

SECTION C

This document covers rotini with cheese sauce, chicken, tomatoes and asparagus, cooked, dehydrated, packaged in a brickpack pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-R-015, ROTINI WITH CHEESE SAUCE, CHICKEN, TOMATOES AND ASPARAGUS, COOKED, DEHYDRATED, PACKAGED IN A BRICKPACK 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 mixture of rotini pasta, chicken, tomatoes and asparagus in a white cheese sauce that has been dehydrated. The product shall be practically free of glazed surface areas or dark colored cores. The finished product shall be free from foreign materials.

b. Pasta. The rotini pasta shall be an enriched pasta product and shall be approximately 1 to 1-1/2 inches in length. The pasta shall be characteristic of cooked, dehydrated rotini pasta and shall be an off white to light tan color.

c. Chicken. The chicken shall be cooked, dehydrated pieces of whole muscle white meat chicken and shall be an off white to light tan color.

d. Tomato. The tomatoes shall be cooked, dehydrated pieces and shall be a dark orange to dark red color.

e. Asparagus. The cooked, dehydrated asparagus pieces shall have a green to olive green exterior color and an off white to light tan interior color.

f. Cheese sauce. The cooked, dehydrated cheese sauce shall be an off white color and shall be a free flowing powder. The cheese sauce may contain white shreds of Parmesan and Romano cheese.

(2) Odor. The packaged food shall have a Parmesan and Romano cheese odor. The product may have an odor of cooked, dehydrated pasta, chicken, tomatoes, asparagus, onion and garlic and shall be free from foreign odors.

(3) Texture. The cooked rotini pasta with cheese sauce, chicken, tomatoes and asparagus shall be fully dehydrated.

(4) Net weight. No individual pouch shall have a net weight of less than 5.3 ounces (150 grams).

D. Rehydrated product. The product shall rehydrate within ten minutes.

(1) Appearance.

a. General. The rehydrated rotini pasta with cheese sauce, chicken, tomatoes and asparagus shall be a mixture of cooked rotini pasta, cooked chicken, cooked tomatoes and cooked asparagus in a cheese sauce typical of a product that has been frozen and reheated. The rehydrated product shall be free from foreign materials.

b. Pasta. The cooked and rehydrated rotini pasta shall be an off white to light tan color.

c. Chicken. The cooked and rehydrated whole muscle white meat chicken shall be distinct pieces typically produced by a 1/2 inch machine setting and shall be a light to medium tan color. The chicken shall be practically free of skin, bone or bone fragments, cartilage, coarse connective tissue, tendons or ligaments, and discolored meat.

d. Tomato. The cooked and rehydrated tomato pieces shall be a dark orange color.

e. Asparagus. The cooked and rehydrated asparagus pieces shall have a green to olive green exterior color and an off white to light tan interior color. The asparagus pieces shall be approximately 1/2 to 1-1/2 inches in length.

f. Cheese sauce. The cooked and rehydrated cheese sauce shall be an off white to light tan color and shall be moderately thin and may contain white shreds of Parmesan and Romano cheese.

(2) Odor and flavor. The rehydrated product shall have an odor and flavor characteristic of frozen and reheated cooked pasta, cooked chicken, cooked tomatoes, cooked asparagus, garlic and chicken broth in a Parmesan and Romano cheese sauce and shall be free from foreign odors and flavors.

(3) Texture.

a. General. The rehydrated cooked rotini with cheese sauce, chicken, tomatoes and asparagus shall be fully rehydrated.

b. Pasta. The rotini pasta shall be slightly soft to slightly firm.

c. Chicken. The chicken shall be moist and tender.

d. Tomato. The tomato pieces shall be tender and may have slightly firm skins.

e. Asparagus. The asparagus pieces shall be slightly firm and fibrous.

f. Cheese sauce. The cheese sauce shall be moderately thin.

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 of the dehydrated product shall be not less than 25.0 percent.

(2) Fat. The fat content of the dehydrated product shall be not greater than 15.0 percent.

(3) Sodium. The sodium content of the dehydrated product shall be not greater than 800 mg per 100 grams.

G. Moisture content. The moisture content of the dehydrated product shall be not greater than 2.5 percent.

H. 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) E. coli. *Escherichia coli* count shall have less than 10 CFU per gram, where this finding indicates zero CFU observed.

(3) Salmonella. The Rotini with Cheese Sauce, Chicken, Tomatoes and Asparagus shall be *Salmonella* negative, where this finding indicates zero CFU observed.

C-3 MISCELLANEOUS INFORMATION

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

A. Ingredients. Pasta [durum semolina (enriched with niacin, ferrous sulfate, thiamine mononitrate, riboflavin, and folic acid)], Cooked Freeze-Dried Diced Chicken, Romano Cheese Powder [Romano Cheese (Pasteurized Milk, Cheese Cultures, Salt, Enzymes), Disodium Phosphate], Sour Cream Powder [Sour Cream (Cream Solid, Cultured Nonfat Milk), Citric Acid], Parmesan Cheese Powder [Parmesan Cheese Powder (Partially Skim Milk, Cultures, Salt, Enzymes), Disodium Phosphate], Potato Starch, Whey Powder, Tomato Flakes, Freeze-Dried Asparagus, Nonfat Milk, Onion Granules, Sea Salt, Natural Butter Flavor, Garlic Granules, and White Pepper.

SECTION D

D-1 PACKAGING

A net weight of 5.3 ounces (150 grams) of dehydrated product shall be filled into pouches in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR DEHYDRATED PRODUCT IN A BRICKPACK POUCH.

D-2 LABELING

(1) Each pouch shall be labeled in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR DEHYDRATED PRODUCT IN A BRICKPACK POUCH.

(2) The product shall be formulated and labeled in accordance with all USDA labeling regulations and policies. The pouches shall be labeled with the following product name.

ROTINI WITH CHEESE SAUCE, CHICKEN, TOMATOES AND ASPARAGUS

D-3 PACKING

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

D-5 MARKING

Marking of shipping containers shall be in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR DEHYDRATED PRODUCT IN A BRICKPACK 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. 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 Research, Development and Engineering Center
RDNS-CFF
15 Kansas Street
Natick, MA 01760-5056

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 Natick 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.

(2) Conformance inspection. Conformance inspection shall include the examinations/tests and the methods of inspection cited in this section and in PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR DEHYDRATED PRODUCT IN A BRICKPACK 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/ 3/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
		<u>Dehydrated product</u>
		<u>Net weight</u>
	201	Net weight of an individual pouch less than 5.3 ounces (150 grams).
		<u>Appearance</u>
101		Product not a mixture of rotini pasta, chicken, tomatoes, and asparagus in a white cheese sauce that has been dehydrated.
	202	Rotini pasta not approximately 1 inch to 1-1/2 inches in length. <u>4/</u>
	203	Rotini pasta not an off white to light tan color.
	204	Chicken not cooked, dehydrated pieces of whole muscle white meat chicken or not an off white to light tan color. <u>5/</u>
102		Glazed surface area measuring more than 0.5 inch in any dimension. <u>6/</u>
103		Dark colored core in any dimension. <u>6/</u>
	205	Tomatoes not cooked, dehydrated pieces or not a dark orange to dark red color.
	206	Cooked, dehydrated asparagus pieces not a green to olive green exterior color or not an off white to light tan interior color.
	207	Dehydrated cheese sauce not an off white color or not a free flowing powder.

TABLE I. Product defects 1/ 2/ 3/ - Continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Odor</u>
104		Product does not have an odor of Parmesan or Romano cheese.
		<u>Texture</u>
105		Wet or soft spots. <u>6/</u>
		<u>Rehydrated product 8/</u>
		<u>Appearance</u>
106		Product not a mixture of cooked rotini pasta, cooked chicken, cooked tomatoes and cooked asparagus in a cheese sauce typical of a product that has been frozen and reheated.
	208	Cooked and rehydrated rotini pasta not an off white to light tan color.
	209	Cooked and rehydrated whole muscle white meat chicken not distinct pieces or not a light to medium tan color.
107		Bone or bone fragment measuring more than 0.3 inch in any dimension.
	210	Total weight of skin, cartilage, coarse connective tissue, tendons or ligaments, and discolored meat more than 0.2 ounce.
	211	Cooked and rehydrated tomatoes pieces not a dark orange color.
	212	Cooked and rehydrated asparagus pieces do not have a green to olive green exterior color or do not have an off white to light tan interior color.
	213	Asparagus pieces not approximately 1/2 to 1-1/2 inches in length.
	214	Cooked and rehydrated cheese sauce not an off white to light tan color.

TABLE I. Product defects 1/ 2/ 3/ - Continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Odor and flavor</u>
108		Rehydrated product does not have an odor and flavor characteristic of frozen and rehydrated cooked pasta, or cooked chicken, or cooked tomatoes, or cooked asparagus, or garlic, or chicken broth in a Parmesan or Romano cheese sauce.
		<u>Texture</u>
	215	Rotini pasta not slightly soft to slightly firm.
	216	Chicken not moist or not tender.
	217	Tomato pieces not tender.
	218	Asparagus pieces not slightly firm or not fibrous.
	219	Cheese sauce not moderately thin.

1/ Presence of any foreign materials such as, but not limited to dirt, insect parts, hair, glass, wood, plastic, 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/ Verification of pasta as enriched shall be with a statement of ingredients on the label or verified by producer's Certificate of Conformance (CoC). Any nonconforming result shall be cause for rejection of the lot.

4/ Length of rotini pasta shall be verified by the producer's CoC.

5/ Machine setting requirement for whole muscle white meat chicken pieces shall be verified by the producer's CoC.

6/ Evidence of faulty or incomplete dehydration.

7/ Prior to conducting the rehydrated product examination, the rotini pasta with cheese sauce, chicken, tomatoes and asparagus shall be reconstituted per pouch instructions. Product that does not rehydrate within ten 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 the lot. The composite sample shall be prepared and analyzed in accordance with the following Official Methods of Analysis (OMA) of AOAC International:

<u>Test</u>	<u>Method Number</u>
Protein	988.05, 992.15
Fat	985.15, 991.36, 2007.04 or 2008.06
Sodium	985.35, 984.27

Test results for protein and fat 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 nonconforming results shall be cause for rejection of the lot.

(4) Moisture content testing. Eight filled and sealed pouches shall be selected at random from the lot regardless of lot size. The contents of each pouch shall be blended to uniformity using a blender or 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. Each sample shall be tested for moisture content in accordance with the Official Methods of Analysis (OMA) of AOAC International, method 926.08 (except 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), method 985.14, or 2008.06. Test results shall be reported to the nearest 0.1 percent. Government verification will be conducted through actual testing by a Government laboratory. Any nonconforming results shall be cause for rejection of the lot.

(5) Microbiological testing. Sixty filled and sealed pouches shall be selected at random from the lot regardless of lot size. Six composite samples, each composed of ten pouches shall be prepared. Each of the composite samples shall be tested for microbiological activity in accordance with the Official Methods of Analysis (OMA) of the AOAC International or the Food and Drug Administration (FDA) Bacteriological Analytical Manual (BAM). For aerobic plate count, the average result for all composites tested must comply as provided in C-2, H (1). For *E. coli* and *Salmonella*, results for each composite must comply as provided respectively in C-2, H (2) and (3). Any nonconforming results shall be cause for rejection of the lot.

<u>Test</u>	<u>Method Number</u>
Aerobic plate count	990.12, 966.23, or 2008.10, or BAM Ch3
<i>E. coli</i>	991.14, 992.30, 966.24, or BAM Ch4
<i>Salmonella</i>	2003.09, 2004.03, 2011.03, or BAM Ch5

NOTE: The following condition applies for *Salmonella* and microbiological testing: USDA *Salmonella* and additional microbiological testing is required for each end item lot and shall be the basis for lot acceptance with respect to *Salmonella* and other microbiological testing requirements.

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 DEHYDRATED PRODUCT IN A BRICKPACK 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.

SPECIFICATIONS

PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS
FOR DEHYDRATED PRODUCT IN A BRICKPACK POUCH

GOVERNMENT PUBLICATIONS

FOOD AND DRUG ADMINISTRATION Bacteriological Analytical Manual (BAM)
www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.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 the AOAC International