

EE-B-25D
November 18, 1977
 SUPERSEDING
 Fed. Spec. EE-B-25C
 March 21, 1967

FEDERAL SPECIFICATION

BAKING POWDER

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. This specification covers the requirements for baking powder.

1.2 Classification. The baking powder shall be of the following types, as specified (see 6.1).

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| Type I | - S.A.S. (sodium-aluminum-sulfate) and orthophosphate (combination type). |
| Type II | - Pyrophosphate (sodium-acid pyrophosphate). |
| Type III | - Orthophosphate (monocalcium phosphate) and Pyrophosphate (sodium acid pyrophosphate) or Sodium Aluminum Phosphate and Sodium Acid Pyrophosphate, or a combination thereof. |
| Type IV | - Orthophosphate (monocalcium phosphate) or Sodium Aluminum Phosphate, or a combination thereof. |
| Type V | - Tartaric acid or tartaric acid salts (or both). |

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 Specification:

- PPP-C-29 - Canned Subsistence Items, Packaging and Packing of.

Federal Standard:

- FED-STD-123 - Marking for Shipment (Civil Agencies).

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(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, U.S. 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 Military 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.)

LAWS AND REGULATIONS

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

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

(Copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

U.S. Department of Agriculture

Part 128 of the Code of Federal Regulations Title 21

United States Standards for Condition of Food Containers

(Application for copies should be addressed to the Technical Services Division, Food Safety and Quality Service, U.S. 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.)

The United States Pharmacopoeial Convention, Inc.

Pharmacopoeia of the United States

(Application for copies should be addressed to the U.S. Pharmacopoeial Convention, Inc., 46 Park Avenue, New York, NY 10016.)

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

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National Research Council

Food Chemicals Codex (F.C.C.)

(Application for copies should be addressed to the Office of Director, National Academy of Sciences, National Research Council, 2101 Constitution Avenue, N.W., Washington, DC 20418.)

(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 Material. Baking powder shall be manufactured from clean, white, free-flowing, highly purified, food grade materials and shall be comprised of acid reactive materials, sodium bicarbonate and cornstarch having a moisture content of not more than 5 percent, unless otherwise specified for Civil agencies (see 6.1). Precipitated calcium carbonate may be used in lieu of cornstarch, but it shall not replace more than 67 percent, by weight, of the cornstarch. Edible modifiers such as calcium lactate or calcium silicate may be used. Materials shall meet the standards prescribed by the Food Chemicals Codex.

3.2 Description of types.

3.2.1 Type I, S.A.S. and orthophosphate. The acid-reacting components shall be mixtures of calcined sodium-aluminum-sulfate and monocalcium orthophosphate (monocalcium phosphate). The available carbon dioxide shall be not less than 12 percent, by weight, of the baking powder. Type I baking powder may, at the manufacturer's option, contain either U.S.P. quality precipitated calcium carbonate or calcium sulphate. If calcium sulfate is used it shall not replace more than 35.0 percent, by weight, of the cornstarch filler.

3.2.2 Type II, pyrophosphate. The acid-reacting component shall be sodium-acid pyrophosphate. The available carbon dioxide shall be not less than 15 percent, by weight, of the baking powder.

3.2.3 Type III, orthophosphate and pyrophosphate. The acid-reacting components shall be monocalcium orthophosphate (monocalcium phosphate) or sodium aluminum phosphate, and sodium acid pyrophosphate or a combination thereof. The available carbon dioxide shall be not less than 13 percent, by weight, of the baking powder.

3.2.4 Type IV, orthophosphate. The acid-reacting component shall be monocalcium orthophosphate (monocalcium phosphate) or sodium aluminum phosphate, with or without a mixture of dicalcium orthophosphate or a combination thereof. The available carbon dioxide shall be not less than 12 percent by weight, of the baking powder.

3.2.5 Type V, tartaric acid or tartaric acid salts (or both). The acid-reacting component shall be tartaric acid or cream of tartar (potassium bitartrate) (or both). The available carbon dioxide shall be not less than 12 percent, by weight, of the baking powder.

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. For Civil agencies, the product shall be prepared in accordance with part 128 of the Code of Federal Regulations, Title 21, Human Foods; Current Good Manufacturing Practices (Sanitation) in Manufacturing, Processing, Packing or Holding. For Military agencies, 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 (plant sanitation inspection).

4.2.1 For 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 or which have received prior sanitary approval recommended by the inspection agency (see 3.4).

4.2.2 For 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 U.S. Department of Agriculture, the United States Standards for Condition of Food Containers shall apply. (For applicable criteria governing inspection of containers for the Military (see 4.3.5).

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

4.3.3 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with 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 Testing of cornstarch. Cornstarch shall be tested for moisture content in accordance with 4.5.1. The sample for testing shall be a 1-pound (.45 kg) composite derived from five primary containers. In the event a lot consists of less than five containers, the sample shall be derived from all containers in the lot. Test result shall be reported to nearest percent. A result of more than 5 percent shall indicate unacceptable cornstarch and use of such shall be cause for rejection of the involved finished product.

4.3.4 In-process examination. Examination shall be performed during the formulation of the product to determine conformance with requirements as concern kinds and amounts of material, as applicable. Formulation records shall be maintained. Nonconformance shall be cause for rejection of the involved finished product.

4.3.5 Examination of end item. Examination of end item shall be in accordance with tables II and III and 4.3.5.1 thru 4.3.5.4. The sampling plans and acceptance criteria for the aforementioned tables shall be in accordance with table I. Acceptable Quality Levels (AQLs) shall be expressed in defects per hundred units.

TABLE I. Sampling plans and AQLs

Table	Sample unit	Lot size expressed in	Inspection level	AQLs	
				Major	Minor
II	One primary container	Primary containers	S-3	-	2.5
III	One primary container	Primary containers	S-2	1.5	-

TABLE II. Examination for net weight 1/ 2/

<u>Category</u>	<u>Defect</u>
<u>Minor</u>	
201	Net weight more than 5 percent under specified net weight.

1/ Report results to nearest 1/4 ounce (7 g).

2/ Lot shall be rejected if sample data indicate lot average net weight is less than specified net weight.

TABLE III. Examination of product 1/

<u>Category</u>	<u>Defect</u>
<u>Major</u>	
151	Not free flowing.
152	Not white.

1/ Presence of foreign material, i.e., filth, metal, glass, wood, etc., shall be cause for rejection of the lot.

4.3.5.1 Examination of cans. Examination of cans for external condition, external coating of cans (when required), and seam leakage shall be in accordance with the criteria in PPP-C-29.

4.3.5.2 Examination of shipping container. Examination of shipping containers shall be in accordance with the applicable examination criteria contained in PPP-C-29.

4.3.5.3 Examination of can label (Military agencies). Examination of can label shall be in accordance with the examination criteria in MIL-L-1497.

4.3.5.4 Examination of unit loads (Military). Unit loads shall be examined in accordance with the quality assurance provisions of MIL-L-35078.

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4.4 Testing of finished product. The finished product shall be tested for available carbon dioxide in accordance with 4.5.1. The sample for testing shall be a 1 pound (0.45 kg) composite of product derived from the number of primary containers indicated by inspection level S-2. Lot size shall be expressed in terms of the primary containers. Test results shall be reported to nearest whole percent and lot shall be rejected if test results indicate nonconformance with the applicable requirement.

4.5 Tests.

4.5.1 Chemical analysis. Chemical analysis, when required, shall be made in accordance with the following method in Official Methods of Analysis of the Association of Official Analytical Chemists.

<u>Test</u>	<u>Source</u>	<u>Method</u>
Carbon dioxide	Chapter: Baking Powders and Baking Chemicals	Available CO ₂
Cornstarch	Chapter: Cereal Foods	Total Solids (Moisture, Indirect Method)
Moisture	Section: Wheat Flour	Vacuum Oven

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C as specified (see 6.1).

5.1.1 Level A. One pound (0.45 kg) baking powder shall be packaged in accordance with the level A requirements of PPP-C-29.

5.1.2 Level C. One pound (0.45 kg) baking powder shall be packaged in accordance with the level C requirements of PPP-C-29.

5.1.2.1 Civilian agency procurement. When specified for Civilian agency procurement (see 6.1), the baking powder shall be packaged in a slip cover can normally used for the product.

5.2 Packing. The baking powder shall be packed in accordance with 5.2.1 or 5.2.2 as applicable.

5.2.1 One pound (0.45 kg) cans, levels A, B and C. One pound (0.45 kg) cans of baking powder, of one type only, shall be packed in accordance with level A, B or C requirements of PPP-C-29, as specified (see 6.1).

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5.2.2 Slip cover cans, level C. Slip cover cans of baking powder shall be packed in accordance with the Uniform Freight Classification or National Motor Freight Classification, as applicable.

5.3 Unit loads (Military agencies). When specified (see 6.1), the product, packed as specified in 5.2.1, shall be arranged in unit loads in accordance with MIL-L-35078 for type and class of load specified.

5.4 Labeling and marking.

5.4.1 Civil agencies.

5.4.1.1 Unit containers. Any commercial labeling, and additional labeling as specified, that complies with the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder is acceptable.

5.4.1.2 Shipping containers. Shipping containers shall be marked in accordance with the requirements of FED-STD-123, and such other information as specified by individual agencies.

5.4.2 Military agencies.

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

5.4.2.2 Shipping containers. In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129.

5.4.2.3 Unit loads. Unit loads shall be marked in accordance with the provisions of 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 cornstarch having a moisture content of other than 5 percent is required (applicable to Civil agencies only) (see 3.1).
- (d) When pre-acceptance inspection is required by Civil agencies (see 4.2.1).
- (e) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).
- (f) When level B packaging is required for Civil agency procurement, the level A requirements in 5.1.1 shall apply.
- (g) When baking powder is to be packaged in slip cover cans (see 5.1.2.1).
- (h) When unit loads are required (see 5.3).

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6.2 Based on the conditions known or expected to be encountered during shipping, 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 71-6MC 4030.14D/DSAR 4145.7.

6.3 Supplier's inspection. The supplier should be required to assure that the product conforms with the specification prior to submission to the Government for final inspection.

6.4 Destination inspection (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.

Custodians:

Army - GL
Navy - SA
Air Force - 45

Review activities:

Army - MD
Navy - MC, MS
DP - SS

Preparing activity:

Army - GL

Civil Agency Coordinating Activities:

GSA - FSS
HEW - FDA
VA - DMS

Project No. 8950-0150

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 70 cents each.