

MIL-P-35069B

30 September 1968

SUPERSEDING

MIL-P-35069A

16 February 1965

MILITARY SPECIFICATION

POPCORN, UNPOPPED

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

1. SCOPE

1.1 Scope.- This specification covers unpopped popcorn for use by the Armed Forces as an item of general issue.

1.2 Classification.- The product shall be of the following types and grades, as specified (see 6.1):

Types

I - Yellow

II - White

Grades

Fancy

No. 1

2. APPLICABLE DOCUMENTS

- * 2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

- | | | |
|-----------|---|--|
| TT-C-495 | - | Coatings, Exterior, for Tinned Food Cans. |
| PPP-B-636 | - | Box, Fiberboard. |
| PPP-C-96 | - | Cans, Metal, 28-Gage and Lighter. |
| PPP-F-320 | - | Fiberboard; Corrugated and Solid, Sheet Stock (Container Grade), and Cut Shapes. |

PSC 8940

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- MIL-L-1497 - Labeling of Metal Cans for Subsistence Items.
- MIL-L-35078 - Loads, Unit: Preparation of Nonperishable Subsistence In.

STANDARDS

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-666 - Sanitary Standards for Food Plants.

(Copies of specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

- * 2.2 Other publications.- The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issues in effect on date of invitation for bids or request for proposal, shall apply:

U. S. Department of Agriculture

Visual Aids for Inspection of Metal Containers.

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

U. S. Department of Health, Education, and Welfare

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder.

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

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Association of Official Agricultural Chemists

Official Methods of Analysis.

(Application for copies should be addressed to the Association of Official Analytical Chemists, Box 546, Benjamin Franklin Station, Washington, D.C. 20044.)

American Trucking Association, Inc.

National Motor Freight Classification Rules.

(Application for copies should be addressed to the American Trucking Association, Inc., 1616 P Street N.W., Washington, D.C. 20036.)

Uniform Classification Committee

Uniform Freight Classification Rules.

(Application for copies should be addressed to Uniform Classification Committee, 516 W. Jackson Blvd., Chicago, Ill. 60606.)

3. REQUIREMENTS

3.1 Material.- The product shall be prepared from the latest season's crop, unless otherwise specified, and shall be free from insects, insect fragments, diseases, or any foreign materials.

3.2 Types.- Types I and II corn shall not be mixed.

3.2.1 Type I.- The yellow type corn shall be yellow-kerneled corn and may contain not more than 2.0 percent, by weight, kernels of other colors.

3.2.2 Type II.- The white type corn shall be white-kerneled corn and may contain not more than 2.0 percent, by weight, kernels of other colors. White kernels having a slight tinge of light straw or pink color shall be considered as white corn.

3.3 Grades.-

- * 3.3.1 Fancy.- The product of this grade shall possess uniform characteristics and it shall contain not more than 1 percent, by weight, of broken, chipped, or split kernels, or kernels damaged by insects or disease. The moisture content shall be 13.5 plus 0.5 or minus 1.0 percent, when tested in accordance

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with 4.5.1, and the product shall have a popping value of not less than 1050 cubic inches per pound of raw corn for type I, and not less than 950 cubic inches per pound of raw corn for type II, when tested in accordance with 4.5.2.

- * 3.3.2 No. 1.- The product of this grade shall possess uniform characteristics, and it shall contain not more than 3 percent, by weight, of broken, chipped or split kernels, or kernels damaged by insects or disease. The moisture content shall be 13.5 plus 0.5 or minus 1.0 percent, when tested in accordance with 4.3.1, and the product shall have a popping value of not less than 950 cubic inches per pound of raw corn for type I and not less than 875 cubic inches per pound of raw corn for type II, when tested in accordance with 4.5.2.
- * 3.4 All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act, and Regulations Promulgated Thereunder.
- * 3.5 Workmanship.- The product shall be prepared, processed, and packaged under modern sanitary conditions and in accordance with good commercial practice. The product shall be processed in establishments meeting the requirements of MIL-STD-668.

4. QUALITY ASSURANCE PROVISIONS

- * 4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.
- * 4.2 Pre-acceptance inspection.- Product shall be rejected if produced in plants not meeting the requirements of MIL-STD-668.
- 4.3 Inspection.- Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.
- * 4.3.1 Component and material inspection.- In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document.

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4.3.1.1 Testing of component.- Testing of component (tin plate) described in this specification shall be as shown in table I. Requirement of the test characteristic is applicable to the lot average. The cans shall be rejected if test result indicates nonconformance to requirements.

★ TABLE I.- Testing of component

Component	Sample unit	Lot size expressed in	Inspection level	Characteristics	Results reported	Test ref. & requirement paragraph
Cans	1 can w/lid	Cans	S-1	Tin plate	Nearest 0.01 lb/ base box	5.1.1, 4.5.3

★ 4.3.1.1.1 Testing of label and external can coating.- Tests of label and external can coating (when required) shall be in accordance with the applicable quality assurance provisions of MIL-L-1497 and TI-C-495 respectively, except that the sampling plans shall not apply. The same cans submitted for tin plate test (table I) shall be utilized for these tests. One or more test failures shall indicate unacceptable cans and use of such shall be cause for rejection of the involved end item.

★ 4.3.2 Examination of end item.- Classification of defects found during examination shall be in accordance with tables II through V and 4.3.2.1 through 4.3.2.5. The inspection levels, sample units, and the acceptable quality levels (AQLs) for the above tables shall be as shown below. Lot sizes shall be expressed in terms of cans. The AQLs shall be expressed as defects per hundred units for tables II and IV, and percent defective for tables III and V.

Table	Inspection level	Sample unit	AQLs		
			Major	Minor	Total
II	I	1 filled and sealed can	1.5	-	4.0
III	S-3	1 filled and sealed can	-	2.5	-
IV	S-2	Contents of 1 can	2.5	-	-
V	S-3	1 filled and sealed can	2.5	-	-

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TABLE II.- External examination of cans 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
151		Hole.
152		Improperly closed.
153		Not type or style specified.
154		Severe dent
155		Dent causing sharp ridge.
	201	Moderate dent.
	202	Not clean. <u>2/</u> <u>3/</u>
156		Crack cut.
157		Pitted rust. <u>4/</u>

- 1/ Use Visual Aids for Inspection of Metal Containers as a guide for classifying can defects.
- 2/ Cans showing a very thin film of grease which is discernible to the touch but not readily discernible visually are considered to be clean.
- 3/ Applicable only when not in conflict with regulations referenced in 3.5.
- 4/ Rust that can be removed with a soft cloth will not be considered as pitted rust.

TABLE III.- Examination for net weight 1/ 2/

Category	Defect
<u>Minor</u>	
201	Net weight less than 9-1/2 ounces.

- 1/ Lot shall be rejected if sample data indicates lot average net weight is less than specified net weight.
- 2/ Calculate to nearest 1/8 ounce.

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TABLE IV.- Examination of product characteristics ^{1/}

Category	Defect
<u>Major</u>	
151	Not type specified.
152	Broken, chipped, split, damaged or diseased kernels: Fancy grade - more than 1 percent by weight. No. 1 grade - more than 3 percent by weight.

^{1/} Presence of foreign material, i.e., metal, wood, glass, filth, insects, insect fragments, etc., shall be cause for rejection of the lot.

TABLE V. Examination for leakage (see 4.5.4)

Category	Defect
<u>Major</u>	
151	Leakage.

4.3.2.1 Examination of can labeling.- Examination of cans for labeling shall be in accordance with the examination criteria of MIL-L-1497.

* 4.3.2.2 Examination of can coating.- When exterior coating of cans are required to be in accordance with TT-C-495, examination of can coating shall be in accordance with examination criteria of that specification.

* 4.3.2.3 Examination of shipping containers.- When shipping containers are required to be in accordance with PPP-C-636, examination of the filled and sealed shipping containers shall be in accordance with the examination criteria of that specification. In addition, the following defect shall be included in the table of examination: Major - Marking missing, incorrect, or illegible. Shipping containers for level C pack shall be examined in accordance with the aforementioned criteria except that only the defect for marking shall apply. Level A and B containers with more than 48 cans shall not be acceptable. Containers with round wire strapping intended for transfer at sea shall not be acceptable.

4.3.2.4 Examination for color.- The product shall be examined for color as specified in 3.2.1 and 3.2.2. The sample for examination shall be a 2-pound composite derived from the number of cans indicated by inspection level 5-2. Lot shall be rejected if examination indicates more than 2 percent kernels of other than specified color.

* 4.3.2.5 Examination of unit loads.- Unit loads shall be examined in accordance with the criteria of MIL-L-35078.

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4.3.3 Sampling procedure and acceptance criteria for testing of product.- The product shall be tested for moisture and popping value as specified in 3.3. Procedures for testing shall be in accordance with 4.5. The sample for testing shall be a 1-pound composite for each characteristic, derived equally from the number of cans indicated by inspection level S-2. Lot size shall be expressed in terms of cans. Test results for moisture shall be reported to the nearest 0.1 percent, and popping value to the nearest cubic inch. Lot shall be rejected if test results indicate nonconformance to one or both requirements.

4.4 Standby test samples.- The Government reserves the right to withdraw and withhold standby test samples of components or finished product or both (quantity of which shall be not more than twice that specified by this specification) for inspection purposes. Samples not used will be returned to the supplier.

4.5 Tests.- Test procedures and controls which differ from those specified herein, may be used by the supplier if they provide a quality assurance equivalent to that specified. If the Government inspection activity determines that such procedures and controls do not provide, as a minimum, such quality assurance, the supplier will use the test procedures set forth herein. In case of dispute as to test results, the test methods specified herein will govern.

4.5.1 Moisture determination.- Moisture determination shall be made by the vacuum-oven method as specified in Official Methods of Analysis of the Association of Official Agricultural Chemists, chapter: Grain and Stock Feeds, except that the samples shall be dried to constant weight (i.e., not more than 0.5 percent weight loss during consecutive weighings, two hours apart).

* 4.5.2 Popping value (volume test).-

Equipment: Weight volume tester, or any apparatus which will give equivalent results.

Transparent cylinder 4-1/2 inches in diameter, calibrated in cubic inches.

Thermometer reading to at least 500°F.

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Procedures:

1. Samples of popcorn shall be at a temperature of 70°F. \pm 5°F. before popping.
2. Pour 2 fluid ounces of coconut or peanut oil into popper and heat to 470°F. or until the oil begins to smoke at which time 150.0 grams of corn shall be added and the popper covered.
3. When the corn stops popping, pour popped corn into the graduated cylinder in such a manner that the kernels will flow in a steady stream to eliminate voids and clogging. Do not shake or jar the cylinder. Three popping tests shall be made on each sample and the average of the last two readings shall be recorded as the average volume. The popping value shall be calculated as indicated below to determine compliance with 3.3:

Popping value (cubic inches per pound of popped corn) = Average volume (cubic inches) of 150.0 grams of popped corn \times 3.024.

4.5.3 Tin coating weights.- Tin coating weights shall be determined by any method specified in PPP-C-96.

4.5.4 Leakage test.- The seams of the filled and closed cans shall be tested as follows: Submerge can in water contained in a vacuum desiccator, Mead tester, or an equivalent device and draw a vacuum of 10 inches for 30 seconds and observe for leakage. A leak is indicated by a steady progression of bubbles. Isolated bubbles that can be caused by the release of air entrapped in the double seam are not considered signs of leaks.

5. PREPARATION FOR DELIVERY

- * 5.1 Packaging.- The product shall be packaged in accordance with level A or C, as specified (see 6.1).
- * 5.1.1 Level A.- Ten ounces of the product shall be packaged in an open-top style, round, metal can, with soldered or cemented side seam and compound-lined, double-seamed ends. The can shall be made throughout from not less than commercial 0.25 pound per base box electrolytic tin plate (see 4.5.3). The cans shall be coated outside with a coating conforming to type I or II, or when specified (see 6.1), type III of TT-C-495. Cans shall be hermetically sealed and shall not show leakage when tested in accordance with 4.5.4.

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- * 5.1.2 Level C.- The product shall be packaged to afford adequate protection against damage and deterioration during shipment from the supply source to the first receiving activity. The supplier may use his standard practice when it meets these requirements.
- * 5.2 Packing.- The product packaged as specified in 5.1 shall be packed in accordance with level A, B, or C as specified (see 6.1).
- * 5.2.1 Level A.- Not more than 48 cans of the product shall be packed on end in a snug-fitting shipping container, constructed and closed in accordance with style RSC, V2s of PPP-B-636. When specified (see 6.1), the shipping container shall be reinforced in accordance with the appendix of PPP-B-636.
- * 5.2.2 Level B.- Not more than 48 cans of the product shall be packed on end in a snug-fitting shipping container constructed and closed in accordance with style RSC, type CF or SF, class domestic, method II closure of PPP-B-636.
- * 5.2.2.1 When specified (see 6.1 and 6.2), the container shall be a fiber-board box, constructed, closed and reinforced in accordance with style RSC, V3c or V3s of PPP-B-636. The shipping container material may also be grade V4s of PPP-F-320. For transfer at sea the shipping container shall be reinforced with other than round wire strapping in accordance with the appendix of PPP-B-636.
- * 5.2.3 Level C.- The shipping containers shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The container shall be in accordance with the Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.
- * 5.3 Unit loads.- The product packed as specified in 5.2 shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.1).
- 5.4 Labeling and marking.-
 - 5.4.1 Cans.- Cans shall be labeled in accordance with MIL-L-1497. In addition, applicable information pertaining to type and grade of product shall be included.
 - 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.

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6. NOTES

* 6.1 Ordering data.- Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Type and grade of product required (see 1.2).
- (c) Levels of packing and packing required (see 5.1 and 5.2).
- (d) When type III exterior can coating is required (see 5.1.1).
- (e) When packing specified in 5.2.2.1 is required.
- (f) When reinforcement is required for level A shipping containers (see 5.2.1).
- (g) Type and class of unit loads required (see 5.3).

* 6.2 Packing specified in 5.2.2.1 is intended to provide the limited military protection for specific operational requirements.

* 6.3 The margins of this specification are marked with an asterisk (*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and suppliers are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - GL
 Navy - SA
 Air Force - 45

Preparing activity:

Army - GL
 Project No. 8940-0157

Review activities:

Army - MD
 Navy - IIC, SA
 Air Force - 45
 DSA - SS