Alternatively, the cover shall have seven 3/8 inch diameter holes in each side. The holes shall be spaced 1-1/4 inches apart, and shall be arranged in three rows, with three holes in the top and bottom rows and one hole in the center of the middle row. The horizontal and vertical distance between holes in either configuration shall be measured from the center to center and the tolerance shall be $\pm 3/8$ inch. The color of the cover shall be either a natural tan color like unbleached kraft paper or shall be colored a light green approximating color number of the instruction label as specified in 3.6, or green in the range of 34127 through 34159 (excluding 34138) or 34226 through 34258 or 34583 of FED-STD-595.

3.2.3.1 Printing of pictograph. Each paperboard cover shall be printed with the "DO NOT EAT" pictograph in accordance with figure 1. The pictograph shall be printed in three colors; a black figure on a white background with a red circle and bar. The outside diameter of the pictograph circle shall be 7/8 inch ($\pm 1/8$ inch). The pictograph shall be printed on the exterior of one side of the paperboard cover in an area that does not cover or contact any of the holes in the cover's hole pattern.

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3.2.4 Plastic bag. The plastic bag shall be a clear, natural, high density polyethylene bag that will function as protective packaging for the heater and serve as a container to hold both the heater and the MRE entree pouch while the heating process takes place. The bag shall conform to the requirements shown on Drawing 6-1-8920.

3.3 Design of heater pad. The heater pad shall consist of a supercorroding Mg-Fe alloy powder and an electrolyte together with flow and wetting agents dispersed throughout a porous matrix formed from polymeric powders. The magnesium and iron function as anode and cathode, respectively. The electrolyte is activated by the addition of water which initiates a rapid corrosion of the magnesium particles within the matrix. The products of the chemical reaction are heat, magnesium hydroxide, and gaseous hydrogen.

3.4 Heater construction.

3.4.1 Heater pad. The supercorroding alloy powder shall be blended with the other components indicated in 3.2.2 immediately before forming into heater pads to ensure mixture uniformity. If a batch process is used to preblend the alloy mixture with other components, the batch ingredients shall be tumbled immediately prior to the formation of heater pads. The heater pads shall be formed by sintering the blended components. Each heater pad shall have approximate dimensions of 4-1/2 inches by 3-1/2 inches by 1/8 inch when examined as specified in 4.4.3. Each heater pad shall weigh 21 grams \pm 3 grams when examined as specified in 4.4.1.2.

3.4.2 Heater pad covering. The formed pad shall be inserted in the folded paperboard cover specified in 3.2.3. The folded cover shall then be sealed on its three open sides so as to contain and protect the heater pad. Staples shall not be used to seal any sides of the cover. If hot-melt glue adhesive is used to seal the sides of the cover, it shall be allowed to cool and dry completely prior to 3.4.3.

3.4.3 Insertion in bag. The heater pad with protective paperboard cover shall be sealed within the plastic bag specified in 3.2.4. The seals of the finished bag shall be of adequate strength and integrity to withstand the leakage test specified in 4.4.4 without leaking. If the method of opening the finished bag is to be different from that shown on Drawing 6-1-8920 the method shall be such that the bag can be easily torn open across the width of the bag perpendicular to the side weld of the bag when tested as specified in 4.5.5.

3.5 Performance requirements.

3.5.1 Heating performance. The heater shall be capable of providing a 100°F minimum temperature rise in water filled MRE pouch in 12 minutes or less when tested as specified in 4.4.4.

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3.5.2 Heater by-products. The finished heater shall operate without emission of any unusual objectionable odors such as burning plastic/metal or sulfurous odors, as specified in 4.5.4.1. After the MRE pouch is removed, but still wet, there shall be no evidence of the white granular magnesium hydroxide precipitate, except at the location of the holes in the cover. The amount of residual water shall be not greater than 10 milliliters.

3.6 Label. One side of the plastic heating bag shall be legibly printed using a flexo-graphic printing process (or equal) with black characters on a light green or tan background. The light green background shall approximate color number 34583 of FED-STD-595. The tan background shall be in the range of 30209 through 30450 of FED-STD-595. The label shall be as shown on Drawing 6-1-8920. The label shall be clearly legible after testing as specified in 4.4.4.

3.7 Material certification. The material used in the heater and in the heater bag itself shall be safe in the event of incidental contact with the food being heated. The contractor shall certify that the materials used are safe in or on food by reference to, and in accordance with 21 CFR, Parts 170-189, applicable material safety data sheets, or other recognized health standards and regulations.

3.8 Material safety data sheets. A material safety data sheet (MSDS) shall be prepared in accordance with the requirements of FED-STD-313 (see 6.5). The MSDS shall be securely attached to the palletized unit loads of level B and C packing as specified in 5.3.

3.9 Health hazard assessment. If requested, the contractor shall furnish the formulation of the heater to the U.S. Army Environmental Hygiene Agency, ATTN: HSHB-MO, Aberdeen Proving Ground, MD 21010-5422. The formulation shall detail the exact percentages of the chemicals and compounds used in the heater, as well as the chemical composition of trade name ingredients.

3.10 Workmanship. The end item shall conform to the quality of product established by this document and the occurrence of defects shall not exceed the applicable acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the Defense Contract Management Command (DCMC) 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 DCMC for any inspection.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection

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system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point, or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

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

- a. First article inspection (see 4.3 and 4.3.1).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. When a first article is required (see 3.1 and 6.2), one fully packed case of end items (level B or C as specified in the contract) shall be tested for rough handling in accordance with 4.3.1, and the first article shall be examined for the defects specified in 4.4.2 and 4.4.3 and tested for the characteristics specified in 4.4.4.

4.3.1 Rough handling. Individual shipping containers shall be vibrated in accordance with ASTM D 999, method A. Sample containers shall be vibrated for one hour at 268 cycles per minute. Subsequent to vibration testing, containers shall be dropped in accordance with ASTM D 775, Objective B and Annexes. Constant height drop procedure and drop sequence described in A1.3 for a cycle of ten drops shall be followed. The drop height shall be 21 inches.

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

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

4.4.1.1 Material certification. A certificate of compliance may be acceptable as evidence that the heater and bag materials conform to the requirements specified in 3.7. A certificate of compliance may be accepted as evidence that the fiberboard shipping containers conform to the fire

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retardant requirements specified in ASTM D 4727, sections 7.7.1 and 7.7.2, and are nontoxic and recyclable.

4.4.1.2 Heater pad weight examination. Heater pads, prior to insertion in the paperboard covers and plastic bags, shall be weighed. The lot size shall be expressed in units of heater pads. The sample unit shall be one heater pad. The inspection level shall be S-2. Each heater pad shall be weighed to the nearest 1 gram. Any sample unit failing to meet the weight requirement specified in 3.4.1 shall be cause for rejection of the lot.

4.4.2 Heater examination. The heaters (heater pad sealed in heater bag) shall be examined for the defects listed in table I. The lot size shall be expressed in heaters. The sample unit shall be one heater. The inspection level shall be I and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5.

TABLE I. Heater visual defects

Category	Defect
<u>Major</u>	
101	Heater pad not formed as specified
102	Heater bag not formed as specified
103	Tear, hole, or open seal (visible channels)
104	Required marking missing, incorrect, or illegible
105	Not material specified
106	Not clean
107	Tear notch (or tear method) missing
108	Tear notch not located as specified
109	Crumbled, crushed or broken heater pad <u>1/</u>
110	Paperboard cover not securely sealed or not sealed properly
111	Paperboard cover holes not as specified

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TABLE I. Heater visual defects (cont'd)

Category	Defect
<u>Major</u>	
112	Color of heater pad cover not as specified
113	Color of heater pad label not as specified
114	Required pictograph missing, incorrect, or illegible

1/ A crumbled, crushed or broken heater pad is one in which the paperboard cover is broken open and is spilling its contents or the paperboard cover is misshapen as a result of having been crushed, bent, or otherwise mishandled. The presence of loose metal fragments and/or powders that are randomly distributed throughout the interior of the heater bag as the apparent result of static electric forces shall not be considered evidence of crumbled, crushed or broken heaters.

4.4.3 Heater dimensional examination. The heaters shall be examined for conformance to the dimensions specified on Drawing 6-1-8920 and 3.4.1. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in heaters. The sample unit shall be one heater. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

4.4.4 Heater testing. The heaters shall be tested for the characteristics listed in table II. The lot size shall be expressed in heaters. The sample unit shall be one heater. The inspection level and the AQL, expressed in terms of defects per hundred units, shall be as specified in table II.

TABLE II. Heater tests

Characteristic	Requirement paragraph	Test paragraph	Inspection level	Acceptable quality level
Leakage	3.4.3	4.5.2	S-2	1.0
Heating performance	3.5.1	4.5.3	S-3	1.0
Heater by-products	3.5.2	4.5.4	S-2	1.0
Label	3.6	4.5.4.4	S-2	1.0

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4.4.5 Shipping container examination. The fully packaged heaters shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application
Materials	Any component missing, damaged, or not as specified
Workmanship	Inadequate application of components, such as: incomplete sealing or closure of flap, improper taping, loose strapping, or inadequate stapling Bulged or distorted container
Content	Number per container is more or less than required

4.4.6 Unit load inspection. The fully packaged and palletized unit loads shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern not as specified Load not bonded as specified
Weight	Exceeds maximum load limits
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

4.5 Methods of inspection.

4.5.1 Heater pad weight. Each heater pad shall be weighed as specified in 4.4.1.2.

4.5.2 Leakage test. The heater pad shall be removed from the plastic bag. Fill the bag 3/4 full with water and fold over the top of the bag. Gently apply light pressure to sides of bag while holding the top of the bag

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closed to contain water. Observation of any dripping or steady flow of water through the bag's surfaces or seams or failure to meet the requirements of 3.4.3 shall constitute failure of this test.

4.5.3 Heater pad performance test. The heater pad shall be placed in a plastic tray no less than 7.5 inches long, 4.75 inches wide, and 1.75 inches deep with not more than 0.03 inch-thick tray walls. An MRE pouch (see 6.4) shall be filled with not less than 8 ounces of water in the temperature range of 35°F to 45°F fitted internally with a temperature measuring device, and placed on top of the heater. One end of the pouch shall be lifted and a quantity of water equal to or less than the amount used in 4.5.4 and not warmer than 72°F shall be poured on top of the heater. A lid shall then be placed on the tray and the time and temperature rise recorded for at least 15 minutes. The temperature rise as a function of time shall be recorded at each minute interval, by means of an electronic digital recording device which produces a legible copy of the data as it is obtained throughout the performance test. Failure to meet the requirements of 3.5.1 shall constitute failure of this test.

4.5.4 Heater by-products. Following the instructions provided on the label of the bag, an 8 ounce MRE pouch (see 6.4) shall be inserted in the bag and the bag filled with water to the top indicator line to activate the heater. The MRE pouch shall be placed on a 15° incline during the heating process. After 12 minutes the heater bag shall be opened and the contents of the bag and the label shall be inspected as specified below.

4.5.4.1 Foreign odor. While the heating process takes place and after the bag has been opened, the emission of any unusual objectionable odors such as burning plastic/metal or sulfurous odors shall constitute a test failure.

4.5.4.2 Residue. While the MRE pouch is still wet, it shall be inspected for white granular residue (magnesium hydroxide). Failure to meet the requirement in 3.5.2 shall constitute failure of this test.

4.5.4.3 Residual water. After the MRE pouch has been removed, the residual water shall be poured out of the bag and measured. Failure to meet the requirement in 3.5.2 shall constitute failure of this test.

4.5.4.4 Label and markings. The heater bag label and markings shall be inspected for legibility, tackiness, and separation from the bag. Failure to meet the requirement in 3.6 shall constitute failure of this test.

4.5.5 Bag tear test. If the method to be used for tearing open the bag is to be different from the tear notch method shown on Drawing 6-1-8920, the acceptability of the method shall be determined by grasping the bag between the thumb and forefinger of each hand on either side of the arrow indicated on Drawing 6-1-8920 and pulling the bag apart in one pull. Failure to meet the requirement in 3.4.3 shall constitute failure of this test.

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5. PACKAGING

5.1 Preservation. Preservation shall be level A.

5.1.1 Level A. Twelve heaters shall be arranged in a single stack, with heater pads positioned at the same end of the stack and the ends of the bags opposite the heater pads folded together underneath the stack. The stack of 12 heaters shall be unit packed in a close-fitting polyethylene bag conforming to type II, style 1 of PPP-B-26. Excess air shall be manually expelled from the bag just prior to closing to maintain a close fit between the bag and contents. The bag shall be closed by heat sealing as specified in PPP-B-26 and shall be provided with tear notch located halfway along either short side of the bag. As an alternate to the polyethylene bag, the stack of 12 heaters may be inserted into a sleeve composed of a suitable heat shrinkable material and subsequently shrink wrapped.

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

5.2.1 Level B packing. Two hundred and eighty-eight heaters, preserved as specified in 5.1, shall be packed in a snug-fitting, corrugated fiberboard shipping container conforming to style RSC-L, grade V3c of PPP-B-636. The fiberboard shipping container (excluding the liner and pads) shall also be constructed of fire retardant fiberboard in accordance with type CF, class WR/FR variety SW, grade V3c of ASTM D 4727. The fire retardant fiberboard must pass the tests for flame spread index (ASTM E 162) and specific tests for optical density (ASTM E 662) as specified in ASTM D 4727. All flame retardant coatings/additives must be nontoxic and nonhazardous and must be capable of being repulped and recycled. Twenty-four unit packs shall be packaged on end and arranged eight in length, three in width, and one in depth, with the face of each pack against the box width panels. The top and bottom of the box shall be fitted with pads, constructed of regular grade V3c material of PPP-B-636, with length and width dimensions not more than 1/4 inch shorter than the inside length and width of the box. When metal fasteners are used in the box manufacturer's joint, the fasteners shall be completely covered with pressure-sensitive tape. The approximate inside dimensions of the shipping container shall be 19-1/2 inches in length, 16-3/8 inches in width and 7 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method III, taped in accordance with method V, and reinforced with nonmetallic strapping or pressure-sensitive adhesive filament-reinforced tape in accordance with PPP-B-636. If fiberboard shipping containers are not specified to be palletized into unit loads, each shipping container shall be provided with a MSDS securely attached to one side in a clear plastic self-adhering sleeve or with tape.

5.2.2 Level C packing. Not more than 384 heaters shall be packed in a manner to ensure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The shipping container must

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conform with all provisions of 49 CFR Parts 171-180 (Hazardous Materials Regulations) for Division 4.3, Packing Group I materials, unless the contractor can certify that the heater is other than such or the Department of Transportation authorizes an official exemption from these provisions. The shipping container shall be in accordance with the National Motor Freight Classification or the Uniform Freight Classification, as applicable, except fiberboard containers shall be closed in accordance with method II, as specified in the appendix of PPP-B-636. When metal fasteners are used in the manufacturer's joint or setup of the fiberboard box, the fasteners on the inside of the box shall be covered with tape or paperboard to protect contents from mechanical damage. If fiberboard shipping containers are not specified to be palletized in unit loads, each shipping container shall be provided with a MSDS securely attached to one side in a clear plastic, self-adhering sleeve or with tape.

5.3 Palletization. The heaters, packed as specified in 5.2.1, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet types shall be type I (4-way entry), type IV, or type V in accordance with MIL-STD-731. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means D and film bonding means F or G. A bottom pad and top pad or cap, conforming to MIL-STD-147, shall be used on each unitized load. Storage aid 29 shall be used when bonding method G is employed. Each palletized unit load shall be provided with a MSDS securely attached to adjacent sides inside a clear plastic sleeve with tape or by using a self-adhering clear plastic sleeve. In addition to the MSDS, the shipping papers must accompany the shipment and a copy must be placed in the vehicle manifest. Pallet pattern shall be number 95 in accordance with the appendix of MIL-STD-147.

5.4 Marking. In addition to any special marking required by the contract or purchase order, unit packs, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129. Unit packs shall be clearly marked with lot number, and date of pack. The top of the shipping container shall be clearly marked as follows:

OPEN CAREFULLY IF USING KNIFE TO AVOID SLIPPING CONTENTS

For level C packed heaters, shipping containers and palletized unit loads shall be marked in accordance with 49 CFR Parts 171-180, for Division 4.3, Packing Group I materials, unless officially exempted by the Department of Transportation.

6. NOTES

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

6.1 Intended use. The heater covered by this specification is intended for use in heating the Meal, Ready-to-Eat.

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6.2 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 2.2).
- c. When a first article is required (see 3.1, 4.3, 4.3.1, and 6.3).
- d. Level of packing (see 5.2).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulation (FAR) 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Samples. For access to samples of MRE pouches, address the contracting activity issuing the invitation for bids or request for proposal.

6.5 Material safety data sheets. Contracting officers will identify those activities requiring copies of completed Material Safety Data Sheets prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in FED-STD-313.

6.6 Subject term (key word) listing.

Exothermic-chemical
Heating bag
Operational rations

6.7 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.

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL
(Project 8970-0171)

Review activities:

Army - MD, QM
Navy - MC
DLA - SS

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FIGURE 1. "DO NOT EAT" PICTOGRAPH.

enable the commander
primary purpose is defined as a threat to the

FOR WHOM THIS RESPONSIBILITY WAS

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-R-44398B	2. DOCUMENT DATE (YYMMDD) 1993 September 20
3. DOCUMENT TITLE RATION SUPPLEMENT, FLAMELESS HEATER, FOR MEAL, READY-TO-EAT		
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)	7. DATE SUBMITTED (YYMMDD)
	(1) Commercial (2) AUTOVON (if applicable)	
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-WRE 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	