

SECTION C

This document covers wet pack fruit in a flexible pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-F-002B FRUITS, WET PACK, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

- Type I - Applesauce, natural color and flavor, sweetened, regular style
- Type II - Pineapple, sweetened, tidbits or chunks
- Type III - Peaches, sweetened, sliced or diced
- Type IV - Pears, sweetened, sliced or diced
- Type V - Mixed fruit, sweetened
- Type VI - Applesauce, with raspberry puree, sweetened, regular style
- Type VII - Applesauce, carbohydrate enhanced, sweetened, regular style
- Type VIII - Applesauce, with mango and peach puree, sweetened, regular style

C-2 PERFORMANCE REQUIREMENTS

A. Product standard. A sample shall be subjected to first article (FA) or product demonstration model (PDM) inspection as applicable, in accordance with the tests and inspections of Section E of this Performance-based Contract Requirements (PCR) document. The approved sample shall serve as the product standard. Should the contractor at any time plan to, or actually produce the product using different raw material or process methodologies from the approved Product Standard, which result in a product non comparable to the Product Standard, the contractor shall arrange for a new or alternate FA or PDM approval. In any event, all product produced must meet all requirements of this document including Product Standard comparability.

B. Commercial sterility. The packaged food shall be processed until commercially sterile.

C. Shelf life. The packaged food shall meet the minimum shelf life requirement of 36 months at 80°F.

D. Grade standards. The grade standards for Types I, II, III, IV, V, and VII include appearance, odor, flavor and texture requirements. For Types III and V the finished product shall be free from pits or portions thereof.

(1) Type I. Applesauce shall be U.S. Grade A of the U.S. Standards for Grades of Canned Applesauce.

(2) Type II. Pineapple shall be U.S. Grade B or better of the U.S. Standards for Grades of Canned Pineapple.

(3) Type III. Peaches shall be U.S. Grade B or better of the U.S. Standards for Grades of Canned Clingstone Peaches.

(4) Type IV. Pears shall be U.S. Grade B or better of the U.S. Standards for Grades of Canned Pears.

(5) Type V. Mixed fruit shall meet or exceed the odor, flavor, clearness of liquid media, color, and uniformity of size requirements for U.S. Grade B of the U.S. Standards for Grades of Canned Fruit Cocktail. The character shall meet or exceed the requirements for U.S. Grade B of the U.S. Standards for Grades of Canned Fruit Cocktail, except for the peaches component. The peaches component shall contain no greater than 40 percent, by weight, excessively frayed or mushy peaches.

E. Appearance.

(1) General. The packaged food shall be free from foreign materials.

(2) Type VI. The applesauce shall be produced from U.S. Grade A applesauce and shall contain raspberry puree. The raspberry applesauce shall have a reddish to reddish purple color.

(3) Type VII. The applesauce shall be produced from U.S. Grade A applesauce.

(4) Type VIII. The applesauce shall be produced from U.S. Grade A applesauce and shall contain mango and peach purees. The mango peach applesauce shall have a medium golden orange color.

F. Odor and flavor.

- (1) General. The packaged food shall be free from foreign odors and flavors.
- (2) Type VI. Applesauce shall be typical of canned, sweetened applesauce with a moderate to strong odor and flavor of raspberry puree.
- (3) Type VIII. Applesauce shall be typical of canned, sweetened applesauce with a moderate odor and flavor of mango and peach.

G. Texture.

- (1) Type VI. Applesauce texture shall be typical of canned, sweetened applesauce with raspberry puree.
- (2) Type VIII. Applesauce texture shall be typical of canned, sweetened applesauce with mango and peach purees.

H. Weight.

- (1) Net weight. The average net weight shall be not less than 4.5 ounces. No individual pouch shall have a net weight of less than 4.0 ounces.
- (2) Drained weight (Not applicable to all types of applesauce). The average drained weight shall be not less than 3.5 ounces. The drained weight in an individual pouch shall be not less than 3.0 ounces.

I. Palatability and overall appearance. The finished product shall be equal to or better than the approved product standard in palatability and overall appearance.

J. Analytical requirements.

- (1) pH. The pH of applesauce (Types I, VI, VII, and VIII) shall be less than 4.00. The pH of pineapple, peaches, pears, and mixed fruit shall be 3.85 – 4.15.
- (2) Brix (Not applicable to Types VI, and VIII applesauce). The pineapple, peaches, pears, and mixed fruits shall be not less than 18° and not more than 22° brix measurement. Type I applesauce shall meet brix requirements for U.S. Grade A as per U.S. Standards for Grades of Canned Applesauce. Type VII applesauce shall be not less than 25° brix measurement.

(3) Ascorbic Acid. The ascorbic acid content of applesauce (Types I, VI, VII, and VIII) shall be 1500 – 2800 ppm. The ascorbic acid content of pineapple, peaches, pears and mixed fruit shall be 200 – 1500 ppm.

(4) Carbohydrate content. The total carbohydrate content in the Type VII applesauce shall be not less than 25 percent and the complex carbohydrate content shall be not less than 9 percent.

C-3 MISCELLANEOUS INFORMATION

THE FOLLOWING INGREDIENTS ARE FOR INFORMATION ONLY. THIS IS NOT A MANDATORY CONTRACT REQUIREMENT.

A. Type VI and VII applesauce ingredients/formulation. Ingredients and formulation percentages for the Types VI and VII applesauce may be as follows:

<u>Type VI Applesauce</u>	
<u>Ingredients</u>	<u>Percent by weight</u>
Applesauce, sweetened, canned	84.0
Raspberry puree	16.0

<u>Type VII Applesauce</u>	
<u>Ingredients</u>	<u>Percent by weight</u>
Applesauce, unsweetened, canned	86.0
Maltodextrin 580 <u>1/</u>	9.0
Sucrose	5.0

1/ Maltrin 580 from Grain Processing Corporation, 1600 Oregon St., Muscatine, IA 52761-1494, USA

B. Type VIII applesauce ingredients. Ingredients for Type VIII applesauce may be as follows: applesauce (apples, sugar, water, ascorbic acid (Vitamin C)), mango puree, peach puree, sugar, and ascorbic acid.

SECTION D

D-1 PACKAGING

Product shall be filled into pouches and each pouch shall be packed in a carton in accordance with MIL-PRF-44073, Packaging of Food in Flexible Pouches.

D-2 LABELING

A. Pouches. Each pouch shall be clearly printed or stamped, in a manner that does not damage the pouch, with permanent black ink or any other contrasting color, which is free of carcinogenic elements. Prior to thermal processing of the pouches, the product name, lot number and filling equipment number shall be applied. All other marking may be applied before or after thermal processing.

- (1) Product name (not less than 1/8 inch high). Commonly used abbreviations may be used when authorized by the inspection agency.

- (2) Pouch code includes: 1/

Company code (Three capital letters representing packer's name)
Lot Number
Filling equipment identification number
Retort identification number
Retort cook number

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 shall indicate the day of the year (Example, 19 October 2004 would be coded as 4293). The Julian code shall represent the day the product was packaged into the pouch and processed. Sub-lotting (when used) shall be represented by an alpha character immediately following the four digit Julian code. Following the four digit Julian code and the alpha character (when used), the other required code information shall be printed in the sequence as listed above.

B. Cartons.

- (1) The cartons shall be clearly printed on one of the largest panels with permanent black ink as follows:
- Product name (7/32 to 9/32 inch block letters)
 - Ingredients
 - Net weight
 - Name and address of packer

Code (same as pouch code, see pouches) 1/ 2/
USDA official inspection legend for the packer's plant
"Nutrition Facts" label in accordance with the Nutrition Labeling and
Education Act (NLEA) and all applicable FDA/USDA regulations

1/ Code may be ink printed on any outside carton panel. Code may be embossed on any
outside carton panel except the largest panels of the carton.

2/ Company code not required in carton code.

(2) The MRE Post Card label shall be printed on the product cartons large panel
opposite to the panel printed with the data in D-2, B, (1) above. The information,
provided by the contracting officer, shall be clearly printed with permanent black
ink in an area no smaller than 3-3/4 inches by 5-3/4 inches.

D-3 PACKING

A. Packing for shipment to ration assembler. Seventy-two pouches (of the same product) in
cartons shall be packed flat or on edge in a snug-fitting fiberboard shipping container
conforming to style RSC, type CF, class domestic, grade 200 of ASTM D 5118/D 5118M-95
(2001), Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall
be securely closed in accordance with ASTM D 1974-78 (2003), Standard Practice for
Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-4 MARKING

A. Shipping containers. Shipping containers shall be marked in accordance with DSCP
FORM 3556, Marking Instructions for Boxes, Sacks and Unit Loads of Perishable and
Semiperishable Subsistence.

SECTION E INSPECTION AND ACCEPTANCE

The following quality assurance criteria, utilizing ANSI/ASQC Z1.4-1993, Sampling
Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified,
Single Sampling Plans indicated in ANSI/ASCQ Z1.4-1993 will be utilized. When required,
the manufacturer shall provide the certificate(s) of conformance to the appropriate inspection
activity. Certificate(s) of conformance not provided shall be cause for rejection of the lot.

A. Definitions.

(1) Critical defect. A critical defect is a defect that judgment and experience indicate would result in hazardous or unsafe conditions for individuals using, maintaining, or depending on the item; or a defect that judgment and experience indicate is likely to prevent the performance of the major end item, i.e., the consumption of the ration.

(2) Major defect. A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

(3) Minor defect. A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

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

(1) Product standard inspection. The first article or product demonstration model shall be inspected in accordance with the provisions of this document and evaluated for overall appearance and palatability. Any failure to conform to the performance requirements or any appearance or palatability failure, shall be cause for rejection of the lot. The approved first article or product demonstration model shall be used as the product standard for periodic review evaluations. All food components that are inspected by the USDA shall be subject to periodic review sampling and evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

US Army Research, Development and Engineering Command
Natick Soldier Center
AMSRD-NSC-CF-F
15 Kansas Street
Natick, MA 01760-5018

One lot shall be randomly selected during each calendar month of production. Six (6) sample units of each item produced shall be randomly selected from that one production lot. The six (6) sample units shall be shipped to Natick within five working days from the end of the production month and upon completion of all USDA inspection requirements. The sample units will be evaluated for the characteristics of appearance, odor, flavor, texture and overall quality.

(2) Conformance inspection. Conformance inspection shall include the examinations/tests and methods of inspection cited in this section and in Section 4 of MIL-PRF-44073.

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in Section C of this Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQC Z1.4 - 1993. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/ 3/ 4/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	<u>Appearance</u>

- 101 Not Type fruit specified on pouch label.
- 102 Type III or Type V contain a pit or portion thereof.
- 103 Type VI not reddish to reddish purple color.
- 104 Type VIII not medium golden orange color.

Odor and flavor

- 105 Type VI not typical of canned, sweetened applesauce with a moderate to strong odor or flavor of raspberry puree.
- 106 Type VIII not typical of canned, sweetened applesauce with a moderate odor or flavor of mango and peach.

Texture

- 201 Type VI not typical of canned, sweetened applesauce with raspberry puree.
- 202 Type VIII not typical of canned, sweetened applesauce with mango and peach purees.
- 203 Type V peach component no greater than 40 percent, by weight, excessively frayed or mushy peaches.

Weight

- 204 Net weight of an individual pouch less than 4.0 ounces. 5/
- 205 Drained weight of fruit in an individual pouch less than 3.0 ounces. 6/ 7/

1/ Presence of any foreign materials such as, but not limited to dirt, insect parts, hair, glass, wood, metal, or mold, or foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, or stale shall be cause for rejection of the lot.

2/ Finished product not equal to or better than the approved product standard in palatability and overall appearance shall be cause for rejection of the lot.

3/ Failure to meet the grade requirement shall be cause for rejection of the lot, except on the character requirement for peaches component in Type V.

4/ For Types III and V, presence of any sharp pit material, whole pit or piece of pit material measuring more than 3/8 inch in any dimension shall be cause for rejection of the lot.

5/ Sample average net weight less than 4.5 ounces shall be cause for rejection of the lot.

6/ Sample average drained weight less than 3.5 ounces shall be cause for rejection of the lot.

7/ Not applicable to applesauce (types I, VI, VII, or VIII).

B. Methods of inspection.

(1) Commercial sterility. Commercial sterility shall be verified in accordance with MIL-PRF-44073 regulations.

(2) Shelf life. The contractor shall provide a certificate of conformance that the product has a 3 year shelf life when stored at 80°F. Government verification may include storage for 6 months at 100°F or 36 months at 80°F. Upon completion of either storage period, the product will be subjected to a sensory evaluation panel for appearance and palatability and must receive an overall score of 5 or higher based on a 9 point hedonic scale to be considered acceptable.

(3) Net weight. The net weight of the filled and sealed pouches shall be determined by weighing each sample unit on a suitable scale tared with a representative empty pouch. Results shall be reported to the nearest 0.1 ounce.

(4) Drained weight. The drained weight shall be determined in accordance with the drained weight method described in the applicable U.S. Standards for Grades. The drained weight shall be reported to the nearest 0.1 ounce.

(5) pH testing. Three filled and sealed pouches shall be randomly selected from one production lot and prepared and analyzed for pH in accordance with the following method of the Official Methods of Analysis of AOAC International (OMA):

<u>Test</u>	<u>Method Number</u>
PH	981.12

Test results shall be reported to the nearest 0.01. Verification will be conducted through actual testing by a Government laboratory. Any individual result not conforming to the pH requirement shall be cause for rejection of the lot.

(6) Brix testing. Three filled and sealed pouches shall be randomly selected from one production lot and prepared and analyzed for density of the liquid packing media (degrees brix) in accordance with the following method of the Official Methods of Analysis of AOAC International (OMA).

<u>Test</u>	<u>Method Number</u>
Brix	932.14

Test results shall be reported to the nearest whole number. Verification will be conducted through actual testing by a Government laboratory. Any individual result not conforming to the Brix requirement shall be cause for rejection of the lot. Brix requirements for Type I Applesauce are in the U.S. Standards of Grades of Canned Applesauce.

(7) Ascorbic acid testing. Three filled and sealed pouches shall be selected at random from one production lot and individually tested for ascorbic acid with the method in Methods of Vitamin Assay of the Association of Vitamin Chemists, Incorporated: Vitamin A Carr Price Blue Colormetric Method and Ascorbic Acid 2,6 dichloroindophenol Photometric Method with the Loeffler and Ponting modification. Any individual pouch not conforming to the requirements of section C of this Performance-based Contract Requirements document shall be cause for rejection of the lot.

(8) Carbohydrate content. The carbohydrate content of Type VII applesauce shall be verified by certificate of analysis. Product not meeting requirements of Section C of this Performance-based Contract Requirements document shall be cause for rejection of the lot.

E-6 QUALITY ASSURANCE PROVISIONS (PACKAGING AND PACKING MATERIALS)

A. Packaging and labeling.

(1) Pouch material testing. The pouch material shall be examined for the characteristics listed in table I of MIL-PRF-44073. The lot size, sample unit, and inspection level criteria for each of the test characteristics are listed below. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

Characteristic	Lot size expressed in	Sample unit	Inspection level
Oxygen transmission rate	Yards	1/2 yard	S-1
Water vapor transmission rate	Yards	1/2 yard	S-1
Camouflage	Yards	1/2 yard	S-1
Thermal processing	Pouches	1 pouch	S-2
Environmental conditions	Pouches	1 pouch	S-2

(2) Pouch examination. The pouches shall be examined for the defects listed in table II of MIL-PRF-44073. The lot size shall be expressed in pouches. The sample unit shall be one thermal processed pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major A defects, 2.5 for major B defects, and 4.0 for minor defects. Two hundred sample units shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

(3) Examination of pouch and carton assembly. The completed pouch and carton assemblies shall be examined for the defects listed in table III of MIL-PRF-44073. The lot size shall be expressed in units of completed assemblies. The sample unit shall be one pouch and carton assembly. 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. Fifty sample pouch and carton assemblies shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

B. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table II below. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container fully packed. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total defects.

TABLE II. Shipping container and marking defects

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Marking omitted, incorrect, illegible, or improper size, location sequence or method of application.
102		Inadequate workmanship. <u>1/</u>

1/ Inadequate workmanship is defined as, but not limited to, incomplete closure of container flaps, loose strapping, inadequate stapling, improper taping, or bulged or distorted container.

SECTION J REFERENCE DOCUMENTS

U.S. STANDARDS FOR GRADES

- U.S. Standards for Grades of Canned Applesauce
- U.S. Standards for Grades of Canned Pineapple
- U.S. Standards for Grades of Canned Clingstone Peaches
- U.S. Standards for Grades of Canned Pears
- U.S. Standards for Grades of Canned Fruit Cocktail

DSCP FORMS

- DSCP FORM 3556 Marking Instructions for Boxes, Sacks and Unit Loads of Perishable and Semiperishable Subsistence

MILITARY SPECIFICATIONS

- MIL-PRF-44073 Packaging of Food in Flexible Pouches

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ)

- ANSI/ASQCZ1.4-1993 Sampling Procedures and Tables for Inspection by Attributes

ASTM INTERNATIONAL

- D1974-98 (2003) Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
- D5118/D5118M-95 (2001) Standard Practice for Fabrication of Fiberboard Shipping Boxes

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AOAC INTERNATIONAL

Official Methods of Analysis of the AOAC International (OMA)