

December 9, 1986

COMMERCIAL ITEM DESCRIPTION

STARCHES, EDIBLE

The U.S. Department of Agriculture has authorized the use of this Commercial Item Description in preference to Federal Specification N-C-541.

Salient characteristics.

Type I - Starch, corn. Type I corn starch shall be a pure, unmodified, pulverized, white, free flowing powder derived from dent corn (maize). On heating, it shall thicken just prior to boiling. It shall possess a bland to slight corn cereal flavor, characteristic of maize.

Type II - Starch, pregelatinized, modified. Modified, pregelatinized starch shall be white, free flowing, waxy maize food starch. It shall be practically free of birefringent granules, with little or no granule fragmentation and will produce a cold water viscosity. It shall not show consistency losses at high cooking temperatures and pH of 3.5 to 4.2.

Type III - Starch, modified. The starch shall be white, free flowing, odorless, and finely pulverized. The starch shall be a modified waxy maize starch requiring cooking to gelatinize. The starch shall demonstrate initial viscosity development in the temperature range of 140° to 170°F and a typical viscosity (be fully hydrated) at common retort temperatures. The starch shall resist breakdown at low pH, under shear stress, and under conditions of cold storage. Fruit fillings and sauce prepared with this thickener shall have good clarity and a smooth stable texture and body.

Analytical requirements. When tested in accordance with methods as prescribed in Official Methods of the Association of Official Analytical Chemists (AOAC), the starches shall adhere to the requirements in Table I.

TABLE I. Chemical and physical requirements.

Type	Minimum percent starch	Maximum percent moisture	Particle size <u>l/</u>
I	85	14	90 percent through No. 100 Sieve
II	88	10	95 percent through No. 80 Sieve
III	85	14	90 percent through No. 100 Sieve

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

A-A-20064

1/ Minimum (percent) through U.S. Standard sieve.

Viscosity Test for Type II Starch. When required, the apparent viscosity of Type II starch shall be determined using the Bostwick method. The readings shall be not less than 3.0 or more than 7.5 centimeters. The viscosity test shall be run after the starch is prepared as follows:

a. Weigh 170 grams of sugar and 27 grams of starch into a bowl of an electrically-operated mixer. Set at 200 rpm speed, using regular mixer blade. Mix sugar and starch until well blended.

b. Add 100 mL of distilled water at 77°F and mix 30 seconds more at a speed of 200 rpm.

c. Add 200 mL of distilled water (77°F) with sufficient citric acid solution (10 percent w/v) to adjust pH to 3.5 ± 0.1 .

d. Transfer the paste to a 600 mL pyrex beaker, cover with aluminum foil and place in oven at 425°F for 20 minutes.

e. Remove from oven and measure distance of flow (in centimeters) in 30 seconds, in a Bostwick consistometer at $170^\circ\text{F} \pm 2^\circ\text{F}$.

Contractor's certification.

By submitting an offer, the contractor certifies that the product offered meets the specified salient characteristics and requirements of this Commercial Item Description (CID); conforms to the producer's own specifications and standards including product characteristics, manufacturing procedures, quality control procedures, and storage and handling practices; has a national or regional distribution from storage facilities located within the United States, its territories, or possessions; and is sold on the commercial market. The Government reserves the right to determine proof of such conformance prior to the first delivery from point of origin and any time thereafter, up to and including delivery at final destination, as may be necessary to determine conformance with the provisions of the contract.

Regulatory requirements.

The delivered product shall comply with all applicable Federal and State mandatory requirements and regulations relating to the preparation, packaging, labeling, storage, distribution, and sales of the product in the commercial marketplace. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

Quality assurance.

When required in the solicitation, contract, or purchase order, the Federal Grain Inspection Service (FGIS), U.S. Department of Agriculture, will determine the quality assurance of the edible starches according to FGIS procedures. The product shall be examined and/or analyzed in accordance with applicable provisions in the CID, and when applicable, the United States Standards for Condition of Food Containers currently in effect on the date of the solicitation.

Preservation, packaging, packing, labeling, and marking.

The starches shall be preserved, packaged, packed, and case marked in accordance with good commercial practice. Commercial labeling and packaging, as may be augmented by the contract or purchase order, shall be acceptable. Shipping containers shall comply with National Motor Freight or Uniform Freight Classification, as applicable.

For Department of Defense procurements.

The following requirements are applicable when specified by the contracting officer:

A. **Commercial packaging:** The product shall be packaged in accordance with (1) and (2):

(1) **Type I.** One pound of product shall be packaged in a box in accordance with good commercial practice.

(2) **Type II.** Four pounds of product shall be packaged in a 603 by 700 size metal can in accordance with good commercial practice.

B. **Commercial packing.** The product shall be packed in accordance with (1) or (2):

(1) **One-pound and four-pound packages.** Twenty-four 1-pound packages of Type I or six 4-pound cans of Type II product shall be packed in fiberboard containers complying with Uniform Freight Classification or National Motor Freight Classification, as applicable, except metal fasteners shall not be used in the final closure of fiberboard boxes.

(2) **Fifty-pound packs.** Fifty pounds of Type II or Type III product shall be packed in a multiwall paper shipping sack in accordance with commercial practice.

A-A-20064

C. Export packaging. The product shall be packed in accordance with (1) and (2):

(1) Type I. One pound of product shall be packaged in a box in accordance with commercial practice.

(2) Type II. Four pounds of product shall be packaged in a 603 by 700 size can. The can shall be an open top style, round with a soldered or welded side seam and compound-lined double-seamed ends. The can shall be made throughout from not less than 0.25 pound per base box electrolytic tin plate. The can shall have a sufficient base plate weight and temper to protect the product during shipment and storage. The can shall be coated overall on the outside with a coating conforming to Type I or, when specified, Type III of TT-C-495. Each can shall be hermetically sealed.

D. Export packing. The product shall be packed in accordance with (1) or (2):

(1) One-pound and four-pound packages. Twenty-four 1-pound packages of Type I or six 4-pound cans of Type II product shall be packed in a snug-fitting fiberboard box, constructed and closed in accordance with Style RSC, Grade V3c, V3s, or V4s of PPP-B-636. Each box packed with 1-pound packages shall have the contents enclosed in a waterproof case liner, fabricated and sealed in accordance with MIL-L-10547 for subsistence items. Exposed metal fasteners on the inside of the shipping container shall be covered with pressure-sensitive tape or paperboard pads to protect the case liner from mechanical damage. Alternatively, 1-pound packages commercially packed in fiberboard boxes, shall be overpacked in the box heretofore specified. Prior to overpacking, the commercial pack shall be enclosed in the waterproof case liner heretofore specified. Each fiberboard box shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive, filament-reinforced tape in accordance with the appendix of PPP-B-636.

(2) Fifty-pound packs. Fifty pounds of Type II or Type III product shall be packed in a multiwall paper shipping sack, fabricated and closed in accordance with Type I, Style B, Type II, Style A, or Type VI, Style B, Sack construction No. 4 or 4X, MB Grade 1, of UU-S-48.

E. Unit loads (commercial and export). Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078. When unit loads are strapped, the strapping shall be limited to nonmetallic strapping; except for Type II, Class F loads.

F. Labeling (commercial and export). Labeling of interior packages shall be in accordance with good commercial practice.

G. Marking (commercial and export). Marking of shipping container and unit load shall be in accordance with MIL-STD-129.

Notes.

Sources of documents:

Sources of information for nongovernmental documents are as follows:

Association of Official Analytical Chemists
1111 North 19th Street, Suite 210
Arlington, VA 22209

National Motor Freight Traffic Association, Inc., Agent
National Motor Freight Classification
American Trucking Associations, Inc., Traffic Department
2200 Mill Road
Alexandria, VA 22314

Uniform Classification Committee, Agent
Uniform Freight Classification
Uniform Classification Committee, Suite 1106
222 South Riverside Plaza
Chicago, IL 60606

Sources of information for governmental documents are as follows:

Applicable provisions of the Federal Food, Drug, and Cosmetic Act are contained in 21 CFR Parts 1 to 199. This three-volume set may be purchased from:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

Civil agencies may obtain copies of this Commercial Item Description from:

General Services Administration
Specifications Unit (WFCIS)
Room 6039
7th and D Streets, SW
Washington, DC 20407

Military activities should submit request for copies of this CID to:

Naval Publications and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120

A-A-20064

Comments and suggestions.

Comments and suggestions regarding this Commercial Item Description may be submitted to:

U.S. Army Natick Research,
Development and Engineering Center
ATTN: STRNC-ESS
Natick, MA 01760-5014

MILITARY INTERESTS:

Custodians

Army - GL
Navy - SA
Air Force - 50

Review Activities

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

CIVIL AGENCY COORDINATING ACTIVITIES:

DOJ - BOP
HHS - FDA, NIH
USDA - MRD
VA - OSS

PREPARING ACTIVITY:

Army - GL

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