PCR-F-002D
13 August 2018
SUPERSEDING
PCR-F-002C
19 February 2010

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-002D FRUITS, WET PACK, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Types.

Type IV	-	Pears, sweetened, 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
Type IX	-	Applesauce, carbohydrate enhanced, sweetened, regular style, cinnamon

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. 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 free from foreign materials.

(2) Type IV. Pears shall be discernible dices that are also practically free of seeds, stem and core material. The pears shall be in a thin and translucent syrup or fruit juices that are a pale yellow to light beige color and shall be practically free of mushy pears.

(3) Type V. The mixed fruit shall contain pale yellow to light beige diced pears, orange diced peaches, whole green grapes and red maraschino cherry pieces and shall be free of pits. The pear and peach dices shall be discernible and practically uniform dices. The mixed fruit shall be in a thin and translucent syrup or fruit juices that are a pale golden color and shall be practically free of excessively frayed or mushy fruit.

(4) Types VI, VII, VIII and IX. The applesauce shall be produced from U.S. Grade A applesauce and shall have a uniform fine pulp, glossy sheen and minimal free liquid.

a. Type VI. The applesauce shall contain raspberry puree and shall be a reddish to reddish-purple color.

b. Type VII. The applesauce shall be a golden yellow color.

c. Type VIII. The applesauce shall contain mango and peach purees and shall be a bright golden yellow-orange color.

d. Type IX. The applesauce shall be a medium brown color with visible specks of ground cinnamon throughout.

E. Odor and flavor.

(1) General. The packaged food shall be free from foreign odors and flavors.

(2) Type IV. The pears shall have a slight to moderate sweet cooked pear odor and flavor.

(3) Type V. The mixed fruit shall have a slight to moderate sweet cooked pear and peach odor and a sweet cooked pear, peach, green grape and maraschino cherry flavor.

(4) Types VI, VII, VIII and IX. The applesauce shall be free from astringent flavor.

a. Type VI. The applesauce shall have a moderate to strong sweetened raspberry odor and flavor and a slightly tart raspberry flavor.

b. Type VII. The applesauce shall have a moderate sweetened apple odor and flavor.

c. Type VIII. The applesauce shall have a moderate to strong sweetened mango and peach odor and flavor.

d. Type IX. The applesauce shall have a moderate to strong sweetened cinnamon and apple odor and flavor.

F. Texture.

(1) Type IV. The pears shall be tender to slightly firm and shall not be mushy. The pears shall be in a thin and free flowing syrup or fruit juices.

(2) Type V. The mixed fruit shall be tender to slightly firm and shall not be mushy. The mixed fruit shall be in a thin and free flowing syrup or fruit juices.

(3) Types VI and VIII. Applesauce shall have a smooth, fine pulp.

(4) Types VII and IX. Applesauce shall have a smooth, fine pulp, with no undissolved particles.

G. Net weight. The average net weight shall be not less than 4.5 ounces (128 grams). The net weight of an individual pouch shall be not less than 4.0 ounces (113 grams).

H. Drained weight (types IV and V only). The average drained weight of fruit shall be not less than 3.2 ounces (91 grams). The drained weight of fruit in an individual pouch shall be not less than 2.7 ounces (77 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) Carbohydrate. The total carbohydrate content in types VII and IX applesauce shall be not less than 25.0 percent and the complex carbohydrate content shall be not less than 9.0 percent.

(2) pH. The pH of type IV pears and type V mixed fruit shall be not less than 3.8 and not greater than 4.2. The pH of applesauce shall be less than 4.0.

(3) Brix (not applicable to types VI and VIII applesauce). Type IV pears and type V mixed fruit shall be not less than 14° and not more than 22° brix measurement. Types VII and IX applesauce shall be not less than 25° brix measurement.

(4) Ascorbic acid. The ascorbic acid content of the pears and mixed fruit shall be 200 to 1500 ppm. The ascorbic acid content of applesauce shall be 1500 to 2800 ppm.

SECTION D

D-1 PACKAGING

Types IV and V product shall be filled into pouches and sealed in accordance with MIL-PRF-44073, Packaging of Food in Flexible Pouches, Type I, Style 1. Types VI, VII, VIII, and IX product shall be packaged in accordance with MIL-PRF-44073, Packaging of Food in Flexible Pouches, Type I, Style 2 or 3.

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. In addition to the labeling requirements below, Types VII and IX labels shall be as shown in Figure 1 and 2 respectively.

(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
Company code
Retort identification number and Retort cook number (Optional)
Time stamp (Hour and minute of filling/sealing operation)

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, 14 February 2019 would be coded as 9045). The Julian code shall represent the day the product was packaged into the pouch and processed. Following the four digit Julian code, the other required code information shall be printed in the sequence as listed above.

The pouches or paperboard sleeves or paperboard insert cards shall also be labeled with:

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 FDA regulations

NOTE: Commercial pouch graphics (colors, design and labeling) shall be submitted to the Contracting Officer for review and approval and to Natick Soldier Research, Development and Engineering Center (RDNS-SEC-EMR) for review.

(3) The product shall be formulated and labeled in accordance with all FDA labeling regulations and policies. The pouches or paperboard sleeves or paperboard insert cards shall be labeled with the following product names, as applicable.

Types	Product Names
IV	PEARS
V	MIXED FRUIT
VI	APPLESAUCE WITH RASPBERRY PUREE
VII	APPLESAUCE ENHANCED WITH MALTODEXTRIN
VIII	MANGO PEACH APPLESAUCE
IX	CINNAMON APPLESAUCE ENHANCED WITH MALTODEXTRIN

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

DEPARTMENT OF THE ARMY
RDNS-SEC-EMR
NATICK SOLDIER SYSTEMS CENTER
10 GENERAL GREENE AVENUE
NATICK, MA 01760

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.

(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.

TABLE I. Product defects 1/ 2/

Category		Defect
Major	Minor	
		General
101		Product not fruit type as specified.
		Appearance
	201	Type IV pears not discernible dices.
102		Type IV pears not reasonably free of seeds or stem or core material. 3/
	202	Type IV pears syrup or fruit juices not thin or not a translucent pale yellow to light beige color or not practically free of mushy pears.
	203	Type V mixed fruit does not contain pale yellow to light beige diced pears or orange diced peaches or whole green grapes or red maraschino cherry pieces.
103		Type V mixed fruit not free from pits. 4/
	204	Type V mixed fruit pear and peach dices not discernible or not practically uniform dices.
	205	Type V mixed fruit syrup or fruit juices not thin or not translucent or not a pale golden color or not practically free of excessively frayed or mushy fruit.
	206	Types VI, VII, VIII and IX applesauce do not have a uniform fine pulp or glossy sheen or minimal free liquid. 5/

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
Major	Minor	
	207	Type VI applesauce not with raspberry puree. 6/
	208	Type VI applesauce not a reddish to reddish-purple color.
	209	Type VII applesauce not a golden yellow color.
	210	Type VIII applesauce not with mango or peach purees. 6/
	211	Type VIII applesauce not a bright golden yellow-orange color.
	212	Type IX applesauce not a medium brown color or not with visible specks of ground cinnamon throughout.
		Odor and flavor
104		Type IV pears do not have a slight to moderate sweet cooked pear odor or flavor.
105		Type V mixed fruit does not have a slight to moderate sweet cooked pear or peach odor or not a sweet cooked pear or peach or green grape or maraschino cherry flavor.
106		Types VI, VII, VIII and IX applesauce not free from astringent flavor.
107		Type VI applesauce does not have a moderate to strong sweetened raspberry odor or flavor or not a slightly tart raspberry flavor.
108		Type VII applesauce does not have a moderate sweetened apple odor or flavor.
109		Type VIII applesauce does not have a moderate to strong sweetened mango or peach odor or flavor.
110		Type IX applesauce does not have a moderate to strong sweetened cinnamon or apple odor or flavor.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
Major	Minor	
		Texture
	213	Type IV pears not tender to slightly firm or are mushy.
	214	Type IV pears not in a thin or free flowing syrup or fruit juices.
	215	Type V mixed fruit not tender to slightly firm or is mushy.
	216	Type V mixed fruit not in a thin or free flowing syrup or fruit juices.
	217	Types VI and VIII applesauce not smooth or not a fine pulp.
	218	Types VII and IX applesauce not a smooth or not a fine pulp or has undissolved particles.
		Net weight
	219	Net weight of an individual pouch less than 4.0 ounces (113 grams). 7/
		Drained weight
	220	Drained weight of fruit in an individual pouch less than 2.7 ounces (77 grams). 8/

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/ Pears not reasonably free from seeds, stem or core material shall be determined using the following: Twenty pouches shall be combined and the maximum allowances for defective

units in the pears shall be not more than 1 external stem, 4 internal stems, 4 units of core material, or 6 loose seeds.

4/ For type 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/ Grade standard requirements for all types of applesauce shall be verified by a USDA Grade Certificate. Failure to meet the grade requirement for all types of applesauce shall be cause for rejection of the lot.

6/ For types VI and VIII, the inclusion of fruit purees shall be verified by the ingredient statements.

7/ Sample average net weight less than 4.5 ounces (128 grams) shall be cause for rejection of the lot.

8/ Sample average drained weight of fruit (types IV and V) less than 3.2 ounces (91 grams) shall be cause for rejection of the lot.

B. Methods of inspection.

(1) Commercial sterility. Commercial sterility shall be verified in accordance with FDA 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 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.

(4) Drained weight (types IV and V only). Use a 1/4 inch sieve for the drained weight examination. Pour the contents of the pouch into a flat-bottom container and repeatedly add room temperature water until all of the product has been removed from the pouch. 1/ Additional 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 remove the syrup. 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 the fruit. 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 fruit 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 fruit. 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 65°F and not greater than 75°F.

2/ Additional water may be required for completely removing the syrup.

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) Carbohydrate. The carbohydrate content of types VII and IX applesauce shall be verified by tests conducted by the contractor for carbohydrate content on the first production lot and USDA will perform verification testing and verify the formula. A Certificate of Conformance (CoC) will be provided on all future lots. If the formula is changed or a new contract starts, then another set of tests shall be conducted, a Certificate of Analysis (CoA) will be provided and USDA will verify the formula. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

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

Test	Method Number
pH	981.12

Test results shall be reported to the nearest 0.1 pH. 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.

(7) Brix testing (not applicable to types VI and VIII applesauce). 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 (OMA) of AOAC International:

Test	Method Number
Brix	934.14C

Test results shall be reported to the nearest whole number. 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.

(8) 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 Official Methods of Analysis (OMA) of AOAC International:

Test	Method Number
Ascorbic acid	967.21 or 2012.21

Test results shall be reported to the nearest whole number. 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 shall be examined for the characteristics listed in table I of MIL-PRF-44073 for Type I. 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
Low temperature	pouches	1 pouch	S-2

High temperature	pouches	1 pouch	S-2
Directional tear, when applicable	pouches	1 pouch	S-3

(2) Filled and sealed pouch testing. The filled and sealed commercially sterile pouches shall be examined for the characteristics listed in table I of MIL-PRF-44073 for Type I. 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
Residual gas volume	pouches	1 pouch	S-2
Internal pressure	pouches	1 pouch	S-2 1/

1/ When a three-seal tester is used, a separate set of samples is required for testing of the closure seal.

(3) Pouch examination. The 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.

(4) 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
Major	Minor	
101		Marking missing or incorrect or illegible.
102		Inadequate workmanship. 1/
	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 applicable version of these documents is that which is 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

GOVERNMENT PUBLICATION

U.S. STANDARDS FOR GRADES

U.S. Standards for Grades of Canned Applesauce

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
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

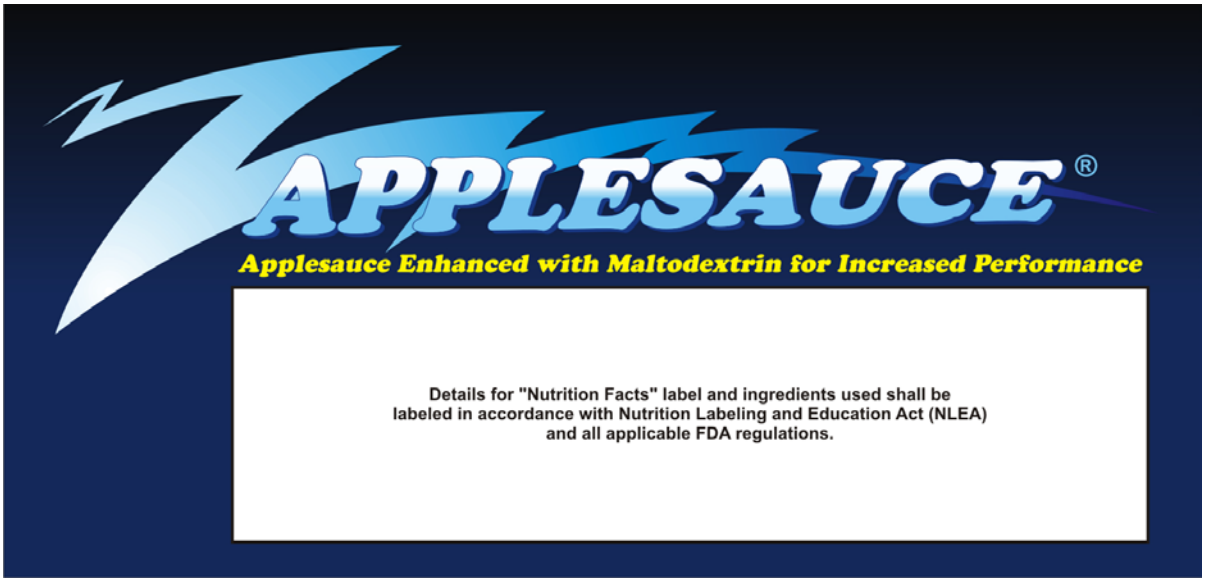
APPLESAUCE®
Applesauce Enhanced with Maltodextrin for Increased Performance
Details for "Nutrition Facts" label and ingredients used shall be
labeled in accordance with Nutrition Labeling and Education Act (NLEA)
and all applicable FDA regulations.

Figure 1


CINNAMON
APPLESAUCE®
Applesauce Enhanced with Maltodextrin for Increased Performance
Details for "Nutrition Facts" label and ingredients used shall be labeled in accordance with Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations.

Figure 2