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SUPERSEDING  
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## MILITARY SPECIFICATION

### COOKIE MIX, DRY

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This document covers cookie mixes for use by the Department of Defense as an item of general issue.

1.2 Classification. The cookie mixes shall be of the following types, as specified (see 6.1):

|          |             |
|----------|-------------|
| Type I   | - Chocolate |
| Type II  | - Sugar     |
| Type III | - Oatmeal   |

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Documents. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8920

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SPECIFICATIONS

FEDERAL

PPP-C-29 - Canned Subsistence Items, Packaging Of

MILITARY

MIL-L-1497 - Labeling of Metal Cans for Subsistence Items  
MIL-L-35078 - Loads, Unit: Preparation of Semiperishable  
Subsistence Items; Clothing, Personal Equipment  
and Equipage; General Specification For

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection  
by Attributes  
MIL-STD-129 - Marking for Shipment and Storage

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder  
(21 CFR: 1-199)

Definitions and Standards of Identity for Chocolate and Cocoa Products

Definitions and Standards of Identity for Enriched Flours

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

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U.S. DEPARTMENT OF AGRICULTURE (USDA)

U.S. Standards for Grades of Nonfat Dry Milk (Spray Process)

Regulations Governing the Inspection of Eggs and Egg Products

U.S. Standards for Condition of Food Containers

(Application for copies should be addressed to the Director, Market Research and Development Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, DC 20250.)

2.2 Other publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of  
the Association of Official Analytical Chemists

(Application for copies should be addressed to the Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209.)

AMERICAN OIL CHEMISTS SOCIETY (AOCS)

Official and Tentative Methods of the American Oil Chemists Society

(Application for copies should be addressed to the American Oil Chemists Society, 508 South Sixth Street, Champaign, IL 61820.)

NATIONAL ACADEMY OF SCIENCE

Food Chemicals Codex

(Application for copies should be addressed to the National Academy Press, 2101 Constitution Ave., N.W., Washington, DC 20418.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal Agencies.)

2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein (except for associated detail specifications, specification sheets, or MS standards), the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 Ingredients. All ingredients shall be clean, sound, wholesome, and free from foreign matter, evidence of rodent and insect infestation, extraneous material, off-flavors, off-odors, and off-colors.

3.1.1 Flour, enriched. Flour for types I and II shall be milled from either soft red winter wheat or soft white winter wheat; flour shall have a protein range of 8 to 12 percent and 0.56 percent maximum ash (both calculated on a moisture-free basis) and may be unbleached. Flour for type III shall be milled from hard red winter wheat or a blend of hard red winter and hard red spring wheats with not less than 11 percent protein and not more than 0.6 percent ash (both calculated on a moisture-free basis) and may be bleached or unbleached. Flour shall be redried to not more than 10 percent moisture. All flour shall be enriched in accordance with Definitions and Standards of Identity for Enriched Flours as defined by the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

3.1.2 Sugar. Sugar shall be white, refined, fine-granulated cane or beet sugar, or a combination of both.

3.1.3 Rolled oats. Rolled oats shall be thin, uniform flakes produced by rolling or pressing whole oat groats. The oats shall be heat treated to destroy enzyme activity. In addition, the oats shall contain not more than 11.5 percent moisture and shall test negative to tyrosinase (catechol oxidase).

3.1.4 Salt. Salt shall be noniodized, white, refined sodium chloride, with or without anticaking agents.

3.1.5 Shortening, hydrogenated and shortening (high solids). The hydrogenated shortening shall be refined vegetable oil of 100 hour or greater stability as determined by the Active Oxygen Method (AOM). The high solids shortening (type III only) shall be beaded shortening made from hydrogenated vegetable oil. At time of use, peroxide values shall not

exceed 3 milliequivalents per kilogram, and free fatty acids shall not exceed 0.10 percent. It shall have an AOM stability of not less than 100 hours and a typical solid fat index as follows:

| <u>Temperature (°F)</u> | <u>Percent solids</u> |
|-------------------------|-----------------------|
| 50                      | 80                    |
| 70                      | 80                    |
| 80                      | 80                    |
| 92                      | 80                    |
| 100                     | 77                    |
| 110                     | 62                    |

3.1.6 Chemical leavening. Leavening used in type I and type II product shall be sodium aluminum phosphate and bicarbonate of soda. For type III product, leavening shall be bicarbonate of soda. Chemical leavening shall conform to the Food Chemicals Codex.

3.1.7 Eggs, whole, dried. The free-flowing dried whole eggs shall contain not less than 95 percent by weight total egg solids and shall have been inspected and labeled in accordance with the Regulations Governing the Inspection of Eggs and Egg Products (7 CFR Part 59).

3.1.8 Flavoring. Flavoring shall be vanilla, vanillin, or ethyl vanillin, or combination thereof.

3.1.9 Dextrose. Dextrose shall be refined, free-flowing granular or powdered.

3.1.10 Cocoa powder. Cocoa powder shall be prepared from nibs of domestically roasted cacao beans and shall conform to the requirements of medium fat cocoa, either natural or dutched, as stated in the Definitions and Standards of Identity for Chocolate and Cocoa Products.

3.1.11 Milk, nonfat, dry (high heat). Nonfat dry milk shall be high heat, U.S. Standard Grade or better as defined in the U.S. Standards for Grades of Nonfat Dry Milk (Spray Process).

3.1.12 Flow agents. Flow agents shall be tricalcium phosphate or sodium silicoaluminate. Both agents shall conform to the requirements of the Food Chemicals Codex.

3.1.13 Dextrin. Dextrin shall be a completely water-soluble product with a dextrose equivalent of not less than 9.0 nor more than 13.0.

3.1.14 Whey, modified, dry. Dry modified whey shall be derived by the extraction of cheese whey in a USDA approved plant. The whey shall have been spray dried and shall be free flowing. It shall be free from salmonella and shall have been pasteurized before spray drying. The dry modified whey shall meet the following requirements of chemical analyses:

- a. Protein (N x 6.38) - not less than 15.0 percent.
- b. Ash - 25.0 to 27.0 percent.
- c. Moisture - not more than 5.0 percent.
- d. pH (3% solution) - not less than 6.0.

### 3.2 Preparation.

3.2.1 Formula. The cookie mix shall be prepared according to the following formula:

| <u>Ingredients</u>               | <u>Percent by weight</u>          |                                |                                   |
|----------------------------------|-----------------------------------|--------------------------------|-----------------------------------|
|                                  | <u>Type I</u><br><u>Chocolate</u> | <u>Type II</u><br><u>Sugar</u> | <u>Type III</u><br><u>Oatmeal</u> |
| Oats                             | -                                 | -                              | 26.0                              |
| Sugar                            | 35.5                              | 41.4                           | 33.8                              |
| Flour                            | 39.49                             | 40.99                          | 19.0                              |
| Shortening,<br>hydrogenated      | 12.75                             | 11.0                           | 15.0 <u>1/</u>                    |
| Cocoa, powder,<br>medium fat     | 5.5                               | -                              | -                                 |
| Egg, dried,<br>whole             | 2.9                               | 3.8                            | 2.0                               |
| Dextrose                         | -                                 | -                              | 2.8                               |
| Bicarbonate<br>of soda <u>2/</u> | 0.6                               | 0.5                            | 0.7                               |
| Sodium aluminum<br>phosphate     | 0.6                               | 0.5                            | -                                 |
| Salt                             | 0.6                               | 0.5                            | 0.7                               |
| Flavoring                        | 0.01                              | 0.01                           | -                                 |
| Nonfat dry<br>milk <u>3/</u>     | 1.3                               | 1.3                            | -                                 |
| Dextrin                          | 0.75                              | -                              | -                                 |
| Flow agents <u>4/</u>            | As required                       | As required                    | As required                       |

1/ Shortening in formulation may be adjusted to alleviate mixing problems by substituting not more than 4 percent of the 15.0 percent required hydrogenated shortening with high solids shortening (see 3.1.5).

- 2/ Shall be unit packed separately (see 5.1.1).
- 3/ Dry modified whey, meeting the requirements of 3.1.14, may be substituted on the basis of 0.65 percent, by weight, for 1.3 percent, by weight, nonfat dry milk solids. The remaining 0.65 percent, by weight, should be accounted for by increasing the sugar and the flour in equal portions.
- 4/ Tricalcium phosphate and sodium silicoaluminate may be used as optional ingredients in a quantity of not more than 0.5 percent for tricalcium phosphate and not more than 1.0 percent for sodium silicoaluminate. If flow agent is used, the adjustment of formulation shall be made on flour.

3.3 Blending. All ingredients shall be thoroughly and uniformly blended.

3.4 Finished product requirements. The finished product shall be a properly blended mix (except for the bicarbonate soda component, see 5.1.1), free from rancid, musty, sour, and other undesirable flavors or odors, and free from lumps other than those that disintegrate readily upon application of light pressure.

3.4.1 Analytical requirements. The product shall comply with the analytical requirements in table I.

TABLE I. Analytical requirements

| Type | Moisture (percent) | Total fat (percent) |
|------|--------------------|---------------------|
| I    | Not more than 5.3  | Not less than 13.5  |
| II   | Not more than 5.3  | Not less than 12.0  |
| III  | Not more than 6.0  | Not less than 15.0  |

3.4.2 Baked product. The prepared product, when hydrated, mixed with bicarbonate of soda from the pouch, and baked to the extent necessary for baking performance evaluation and in accordance with the baking directions in 5.4.1.1 and 5.4.1.2, shall yield tender and crisp cookies that are not peaked.

Type I shall have a characteristic chocolate color, type II shall have a rich creamy color with brown edges and bottom, and type III shall have a rich golden brown color. In addition, the cookies shall have the spread dimensions as specified in table II.

TABLE II. Spread dimensions

| Type | Flavor    | Unbaked formed cookie<br>(inches) | Baked cookie<br>(inches) |
|------|-----------|-----------------------------------|--------------------------|
| I    | Chocolate | 2                                 | 2 1/2 to 3 1/4           |
| II   | Sugar     | 2                                 | 2 3/4 to 3 1/2           |
| III  | Oatmeal   | 2 1/2                             | 3 1/4 to 3 5/8           |

3.5 Federal Food, Drug, and Cosmetic Act. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

3.6 Plant qualification. The product shall be prepared, processed, and packaged in establishments meeting the requirements of Title 21, Code of Federal Regulations, Part 110, "Current Good Manufacturing Practice in Manufacturing, Processing, Packaging or Holding of Human Foods", and the plant sanitation requirements of the appropriate Government inspection agency.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the USDA shall not relieve the contractor of obligation and responsibility to deliver a product complying with all requirements of this document. The contractor shall assure product compliance prior to submitting the product to the USDA for any inspection.

4.2 Inspection and certification. Product acceptability shall be determined by USDA. The USDA will determine the degree of supervision necessary to assure compliance with the requirements of this document.



4.3 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall comply with MIL-STD-105.

4.3.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

4.3.1.1 Ingredient and component examination. Conformance of ingredients and components to identity, condition, and other requirements specified in 3.1 shall be certified by the ingredient supplier or ingredient manufacturer, or compliance shall be evident by examination of pertinent labels, markings, U.S. Grade Certificates, certificates of analyses, or other such valid documents acceptable to the inspection agency. In addition, prior to use, each ingredient shall be examined organoleptically, as necessary, to determine conformance to the condition requirements. Any nonconformance to an identity, condition, or other requirement shall be cause for rejection of the ingredient or component lot or of any involved product.

4.3.1.2 Component testing. In addition to any testing required by 4.3.1, components shall be tested for characteristics listed in table III. Any test result not conforming to the specified requirement shall be cause for rejection of the related component. Use of such component shall be cause for rejection of the involved quantity of finished product.

TABLE III. Component tests

| Component | Sample unit                      | Lot size expressed in | Inspection level | Characteristic | Results reported to  | Test ref and rqmt paragraph <u>3/</u> |
|-----------|----------------------------------|-----------------------|------------------|----------------|----------------------|---------------------------------------|
| Flour     | One pound composite<br><u>1/</u> | Pounds                | S-2              | Ash            | Nearest 0.01 percent | 3.1.1<br>4.4.1                        |
|           |                                  |                       |                  | Protein        | Nearest 0.1 percent  |                                       |
|           |                                  |                       |                  | Moisture       | Nearest 0.1 percent  |                                       |

TABLE III. Component tests - Continued

| Component                 | Sample unit                   | Lot size expressed in | Inspection level | Characteristic                       | Results reported to    | Test ref and rqmt paragraph <u>3/</u> |
|---------------------------|-------------------------------|-----------------------|------------------|--------------------------------------|------------------------|---------------------------------------|
| Shortening, hydrogenated  | One pound composite <u>1/</u> | Pounds                | S-2              | Stability (AOM)                      | Pass or fail <u>2/</u> | 3.1.5<br>4.4.1                        |
| Shortening, high solids   | One pound composite <u>1/</u> | Pounds                | S-2              | Stability (AOM)                      | Pass or fail <u>2/</u> | 3.1.5<br>4.4.1                        |
|                           |                               |                       |                  | Solid fat index                      | Nearest 0.1 percent    | 3.1.5<br>4.4.1                        |
| Oats, rolled              | One pound composite <u>1/</u> | Pounds                | S-2              | Moisture                             | Nearest 0.1 percent    | 3.1.3<br>4.4.1                        |
|                           |                               |                       |                  | Enzyme tyrosinase                    | Pass or fail           | 3.1.3<br>4.4.2                        |
| Dextrin                   | One pound composite <u>1/</u> | Pounds                | S-2              | Dextrose equivalent (reducing sugar) | Nearest 0.1 percent    | 3.1.13<br>4.4.1                       |
| Bicarbonate of soda pouch | One pouch                     | Pouches               | S-2              | Leakage                              | Pass or fail           | 5.1.1<br>4.4.3                        |

1/ Derive composite from number of containers indicated by the inspection level.

2/ If failure, report to nearest hour.

3/ Unless otherwise specified, a certificate of conformance shall be submitted and will be acceptable for the stated requirement.

4.3.2 In-process examination. Examination shall be performed to determine conformance to 3.2. Formulation records shall be maintained. The assigned Government inspector shall examine the records. When the Government inspector is in the plant during production, he shall perform an examination of the actual formulation. When specified (see 6.1), the Government inspector shall perform continuous examination of the formulation procedure. Nonconformance shall be cause for rejection of the involved finished product.

4.3.3 End item inspection. The lot size shall be expressed in units of cans. The sample unit shall be one filled and sealed can.

4.3.3.1 Net weight examination. The cans of mix shall be examined for the net weight defects in table IV. The inspection level shall be S-3, and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5.

TABLE IV. Net weight defects

| Category      | Defect  |
|---------------|---|
| <u>Minor</u>  |   |
| 201           | Net weight less than 4 pounds 14 1/2 ounces for type I and type II cookie mix <sup>1/</sup><br>Net weight less than 4 pounds 6 1/2 ounces for type III cookie mix <sup>1/</sup>                         |
| 202           | Weight of pouch contents (bicarbonate of soda) 5.0 percent under or over specified net weight <sup>2/</sup>   |
| <sup>1/</sup> | Lot shall be rejected if sample data indicates lot average net weight per can is less than 5 pounds for type I or type II, or less than 4 pounds 8 ounces for type III. Weigh to the nearest 1/4 ounce. |
| <sup>2/</sup> | Weigh to the nearest 0.1 gram.  |

4.3.3.2 Product examination. The contents of the cans shall be examined for the defects in table V. The inspection level shall be S-3, and the AQL, expressed in terms of defects per hundred units, shall be 1.5.

TABLE V. Product defects <sup>1/</sup>

| Category      | Defect  |
|---------------|---|
| <u>Major</u>  |   |
| 101           | Presence of lumps in product that do not break upon application of light pressure with fingers  |
| 102           | Product not free from rancid, sour, musty, or other undesirable flavors or odors  |
| 103           | Bicarbonate of soda pouch missing   |
| 104           | Bicarbonate of soda pouch not placed as specified   |
| 105           | Tear, hole, or open seal in bicarbonate of soda pouch   |
| 106           | Bicarbonate of soda pouch not clean   |
| 107           | Mix not properly blended  |
| <sup>1/</sup> | Presence of any foreign material (e.g., wood, glass, metal, paint, insects or insect fragments, filth) shall be cause for rejection of the lot. |

4.3.3.3 Baked product examination. The cookies shall be prepared and baked in accordance with the applicable directions for use in 5.4.1 except that only an approximate 1-pound roll of prepared dough from each sample unit need be sliced and baked. One cookie from each sample unit shall be examined for the defects in table VI. The inspection level shall be S-1, and the AQL, expressed in terms of defects per hundred units, shall be 1.5.

TABLE VI. Baked product defects

| Category     | Cookie mix type |           |            | Defect   |
|--------------|-----------------|-----------|------------|--|
| <u>Major</u> | <u>I</u>        | <u>II</u> | <u>III</u> |  |
| 101          | X               | X         | X          | Diameter not as specified (see 3.4.2) <u>1/</u>    |
| 102          | X               | X         | X          | Tough and hard                                     |
| 103          |                 |           | X          | Color not a rich golden brown                      |
| 104          | X               |           |            | Not characteristic chocolate color                 |
| 105          |                 | X         |            | Not rich, creamy color with brown edges and bottom |
| 106          | X               | X         | X          | Peaked   |

1/ Measure to the nearest 1/8 inch.

4.3.3.4 Moisture and fat content testing. The contents of the cans shall be tested as specified in 4.4.1 for conformance to the moisture and total fat requirements specified in 3.4.1. The sample for testing shall be a 1-pound composite prepared from the contents of the number of cans indicated by inspection level S-2. Moisture and total fat shall be reported to the nearest 0.1 percent. Any test failure shall be classified as a major defect and be cause for rejection of the lot.

4.3.3.5 Pouch leakage testing. Pouches shall be tested for leakage by the method described in 4.4.3. A leaker shall be a major defect. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 0.65.

4.3.4 Examination of cans. Examination of cans shall be in accordance with the applicable requirements of United States Standards for Condition of Food Containers, except can labeling shall be examined in accordance with MIL-L-1497.

4.3.5 Packing inspection. The packing inspection for the section 5 requirements shall be in accordance with the applicable quality assurance provisions of PPP-C-29, except the marking defects of shipping containers shall be classified as follows: Major: National stock number, item description, contract number or date of pack missing, incorrect, or illegible. Minor: Other required markings missing, incorrect, or illegible.

#### 4.4 Methods of inspection.

4.4.1 Chemical analyses. Chemical analyses shall be made in accordance with table VII. Test methods are from either the Official Methods of Analysis of the AOAC, the Official and Tentative Methods of the AOCS, or this document.

TABLE VII. Chemical analyses

| Test  | Source  | Method          |
|---|---|-----------------|
| <u>Component:</u>   |   |                 |
| Flour   | AOAC -  |                 |
| Ash   | Chapter: Cereal Foods   | Ash             |
|   | Section: Wheat Flour  |                 |
| Protein   | Chapter: Cereal Foods   | Total Protein   |
|   | Section: Wheat Flour  |                 |
| Moisture  | Chapter: Cereal Foods   | Air Oven Method |
|   | Section: Wheat Flour  |                 |
| Shortening (hydroge-<br>nated) and<br>shortening (high<br>solids) |   |                 |
| Stability   | AOCS  | Cd-12-57        |
| Peroxide value  | AOCS  | Cd-8-53         |
| Free fatty acids  | AOCS  | Ca-5a-40        |
| Oats  | AOAC -  |                 |
| Moisture  | Chapter: Cereal Foods   | Moisture        |
|   | Section: Wheat, Rye, Oats,<br>Corn, Buckwheat,<br>Rice, and Barley<br>and their Products<br>except Cereal<br>Adjuncts |                 |
| Tyrosinase<br>enzyme  | See 4.4.2   | Enzyme          |

TABLE VII. Chemical analyses - Continued

| Test            | Source   | Method                        |
|-----------------|--|-------------------------------|
| <u>Dry mix:</u> |  |                               |
| Total fat       | AOAC -<br>Chapter: Cereal foods<br>Section: Wheat, Rye, Oats,<br>Corn, Buckwheat,<br>Rice, Barley and<br>their Products<br>except Cereal<br>Adjuncts | Crude Fat or<br>Ether Extract |
| Moisture        | AOAC -<br>Chapter: Sugar and<br>Sugar Products<br>Section: Sugars and Sirups   | Moisture<br>(Vacuum drying)   |

4.4.2 Procedure for colorimetric test for tyrosinase (catechol oxidase)-  
substrate-reagent.

- a. Prepare a 5 percent weight/volume aqueous solution of catechol in distilled or deionized water.
- b. Select approximately 1 pound of fresh green oat groats to be used as a standard. Split the sample into two portions and autoclave one portion of the groats at 15 psi steam pressure (250°F) for 16 hours to inactivate all enzyme activity. Dry these treated groats and the sample to be tested to the approximate moisture level corresponding to that of the untreated groats, approximately 11.5 percent moisture.
- c. Grind the heat-treated sample to be tested, and then grind the untreated groat samples through a medium screen in a Wiley mill in this order. Keep three samples separate.
- d. Weigh a 5-gram sample of each, and place each in a 250 mL Erlenmeyer flask with 100 mL of distilled or deionized water.

- e. Mix well, stopper the flasks, and incubate for 1 hour at 37°C in a water bath.
- f. Agitate each flask once, and filter their contents through a Whatman No. 1 filter paper. The aqueous extract can be centrifuged first to facilitate filtering, if necessary. Discard the first 5 to 10 mL of filtrate, collect the remainder in a 125 mL Erlenmeyer flask, and save for assay.
- g. Pipette a 20 mL aliquot of each of the samples into 50 mL Erlenmeyer flasks, and add 1 mL of the 5 percent catechol solution to each. Mix well, and allow to stand for 15 minutes.
- h. The green groats sample will develop a positive brownish-yellow to pinkish-brown color, while the standard (heat treated) control should be nearly colorless, as well as the oat sample for incorporation into the cookie mix.

4.4.3 Leakage. The filled pouch shall be tested for leakage by submerging in water, contained in a dessicator or other suitable container, and by maintaining a vacuum of 10 inches of mercury atmospheric pressure 29.9 inches (absolute pressure) for at least 30 seconds. A leak consists of a steady progression of bubbles. Isolated bubbles caused by entrapped air are not considered signs of leaks.

## 5. PACKAGING

5.1. Preservation. The product shall be preserved in accordance with level A or C, as specified (see 6.1).

5.1.1 Level A or C. A net weight of 5 pounds of type I and type II product and 4 pounds, 8 ounces of type III product shall be unit packed in a style of metal can desired in accordance with the applicable requirements of PPP-C-29 for the level specified, except that the body and ends of the can shall have enameled interiors. A tolerance of minus 1 1/2 ounces will be allowed in any one container, provided that the average net weight of the cans inspected in accordance with table IV is not less than the specified net weight for the respective type. The required amount of bicarbonate of soda (see 3.2.1) shall be separately unit packed in a foil laminated pouch. The pouch shall be hermetically sealed and shall not leak when tested in accordance with 4.4.3. The pouch shall be marked with the net weight of contents calculated from the formula as specified in 3.2.1 and the type of mix with which it will be used. The sealed pouch of bicarbonate of soda shall be placed on either end (top or bottom) of the container before final sealing of the can. The words "open other end" shall be placed on the end opposite that containing the pouch of bicarbonate of soda.



5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.1).

5.2.1 Level A, B, or C packing. The product, preserved as specified in 5.1, shall be packed in accordance with the acceptable requirements of PPP-C-29.

5.3 Unit loading. When specified (see 6.1), shipping containers shall be arranged in unit loads in accordance with MIL-L-35078. When unit loads are strapped, strapping shall be limited to nonmetallic strapping except for type II, class F loads.

5.4 Labeling and marking.

5.4.1 Metal cans. Metal cans shall be labeled in accordance with MIL-L-1497 and shall have the following directions for use lithographed on the body of the can.

5.4.1.1 Type I - Chocolate and Type II - Sugar cookies.

Directions for use

Makes 100 cookies approximately 1 oz. each or 50 portions  
(2 cookies each)

Cookie Mix - 5 pounds (1 No. 10 can)  
Water\* - 12 fl. oz. (1 1/2 cups)

1. Blend cookie mix, bicarbonate of soda from pouch (discard empty pouch) and water, beat to stiff dough, approximately 1 minute.
2. Divide dough into 5 pieces about 18 ounces each. Form into rolls; slice each roll into 20 pieces.
3. Place on lightly greased baking pan.
4. Flatten cookies to approximately 2 inch diameter.
5. Bake in preheated standard oven (375°F) for 12 to 14 minutes or in a convection oven (approximately 325°F) for 8 to 10 minutes (low fan open vent).  
Adjust time to give desired crispness.
6. Remove cookies from pan while still warm.

\* Water may be increased or decreased slightly to give proper dough consistency.

5.4.1.2 Type III - Oatmeal cookies.

Directions for use.

Makes 100 cookies approximately 1 oz. each or 50 portions  
(2 cookies each)

Cookie mix - 4 lb., 8 oz. (1 No. 10 can)  
Water\* - 8 fl. oz. (1 cup)

1. Blend cookie mix, bicarbonate of soda from pouch (discard empty pouch), and water together, beating to stiff dough, approximately 1 minute.
2. Drop approximately one level tablespoon of dough in rows 5 by 7 on lightly greased sheet pan.
3. Bake in preheated standard oven (375°F) for 12 minutes or in a convection oven (approximately 325°F) for 8 to 10 minutes (low fan open vent) until lightly browned. Do not overbake. (Adjust time for desired crispness.)
4. Remove cookies from pan while still warm.

\* Water may be increased or decreased slightly to give proper dough consistency.

VARIATIONS: Add variation ingredients to dry mix and blend lightly before adding water.

Raisin cookies: Add 12 ounces soaked drained raisins.

Date-nut cookies: Add 1 1/2 teaspoons cinnamon, 6 ounces chopped dates, 6 ounces unsalted chopped nuts.

Chocolate chip: Add 12 ounces semi-sweet chocolate chips or chocolate-flavored baking chips.

Spiced-nut: Add 8 ounces raisins, 4 teaspoons each of ground cinnamon and nutmeg, 1 1/2 teaspoons ground cloves, and 4 ounces unsalted chopped nuts.

Applesauce: Rehydrate 5 1/2 ounces of instant applesauce in 10 fluid ounces of water; add 2 teaspoons each of ground cinnamon and nutmeg. Omit water from basic recipe.

5.4.2 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129.

5.4.3 Unit loads. Unit loads shall be marked in accordance with MIL-L-35078.

## 6. NOTES

6.1 Ordering data. Acquisition documents should require the following:

- a. Title, number, and date of this document.
- b. Type of product required (see 1.2).
- c. When continuous examination of formulation is required (see 4.3.2).
- d. Level of preservation and packing required (see 5.1 and 5.2).
- e. Type and class of unit load when specified (see 5.3).

6.2 Appropriate level of pack. Based on the conditions known or expected to be encountered during shipment, handling, and storage of the specific item being procured, the procuring activity should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.33A/DLAR 4145.7.

6.3 Subject term (key word) listing.

Baking  
Cookies  
Cookie mixes

6.4 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

### Custodians:

Army - GL  
Navy - SA  
Air Force - 50

### Preparing activity:

Army - GL  
Project No. 8920-0471

### Review activities:

Army - MD, TS  
Navy - MC, MS  
DP - SS