

SECTION C

This document covers shelf stable spaghetti with beef and sauce packaged in a flexible pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-S-002A, SPAGHETTI WITH BEEF AND SAUCE, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

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 submit a replacement FA or PDM for 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 product shall meet the minimum shelf life requirement of 36 months at 80°F.

D. Appearance.

(1) General. The finished product shall be cooked spaghetti and ground beef in a tomato sauce. The finished product shall be free from foreign materials.

(2) Spaghetti. The cooked spaghetti shall be an enriched pasta product with a solid cylindrical shape and shall be an off-white to light tan color. The cooked spaghetti shall be approximately 2.0 inches in length.

(3) Beef. Prior to processing, the ground beef shall be produced using a 3/8 inch plate machine setting. The ground beef shall have a brown cooked beef color and may have a

reddish color from the sauce. The packaged food shall be practically free of bone or bone fragments, cartilage, coarse connective tissue, tendons or ligaments, and glandular material.

(4) Sauce. The sauce shall be an opaque, red to reddish-brown color and may contain flecks of herbs and spices.

E. Odor and flavor. The packaged food shall have an odor and flavor of cooked spaghetti and ground beef in an Italian seasoned tomato sauce. The packaged food shall be free from foreign odors and flavors.

F. Texture.

(1) Spaghetti. The cooked spaghetti shall be slightly soft to slightly firm and shall not be pasty.

(2) Beef. The cooked ground beef shall be moist and tender.

(3) Sauce. The sauce shall be moderately thick.

G. Net weight. The average net weight shall be not less than 8.0 ounces (227 grams). The net weight of an individual pouch shall be not less than 7.5 ounces (213 grams).

H. Drained weight. The average drained weight of the spaghetti and beef (combined) shall be not less than 5.1 ounces (145 grams). The drained weight of the spaghetti and beef (combined) in an individual pouch shall be not less than 4.5 ounces (128 grams).

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) Protein. The protein content shall be not less than 6.0 percent.

(2) Fat. The fat content shall be not less than 9.0 percent and not greater than 13.0 percent.

(3) Salt. The salt content shall be not greater than 1.3 percent.

SECTION D

D-1 PACKAGING

Product shall be filled into pouches and sealed in accordance with MIL-PRF-44073, Packaging of Food in Flexible Pouches, Type I, Style 1 for use in the Meal, Ready-to-Eat (MRE) or Type I, Style 3 for use in the Close Combat Assault Ration (CCAR).

D-2 LABELING

A. Pouches. Each pouch shall be correctly and legibly labeled. Printing ink shall be 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, filling equipment number and time stamp 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.

- (2) Pouch code includes: 1/

Lot number
Filling equipment identification number
Official establishment number (Optional)
Retort identification number and Retort cook number (Optional)
Time stamp (Hour and minute of filling/sealing operation)

- (3) USDA official inspection legend for the packer's plant 2/

1/ Each pouch shall have the date of pack noted by using either a four-digit code or five-digit code. When using the four-digit code, begin with the final digit of the current year followed by the three-digit Julian code. For example, 14 February 2050 would be coded as 0045. When using the five-digit code, begin with the decade digit of the current year followed by the three-digit Julian code. For example, 14 February 2050 would be coded as 50045. The Julian code shall represent the day the product was packaged into the pouch.

2/ May be placed on the paperboard sleeve or insert card, as applicable, if labeled under USDA/FSIS supervision as an identification service.

B. Paperboard sleeves (for MRE only) and insert cards (for MRE and CCAR, as applicable).

(1) The sleeves or insert cards, as applicable, shall be clearly printed on one of the panels with permanent black ink as follows: 1/ 2/

Product name (7/32 to 9/32 inch block letters)
Ingredients
Net weight
Name and address of packer
“Nutrition Facts” label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable USDA regulations.

1/ With contracting officer approval, this information may be printed on the pouch in lieu of the paperboard sleeve or insert card.

2/ If printed on the sleeve or insert card, it shall be configured to fit alongside similar information for an accompanying pouched product. Identity of accompanying pouched product and approval of label design shall be obtained from the contracting officer.

(2) The product shall be formulated and labeled in accordance with all USDA labeling regulations and policies. The sleeves (or pouches, or insert cards, as applicable) shall be labeled with the following product name:

SPAGHETTI WITH BEEF AND SAUCE

D-3 PACKING

A. Packing. Not more than 40 pounds of product shall be packed in a fiberboard shipping box constructed in accordance with style RSC of ASTM D5118/D5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. The fiberboard shall conform to type CF, class D, variety SW, minimum burst grade 200 or ECT 32 of ASTM D4727/D4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. Each box shall be closed in accordance with ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-5 MARKING

A. Shipping containers. Shipping containers shall be marked in accordance with DLA Troop Support 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/ASQ Z1.4, Sampling Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified, single sampling plans indicated in ANSI/ASQ Z1.4 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 appearance, odor, flavor, and texture. Any failure to conform to the performance requirements or any appearance or palatability failure shall be cause for rejection of the lot.

(2) Periodic review evaluation. 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

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evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

COMBAT CAPABILITIES DEVELOPMENT COMMAND (DEVCOM) SOLDIER CENTER
FCDD-SCD-SCR
10 GENERAL GREENE AVENUE
NATICK, MA 01760-5000

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Three (3) sample units shall be randomly selected from that one production lot. The three (3) sample units shall be shipped to DEVCOM Soldier Center within five (5) working days from the end of the production month from which they are randomly selected and upon completion of all USDA inspection requirements. The sample units will be evaluated for overall quality against the current first article or product demonstration model.

(3) 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/ASQ Z1.4. 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. The pouches shall be immersed in not less than 140°F and not greater than 190°F water for 10 minutes prior to conducting the product examination. For drained weight inspection, a separate set of pouches shall be selected from the lot using the same sampling criteria as above.

TABLE I. Product defects 1/ 2/

| Category | | Defect |
|--------------|--------------|--|
| <u>Major</u> | <u>Minor</u> | |
| | | <u>Appearance</u> |
| 101 | | Finished product not cooked spaghetti or not ground beef or not in a tomato sauce. |
| 102 | | Bone or bone fragment measuring more than 0.3 inch in any dimension. |
| | 201 | Total weight of cartilage, coarse connective tissue, tendons or ligaments, and glandular material more than 0.35 ounces (9.9 grams). |
| | 202 | Cooked spaghetti not a solid cylindrical shape or not an off-white to light tan color. <u>3/</u> <u>4/</u> |
| | 203 | Ground beef not a brown cooked beef color. <u>5/</u> |
| | 204 | Sauce not opaque or not a red to reddish-brown color. |
| | | <u>Odor and flavor</u> |
| 103 | | The packaged food does not have an odor or flavor of cooked spaghetti or not ground beef or not in an Italian seasoned tomato sauce. |
| | | <u>Texture</u> |
| | 205 | Cooked spaghetti not slightly soft to slightly firm or is pasty. |
| | 206 | Cooked ground beef not moist or not tender. |
| | 207 | Sauce not moderately thick. |
| | | <u>Net weight</u> |
| | 208 | Net weight of an individual pouch less than 7.5 ounces (213 grams). <u>6/</u> |
| | | <u>Drained weight</u> |
| | 209 | Drained weight of spaghetti and beef (combined) in an individual pouch less than 4.5 ounces (128 grams). <u>7/</u> |

1/ Presence of any foreign materials such as, but not limited to dirt, insect parts, hair, glass, wood, or metal, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, stale, musty or moldy 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/ Verification of the pasta as enriched spaghetti shall be with the statement of ingredients on the label or verified by the producer's Certificate of Conformance (CoC). Any nonconforming result shall be cause for rejection of the lot.

4/ Size requirement of the cooked spaghetti product (approximately 2.0 inches in length) shall be verified by CoC.

5/ Machine setting requirement for ground beef shall be verified by CoC.

6/ Sample average net weight less than 8.0 ounces (227 grams) shall be cause for rejection of the lot.

7/ Sample average drained weight of the spaghetti and beef (combined) less than 5.1 ounces (145 grams) shall be cause for rejection of the lot.

B. Methods of inspection.

(1) Commercial sterility. Commercial sterility shall be verified in accordance with USDA/FSIS regulations.

(2) Shelf life. The contractor shall provide a Certificate of Conformance that the product has a 36 month 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 quality scale to be considered acceptable.

(3) Net weight. The net weight of the filled and sealed pouches shall be determined by weighing each sample on a suitable scale tared with a representative empty pouch. Results shall be reported to the nearest 0.1 ounce or to the nearest 1 gram.

(4) Drained weight. Use a U.S. Standard No. 20 sieve for the drained weight examination. Heat all the pouches at the same time for 10 minutes in hot water. 1/ Pour the contents of the pouch into a flat-bottom container and repeatedly add hot water until all of the product has been removed from the pouch. 1/ Additional hot water may be added to the flat-bottom container so as to cover all of the contents. 1/ The mixture shall be gently agitated so as to liquefy rendered fat without breaking the product. 2/ The mixture shall not sit for greater than two minutes. The contents shall then be poured into the sieve in a manner that will distribute the product over the sieve without breaking up the product. The sieve area shall be such that the distributed product does not completely cover all the openings of the sieve. The sieve shall be tilted at an angle from 30 to 45 degrees to ensure complete drainage of liquid from the product. Drain product for two minutes. Place the sieve and its contents onto the scale and tare the scale to zero. Remove the beef and spaghetti (combined) from the sieve by turning the sieve upside down and dumping the product. Place the sieve back on the scale and record the weight as a positive number. This value is the drained weight of the beef and spaghetti (combined). When necessary, rinse the screen before performing the next drained weight exam. The drained weight shall be reported to the nearest 0.1 ounce or to the nearest 1 gram. 3/

1/ Water temperature shall be not less than 140°F and not greater than 165°F.

2/ Additional hot water may be required for completely removing sauce and liquefying rendered fat.

3/ The initial unit of measurement shall be maintained throughout the exam (example: if ounce is used, the unit of measurement shall remain as ounces throughout the exam).

(5) Analytical. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from one lot. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International:

| <u>Test</u> | <u>Method Number</u> |
|-------------|-------------------------------------|
| Protein | 984.13 or 992.15 |
| Fat | 960.39, 991.36, 2007.04, or 2008.06 |
| Salt | 935.47 or 971.27 |

Test results shall be reported to the nearest 0.1 percent. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

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

A. Packaging.

(1) Pouch material testing. The pouch material, pouch and sleeve, as applicable, in accordance with the lot size, sample unit, and inspection level criteria shall be tested for the performance characteristics listed in table I of MIL-PRF-44073, Packaging of Food in Flexible Pouches for Type I. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

(2) Filled and sealed pouch examination. The filled and sealed commercially sterile pouches shall be examined for the defects listed in table II of MIL-PRF-44073 for Type I. 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) Paperboard sleeve or paperboard insert card examination. The sleeve or insert card (as applicable) shall be examined for the defects listed in table III of MIL-PRF-44073 for Type I. The lot size shall be expressed in units of sleeves or insert cards. The sample unit shall be one sleeve or one insert card. 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.

B. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table II. 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 missing or incorrect or illegible. |
| 102 | | Inadequate workmanship. <u>1/</u> |
| | 201 | More than 40 pounds of product. |

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

Unless otherwise specified, the issues of these documents are those active on the date of the solicitation or contract.

DLA Troop Support Form

| | |
|-----------|--|
| Form 3556 | Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence |
|-----------|--|

DEPARTMENT OF DEFENSE SPECIFICATION

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

(Copies of this document are available online at <https://quicksearch.dla.mil>)

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ) www.asq.org

| | |
|---------------|---|
| ANSI/ASQ Z1.4 | Sampling Procedures and Tables for Inspection by Attributes |
|---------------|---|

ASTM INTERNATIONAL www.astm.org

| | |
|--------------|---|
| D1974/D1974M | Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes |
|--------------|---|

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|--------------|---|
| D4727/D4727M | Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes |
|--------------|---|

| | |
|--------------|--|
| D5118/D5118M | Standard Practice for Fabrication of Fiberboard Shipping Boxes |
|--------------|--|

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International