

EE-M-821H
July 21, 1975
SUPERSEDING
Fed. Spec. EE-M-821F
January 29, 1969 and
EE-M-00821G(Army-GL)
October 20, 1972

FEDERAL SPECIFICATION

MUSTARD, PREPARED

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. Prepared mustard covered by this specification shall be a ready-to-use paste product for use by agencies of the Federal Government.

1.2 Classification.

1.2.1 Types. Prepared mustard shall be of the following types, as specified (see 6.1):

- Type I - Light (also known as Salad style)
- Type II - Dark (also known as German style)

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:

Federal Specifications:

- | | | |
|-----------|---|---|
| EE-S-631 | - | Spices, Ground and Whole, and Spice Blends. |
| PPP-C-29 | - | Canned Subsistence Items, Packaging and Packing Of. |
| PPP-C-96 | - | Cans, Metal, 28 Gage and Lighter. |
| PPP-G-460 | - | Glass Containers, One Gallon Capacity and Smaller, For Other Than Medicinal Products; Packaging and Packing Of. |
| PPP-I-350 | - | Individual Servings of Subsistence: Packaging and Packing Of. |

FSC 8950

EE-M-821H

Federal Standard:

FED-STD-123 - Marking For Domestic Shipment (Civil agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specifications:

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

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.
MIL-STD-668 - Sanitary Standards for Food Plants.

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

LAWS AND REGULATIONS

US Department of Health, Education and Welfare

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

EE-M-821H

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

US Department of Agriculture

US Standard for Condition of Food Containers

(Application for copies should be addressed to the Information Division, Agricultural Marketing Service, US Department of Agriculture, Washington, DC 20250.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply:

Association of Official Analytical Chemists

Official Methods of Analysis of the Association of Official Analytical Chemists.

(Application for copies should be addressed to the Association of Official Analytical Chemists, Post Office Box 540, Benjamin Franklin Station, Washington, DC 20044.)

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

3. REQUIREMENTS

3.1 Materials. All material used shall be edible, clean, sound, and wholesome.

3.1.1 Yellow (white) mustard (Brassica hirta Moench). Yellow (white) mustard shall comply with EE-S-631.

3.1.2 Brown mustard, (Brassica juncea). Brown mustard seed shall comply with EE-S-631.

3.1.3 Vinegar. Vinegar giving the desired end product shall be used.

3.1.4 Sweetening agents. Sweetening agents shall be refined cane or beet sugar, dextrose, corn syrup solids, or combinations of two or more.

EE-M-821H

3.1.5 Salt. Salt shall be clean, white refined sodium chloride, with or without anti-caking agents. Iodized salt shall not be used.

3.1.6 Spices. Spices giving the desired end product shall be used.

3.2 Finished product. The type I, light mustard, shall be prepared from mustard seed derived from yellow (white) mustard *Brassica hirta* Moench together with vinegar, turmeric and with or without the addition of sweetening agents, salt, and spices. Type II, dark mustard, shall conform to type I except that it shall be prepared from a blend of brown mustard seed (*Brassica Juncea*), yellow mustard (*Brassica hirta* Moench), and with or without turmeric. Type I and type II mustard shall contain no added starch-bearing materials other than turmeric (alleppey type), ginger, and black pepper, shall be free of hulls in excess of natural seed content, and shall comply with the following requirements:

Total solids	Not less than 16.0 percent.
Titratable acidity	Not less than 3.0 and not more than 4.0 percent.
Salt	Not less than 3.0 and not more than 4.5 percent.
Crude fiber	Not more than 7.0 percent.
Protein	Not less than 3.8 percent.

3.2.1 Type I, light (salad type). Type I shall be a smooth prepared mustard colored yellow with turmeric and shall have a mild, mellow taste with little bite.

3.2.2 Type II, dark (German style). Type II shall be a prepared brown mustard with or without specks of brown mustard seed hull and having a pungent and warm taste.

3.3 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.

3.4 Workmanship. The product shall be prepared in accordance with part 128 of the Code of Federal Regulations, Title 21, Human Foods; Current Good Manufacturing Practice (sanitation) in manufacture, processing, packing or holding. In addition, for Military agencies the product shall be prepared in plants meeting the requirements of MIL-STD-668.

EE-M-821H

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 Preacceptance inspection (plant sanitation inspection).

4.2.1 Civil agencies. When specified (see 6.1), inspection of plants producing the product will be conducted upon request of the contracting officer to the appropriate Government inspection agency. Award of contracts will be limited to establishments known to maintain proper sanitary conditions (see 3.4) or which have received prior sanitary approval recommended by the inspection agency.

4.2.2 Military agencies. The product shall be rejected if produced in plants not meeting the requirements of 3.4.

4.3 Acceptance inspection.

4.3.1 Condition inspection of containers. When inspection of product for quality and condition is performed by the US Department of Agriculture, the United States Standards for Condition of Food Containers shall apply. For applicable criteria governing condition inspection of containers for military agencies see 4.3.4.

4.3.2 Sampling for inspection. Sampling for inspection and acceptance shall be performed in accordance with MIL-STD-105, except as otherwise indicated herein.

4.3.3 Component and material inspection. In accordance with 4.1 components and materials shall be inspected 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.

4.3.3.1 Examination of whole mustard seed. Examination of mustard seed shall be in accordance with the quality assurance provisions for the examination of the product as contained in EE-S-631, except that the sample unit for the examination of whole yellow (white) mustard seed for extraneous vegetable matter, weed seeds, and cockle shall be 8 ounces (227 g) from a primary container.

EE-M-821H

4.3.3.2 Examination of sugar, vinegar, salt, sweetening agents, and spices. Examination shall be performed organoleptically as necessary on each ingredient to determine conformance to 3.1. The sample unit shall be approximately one pound (.45 kg) (1 pint (473 ml) vinegar) of ingredient extracted from a primary container. Five sample units shall be examined. In the event a lot consists of less than five containers, each container in the lot shall be sampled. In addition, labels, invoices, or other valid documents pertaining to sweetening agents and salt shall be examined to determine conformance to identity (kind) requirements of 3.1.4 and 3.1.5. A nonconformance with condition or identity requirements shall indicate an unacceptable ingredient and use of such shall be cause for rejection of the involved finished product.

4.3.3.3 Jar caps. A sample of ten jar caps shall be examined to determine conformance to 5.1.2 as concerns presence of interior enamel, cap, liners and coating on liners. The lot of caps shall not be acceptable if one or more of the sample caps is not enameled on the inside, does not have a paperboard liner or if scraping of the liners with the fingernail does not remove wax. In addition, caps shall be tested for tinplate in accordance with 4.5.2. Test requirements shall be an average requirement. The sample for testing shall be eight caps. Lot size shall be expressed in caps. Lot shall not be acceptable if test results indicate a lot average of less than commercial 0.50/0.25-pound electrolytic tinplate.

4.3.4 Examination of end item. Examinations shall be in accordance with tables II through IV and 4.3.4.1 through 4.3.4.5. Sampling plans for the aforementioned tables shall be in accordance with table I. Acceptable quality levels (AQLs) shall be expressed as percent defective for table II and defects per hundred units for table III and IV.

TABLE I. Sampling plans

Table	Sample unit	Lot size expressed in	Inspection level	AQLs	
				Major	Minor
II	One filled can or jar	Cans or jars	S-3		2.5
III	One filled pouch	Pouches	S-3	0.65	
IV	8 ounces (227 g) from a can or jar, or contents of one single service container	Primary containers	S-2	1.0	

EE-M-821H

TABLE II. Examination of net volume or weights (cans and jars) 1/

Category	Defect
<u>Minor</u>	
201	More than two percent under specified net volume or weight (containers required to have volume measure or more than one pound) (.45 kg).
202	More than five percent under specified net weight (containers required to have one pound (.45 kg) or less).

1/ Report results to nearest 1/16 ounce or nearest gram, for containers of one pound (.45 kg) or less; nearest 1/4 fluid ounce or nearest 7.5 ml. units for one gallon (3.8 liter) containers; and nearest 1/4 ounce or nearest gram for all other containers. Lot shall be rejected if sample data indicate a lot average net weight less than specified net weight.

TABLE III. Examination for leakage and delamination of pouches 1/

Category	Defect
<u>Major</u>	
101	Leakage
102	Delamination <u>2/</u>

1/ See PPP-I-350 for procedure.

2/ Examine after removing from water.

EE-M-821H

TABLE IV. Examination of product 1/

Category	Defect
<u>Major</u>	
101	Type I - Not smooth in consistency
102	Type I - Excessive bite (not a mild and mellow taste)
103	Type II - Not a pungent warm taste

1/ Presence of foreign material (e.g., glass, wood, metal, insects, filth, etc.) shall be cause for rejection of the finished product. Wash product through a US Standard No. 70 sieve and examine residue on screen for foreign material.

4.3.4.1 Examination of primary containers. Examination of primary containers for condition and labeling shall be in accordance with the United States Standard for Condition of Food Containers. Plastic jars and individual serving containers shall be examined for the applicable defects contained in the examination of glass containers and flexible containers, respectively. In addition, examination of cans for seam leakage and interior coatings shall be in accordance with the applicable quality assurance provisions of PPP-C-29.

4.3.4.2 Examination for packaging and packing of individual service packages and intermediate cartons. Examinations shall be in accordance with the applicable quality assurance provisions of PPP-I-350, as concerns net weight, count, and arrangement of unit and intermediate containers, closure of intermediate cartons and fiberboard boxes. In addition, the following defect shall be included in the examination of the shipping container: Major - Required markings missing, incorrect or illegible. For level C shipping containers, only the defect for markings shall apply.

4.3.4.3 Examination of packing and shipping containers for cans. Examinations shall be in accordance with the applicable quality assurance provisions of PPP-C-29 pertinent to packing and shipping containers.

4.3.4.4 Examination of packing and shipping containers for glass and plastic containers. Examinations shall be in accordance with the quality assurance provisions for the end item as contained in PPP-G-460. For level B pack of plastic containers, the following defect shall be included in the examination as pertinent to shells: Major: Fluting of shells not parallel to depth dimension of shipping containers. In addition, shipping containers containing plastic jars shall not be acceptable if the inside height dimensions of the shipping container is not 1/8 inch (3 mm) greater than the height of the closed jar.

EE-M-821H

4.3.4.5 Examination of unit loads. When loads are required to be unitized in accordance with MIL-L-35078, examinations of such loads shall be in accordance with the quality assurance provisions of that specification.

4.4 Testing of finished product. The product shall be tested for total solids, acidity, crude fiber, salt, and protein in accordance with 4.5. The sample for testing shall be approximately a 1/2-pound (.23 kg) composite derived from the number of primary containers indicated by inspection level S-2 for cans and jars and S-3 for individual servings. Lot size shall be expressed in terms of the primary container. Results shall be reported to the nearest 0.1 percent by weight. One or more test failures shall be cause for rejection of the lot.

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 contracting officer 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 Chemical analyses. Chemical analyses shall be made in accordance with the following methods from Official Methods of Analysis of the Association of Official Analytical Chemists:

<u>TEST</u>	<u>SOURCE</u>	<u>METHOD</u>
Protein	Chapter: Spices and other Condiments Section: Prepared Mustard	Total Nitrogen-1/
Crude Fiber	" "	Crude Fiber
Total solids	" "	Total solids-
Titratable acidity	" "	Titratable acidity
Salt, as NaCl	" "	Total Chlorides

1/ Percent protein = percent N X 6.25.

4.5.2 Tin coating weight. Tin coating weight of jar caps shall be determined by any method described in PPP-C-96.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Prepared mustard shall be packaged in accordance with 5.1.1, 5.1.2 or 5.1.3, as specified (see 6.1). The following minus tolerances will be allowed in any individual can or jar provided the average net volume or weight

EE-M-821H

of the containers, examined in accordance with table II, is not less than the net volume or weight specified in PPP-C-29 or 5.1.2, as applicable: two percent for one-gallon (3.8 liter) jars or containers over one pound (.45 kg); five percent for containers of one pound (.45 kg) or less.

5.1.1 Cans, level A or C. Prepared mustard shall be packaged in cans in accordance with the level A or C requirements of PPP-C-29, as specified (see 6.1).

5.1.2 Level B.

5.1.2.1 Glass jars. Eight ounces (227 g), 2 pounds (0.9 kg), or one gallon (3.8 liters) of prepared mustard, as specified (see 6.1), shall be packaged in a glass jar which will afford adequate protection against deterioration during shipment from the supply source to the first consumer activity, except that the jar shall be closed with a cap made from commercial 0.50/0.25 pound electrolytic tinplate per base box coated outside with a corrosion-resistant lacquer or enamel and coated inside with an enamel furnished by the manufacturer in accordance with the best commercial practice for the product. The cap shall be lined with a paperboard disc that has been coated on the product side with wax of sufficient thickness so that it can be detected by scraping the fingernail over the surface. Alternatively, the inside of the cap shall have a suitable sealing compound to effect a hermetic closure.

5.1.2.2 Plastic jars. When specified (see 6.1) one gallon (3.8 liters) of mustard shall be packaged in a plastic jar made from high density polyethylene or acrylic multipolymer, except that the jar shall be closed with a cap made from commercial 0.50/0.25 pound electrolytic tinplate coated outside with a corrosion-resistant lacquer or enamel furnished by the manufacturer in accordance with the best commercial practice for the product. The cap shall be lined with a paperboard disc that has been coated on the product side with wax of sufficient thickness so that it can be detected by scraping the fingernail over the surface. Alternatively, the inside of the cap shall have a suitable sealing compound to effect a hermetic seal.

5.1.3 Individual servings, levels B and C. Individual servings of 1/3 (9 g) or 1/4 (7 g) ounce as specified (see 6.1), of type I prepared mustard shall be packaged in accordance with the level B or C requirements of PPP-I-350, as specified (see 6.1).

5.2 Packing. Prepared mustard shall be packed in accordance with 5.2.1, 5.2.2, 5.2.3 or 5.2.4, as applicable.

5.2.1 Cans, levels A, B, or C. Cans of prepared mustard shall be packed in accordance with the level A, B, or C requirements of PPP-C-29, as specified (see 6.1).

EE-M-821H

5.2.2 Glass jars, level B or C. Glass jars of prepared mustard shall be packed in accordance with the level B or C requirements of PPP-G-460, as specified (see 6.1).

5.2.3 Plastic jars (levels B or C) (applicable to one-gallon (3.8 liters) capacity only). Plastic jars shall be packed in accordance with level B or C requirements of PPP-G-460 as specified (see 6.1) except that the level B requirement shall be modified as follows:

(a) The shipping container shall be constructed from not less than 275-pound (124.7 kg) test fiberboard. The depth of the shipping container shall be 1/8-inch (3 mm) greater than the height of the bottle equipped with closure.

(b) The plastic jars shall be inclosed in a double-wall or double-wrap-around corrugated fiberboard scored shell. The direction of flutes in the interior packing materials shall be parallel to the depth dimension of the shipping container. The interior packing shall extend the full height of the shipping container.

(c) Top and bottom pads and special shipping container marking applicable to glass container shall be omitted.

5.2.4 Individual servings, level B or C. Individual servings of prepared mustard shall be packed in accordance with the level B or C requirements of PPP-I-350, as specified (see 6.1).

5.3 Unit loads. Prepared mustard, packed as specified in 5.2, shall be prepared in unit loads in accordance with MIL-L-35078 for the type and class load specified (see 6.1).

5.4 Labeling and marking.

5.4.1 Civil agencies.

5.4.1.1 Unit packages. Unless otherwise specified, unit packages shall be labeled in accordance with the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

5.4.1.2 Shipping containers. Shipping containers shall be marked in accordance with FED-STD-123 and, when applicable, PPP-I-350.

5.4.2 Military agencies.

5.4.2.1 Unit packages.

5.4.2.1.1 Cans. Cans shall be labeled in accordance with MIL-L-1497.

EE-M-821H

5.4.2.1.2 Glass and plastic jars and individual servings. Glass and plastic jars and individual servings shall be labeled in accordance with 5.4.1.1.

5.4.2.2 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129 and, when applicable, PPP-I-350.

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

6. NOTES

6.1 Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type of product required (see 1.2).
- (c) When preacceptance sanitation inspection is required for civil agencies (see 4.2.1).
- (d) Type of packing required (see 5.1).
- (e) Level of packaging required (see 5.1.1 and 5.1.3).
- (f) Size of jar required (see 5.1.2).
- (g) When plastic jars are required (see 5.1.2.2).
- (h) Whether 1/3 (9 g) or 1/4 (7 g) oz. individual servings are required (see 5.1.3).
- (i) Level of packing required (see 5.2).
- (j) Type and class of unit load when unit loads are specified (see 5.3).

6.2 Destination inspection (for civil agencies only). When the finished product has been inspected and passed at point other than destination, the contract should require that the product be inspected at destination for condition and quantity only.

6.3 (For Military agencies only). Based on the conditions known or expected to be encountered during shipment, handling and storage of the specific item being procured, the contracting officer should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.14D/DSAR 4145.7.

EE-M-821R

Custodians:

Army - GL
Navy - SA
Air Force - 45

Review activities:

Army - MD
Navy - MS
DP - SS

Preparing activity:

Army - GL

Civil Agency Coordinating Activities:

VA - DMS
ACRI - AMS
HEW - FDA, NIH
GSA - FSS

Project No. 8950-0234

☆ U. S. GOVERNMENT PRINTING OFFICE: 1977-703-020/798

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 40 cents each.

FOLD

POSTAGE AND FEES PAID



OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

Commander
US Army Natick Research and Development Command
ATTN: DRXNM-TD
Natick, MA 01760

FOLD

S/N 0102-014-1802