PCR-C-073A
27 May 2022
SUPERSEDING
PCR-C-073
2 June 2008

SECTION C

This document covers shelf stable chili and macaroni with beef, cooked, dehydrated, packaged in a stand up pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-C-073A, CHILI AND MACARONI WITH BEEF, COOKED, DEHYDRATED, PACKAGED IN A STAND UP 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 noncomparable 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. Shelf life. The packaged product shall meet the minimum shelf life requirement of 36 months at 80°F.

C. Dehydrated product.

(1) Appearance.

a. General. The finished product shall be a cooked, dehydrated mixture of macaroni, ground beef, and kidney beans covered in a tomato-based chili sauce powder. The finished product may have a reddish-brown color from the sauce powder. The product shall be fully dehydrated. The finished product shall be free from foreign materials.

b. Macaroni. The cooked, dehydrated macaroni shall be an enriched elbow shaped macaroni product. The cooked, dehydrated macaroni shall be an off-white to light tan color.

c. Beef. The cooked, dehydrated ground beef pieces shall be a medium brown color.

d. Kidney beans. The cooked, dehydrated kidney beans shall be a dark brown to black color.

e. Sauce. The cooked, dehydrated tomato-based chili sauce shall be a reddish-brown color with flecks of chili spices and shall be a free-flowing powder.

(2) Odor. The dehydrated packaged food shall have a chili spice odor. The dehydrated packaged food shall be free from foreign odors.

(3) Texture. The product shall not have wet or soft spots indicating incomplete dehydration.

(4) Net weight. The net weight of an individual pouch shall be not less than 4.6 ounces (131 grams).

D. Rehydrated product.

(1) Appearance.

a. General. The finished product shall be a rehydrated mixture of macaroni, ground beef, and kidney beans in a tomato-based chili sauce. The rehydrated finished product shall be free from foreign materials.

b. Macaroni. The rehydrated macaroni shall be an off-white to light tan color and shall be a discernible elbow shape. The macaroni may have a reddish-brown color from the sauce.

c. Beef. The rehydrated ground beef shall be distinct pieces and shall be a medium brown color and may have a reddish-brown 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.

d. Kidney beans. The rehydrated kidney beans shall be a dark red color.

e. Sauce. The rehydrated sauce shall be a glossy, reddish-brown color and shall have flecks of chili spices.

(2) Odor and flavor. The rehydrated packaged food shall have a cooked macaroni, ground beef, kidney bean, tomato and chili spice odor and flavor and shall elicit a sensation of mild to moderate heat. The rehydrated packaged food shall be free from foreign odors and flavors.

(3) Texture.

a. General. The product shall fully rehydrate within twelve minutes.

b. Macaroni. The rehydrated macaroni shall be slightly soft to slightly firm.

c. Beef. The rehydrated ground beef pieces shall be moist and tender.

d. Kidney beans. The kidney beans shall be slightly soft to slightly firm and may have a slightly dry interior.

e. Sauce. The rehydrated sauce shall be moderately thick.

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

F. Analytical requirements.

(1) Protein. The protein content shall be not less than 19.0 percent.

(2) Fat. The fat content shall be not greater than 18.0 percent.

(3) Sodium. The sodium content shall be not greater than 1450 mg per 100 grams.

(4) Moisture. The moisture content of the dehydrated product shall be not greater than 3.0 percent.

(5) Oxygen. The oxygen content in the filled and sealed pouch shall not exceed 0.50 percent.

G. Microbiological requirements.

(1) Aerobic plate count. The aerobic plate count shall be not greater than 75,000 Colony Forming Units (CFU) per gram in four of five samples and not greater than 150,000 CFU per gram in any individual sample.

(2) *Escherichia coli (E. coli)* count. *E. coli* shall have less than 10 CFU per gram or less than 3 Most Probable Number (MPN) per gram, where findings indicate zero colonies CFU per plate or zero tubes producing gas for MPN.

(3) S*almonella*. The *Salmonella* test shall be negative for each of five pouches tested per production lot.

SECTION D

D-1 PACKAGING

A. Packaging. Product shall be filled and sealed into a pouch with an oxygen scavenger in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A STAND UP POUCH.

D-2 LABELING

The product shall be formulated and labeled in accordance with all USDA labeling regulations and policies. Each pouch shall be correctly and legibly labeled. Printing ink shall be permanent ink in a contrasting color which is free of carcinogenic elements. The label shall contain the following information:

(1) Product name (letters not less than 1/8 inch high)
(2) Ingredients
(3) Date 1/
(4) Net weight
(5) Name and address of packer
(6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable USDA regulations
(7) Directions for preparation: Label shall include package opening instructions, instructions for removal and discard of oxygen scavenger, and amount of boiling water and time required to fully rehydrate the product.

1/ Each stand up pouch shall have the date of pack noted by using a four-digit code beginning 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. The Julian code shall represent the day the product was packaged into the stand up pouch.

D-3 PACKING

Packing for shipment to ration assembler shall be in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A STAND UP POUCH.

D-5 MARKING

Marking of shipping containers shall be in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A STAND UP POUCH.

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 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 the methods of inspection cited in this section and in the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A STAND UP POUCH.

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.

TABLE I. Product defects 1/ 2/

Category		Defect
Major	Minor	
		Dehydrated product
		Appearance
101		Product not a cooked or not a dehydrated mixture of macaroni or not ground beef or not kidney beans or not covered in a tomato-based chili sauce powder.
102		Pouch does not contain intact oxygen scavenger(s). 3/
103		Tear or hole or open seal in oxygen scavenger.
104		Product not fully dehydrated. 4/
	201	Cooked, dehydrated macaroni product not elbow shaped or not an off-white to light tan color. 5/
	202	Cooked, dehydrated ground beef pieces not a medium brown color.
	203	Cooked, dehydrated kidney beans not a dark brown to black color.
	204	Cooked, dehydrated tomato-based chili sauce not a reddish-brown color or not with flecks of chili spices or not a free-flowing powder.
		Odor
105		Dehydrated packaged food does not have a chili spice odor.
		Texture
106		Product has wet or soft spots indicating incomplete dehydration.
	205	Net weight of an individual pouch less than 4.6 ounces (131 grams).

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
Major	Minor	
		Rehydrated product 6/
		Appearance
107		Product not a rehydrated mixture of macaroni or not ground beef or not kidney beans or not in a tomato-based chili sauce.
	206	Rehydrated macaroni not off-white to light tan color or not a discernible elbow shape.
108		Bone or bone fragment measuring more than 0.3 inch in any dimension.
	207	Total weight of cartilage, coarse connective tissue, tendons or ligaments, and glandular material more than 0.35 ounce (9.9 grams).
	208	Rehydrated ground beef not distinct pieces or not a medium brown color.
	209	Rehydrated kidney beans not a dark red color.
	210	Rehydrated sauce not glossy or not a reddish-brown color or not with flecks of chili spices.
		Odor and flavor
109		Rehydrated packaged food does not have a cooked macaroni or not a ground beef or not a kidney bean or not a tomato or not a chili spice odor or flavor or does not elicit a sensation of mild to moderate heat.
		Texture
	211	Rehydrated macaroni not slightly soft to slightly firm.
	212	Rehydrated ground beef pieces not moist or not tender.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
Major	Minor	
	213	Rehydrated kidney beans not slightly soft to slightly firm.
	214	Rehydrated sauce not moderately thick.

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. Foreign flavor is not applicable to dehydrated product.

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. Palatability not applicable to dehydrated product.

3/ Construction of the oxygen scavenger and compliance with FDA regulations shall be verified by Certificate of Conformance (CoC).

4/ Presence of dark colored cores or a glazed surface area more than 0.25 inch in any dimension.

5/ Verification of the pasta as enriched, elbow shaped macaroni shall be verified with the statement of ingredients on the label. Failure to meet the pasta requirement as specified in Section C of this document shall be cause for rejection of the lot.

6/ Prior to conducting the rehydrated product examination, the product shall be rehydrated per pouch instructions. Product that does not rehydrate within twelve minutes shall be cause for rejection of the lot.

B. Methods of inspection.

(1) 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.

(2) 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 or to the nearest 1 gram.

(3) 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 blended to uniformity using a blender or a food processor. The blending must be rapid and conducted in such a way that minimum heat is transferred to the product and that the product has minimum exposure to atmospheric moisture. The composite sample shall be analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International:

Test	Method Number
Protein	988.05 or 992.15
Fat	991.36, 2007.04, or 2008.06
Sodium	984.27, 985.35, 2011.14, or 2011.19
Moisture 1/	950.46A 2/, 985.14 3/, or 2008.06

1/ Moisture determination may be performed on a calibrated Brookfield Ametek Computrac Moisture Analyzer using the manufacturer's recommended instructions for test method and sample preparation. Moisture analysis on this device shall be performed at 90°C.

2/ When AOAC method 950.46A is performed, the temperature-time cycle for moisture analysis shall be modified by using a temperature of 70°C for 16 hours at a pressure of not more than 100 mm of mercury.

3/ AOAC method 985.14 may also be performed after the method has been validated against method 950.46A 2/.

Test results for the protein, fat and moisture shall be reported to the nearest 0.1 percent. Test results for sodium shall be reported to the nearest 1 milligram per 100 grams. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirements specified in Section C of this Performance-based Contract Requirements document shall be cause for rejection of the lot.

(4) Oxygen testing. Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 96 hours from the time of sealing. Test results shall be reported to the nearest

0.01 percent. Any individual result not conforming to the oxygen content requirement specified in Section C of this Performance-based Contract Requirements document shall be classified as a major defect and shall be cause for rejection of the lot.

(5) Microbiological testing. Five filled and sealed pouches shall be selected at random from one lot regardless of lot size. The product shall be individually tested for microbiological levels in accordance with the OMA of AOAC International or the Food and Drug Administration (FDA) Bacteriological Analytical Manual (BAM). Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the microbiological requirements specified in Section C of this Performance-based Contract Requirements document shall be cause for rejection of the lot.

Test	Method Number
Aerobic plate count	966.23, 990.12, or BAM Ch. 3
E. coli	991.14 or BAM Ch. 4
Salmonella	967.26, 967.28, 991.13, 2003.09, 2004.03, 2013.09, or BAM Ch. 5

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

Inspection for packaging, labeling, packing, and marking shall be in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A STAND UP POUCH.

SECTION J REFERENCE DOCUMENTS

Unless otherwise specified, the applicable version of these documents is that which is active on the date of the solicitation or contract.

SPECIFICATION

PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A STAND UP POUCH

GOVERNMENT PUBLICATION

FOOD AND DRUG ADMINISTRATION	Bacteriological Analytical Manual (BAM) http://www.fda.gov/food/foodscienceresearch/laboratorymethods/ucm2006949.htm

NON-GOVERNMENTAL STANDARDS

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

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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International