

A-A-2581  
May 4, 1988

# COMMERCIAL ITEM DESCRIPTION

## PLATE, EATING (Polystyrene, Disposable)

The General Services Administration has authorized the use of this commercial item description.

This commercial item description covers disposable, round 10-1/4 inch diameter, three compartmented polystyrene plates.

### Salient characteristics.

Disposable plates shall be manufactured and treated by such processes to insure compliance with the requirements of this description. The raw materials and finished plates shall conform to the applicable requirements of the Federal Food, Drug and Cosmetic Act as Amended: Title 21, CFR Subchapter B, Parts 170 to 199.

Disposable plates shall be available in the following types as specified:

TYPES: I - Polystyrene foam with laminated polystyrene overlay  
 II - Solid polystyrene

Each type plate rim may be embossed, fluted, or otherwise embellished provided the feature does not prevent nesting. Each type plate shall lie flat and shall not tip, tilt, or rock when placed on a hard, flat, smooth surface.

<u>Characteristic</u>	<u>Requirement</u>
RIGIDITY (1/2 inch deflection)	250 grams, minimum
COMPARTMENTS	Three - one large, covering a minimum of 45 percent of eating surface, and the other two of approximately equal size
FOOD SURFACE AREA	60 percent of total area, minimum
Food Surface Area - The food surface area is defined as the area of a horizontal plane located at a distance above the bottom surface of the plate equal to 2/3 of the inside depth of the plate.	
SIZE	10-1/4 inches, + 1/2 inch, - 1/4 inch
ROUNDNESS	The diameter shall not vary more than 1/16 inch when measured between the outside rim edges at any location

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INSIDE DEPTH	7/8 inch, <u>±</u> 1/4 inch
RIB HEIGHT	55 percent of plate depth minimum
COLOR	White
REFLECTANCE	71 minimum, average of three plates, measured in accordance with ASTM E97

The plate shall show no evidence of penetration by the mixture of heated corn oil and sand after exposure for a minimum of 30 minutes. The plate shall show no evidence of delamination after exposure to hot distilled water for a minimum of 30 minutes. The water previously used in the water resistance test shall not have an "objectionable" odor or taste after standing in a flask for two hours and compared to a control sample of distilled water which has been contained in a similar flask for 2 hours.

Workmanship. The base material shall be protected from contamination during and after processing. Finished plates shall be free from holes, tears, wrinkles, cracks, rough edges and foreign matter according to present industry standards. The plates shall be free from defects which affect serviceability, durability or appearance. The foam plastic plates shall show no signs of film delamination or air bubbles.

#### Quality Assurance:

Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor 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 that supplies and services conform to prescribed requirements.

Inspection of the end item: Sampling shall be in accordance with MIL-STD-105, Sampling Procedures and Tables for Inspection by Attributes. The lot size, for purposes of determining the sample size in accordance with MIL-STD-105, shall be expressed in units of 500 plates of the same type, class, form and style offered for inspection at one time. The sample unit shall be one plate except where noted otherwise.

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Examination for visual and dimensional defects. The sample unit for this examination shall be one plate. The plate shall be examined for defects in accordance with Table I. Both sides of the plate shall be examined. The inspection level shall be S-4 and the AQL shall be 2.5 expressed in defects per hundred units.

TABLE I. Visual and dimensional defects

Examine	Defects
Color	Not white, or not color specified, when applicable
Appearance	Not clean: presence of slime spots, grease, oil, foreign matter, dust, dirt, or finger marks. Finish not pressed, or uniformly smooth.
Workmanship	Any hole, wrinkle, tear, cut, crack, scuffed, or buckled area. Any delamination (laminated plates only), blister, distortion, malformation or warpage. Rough edges.
Construction	Not type specified. Plates do not nest; base not flat; plate tilts, tips or rocks when placed on a smooth surface.
Dimensions	Any dimension varying from the dimensions specified by more than the allowable tolerance.
Area of compartments	Not in proportions specified.
Food surface area	Less than specified.

Testing of the end item. The end item shall be tested for the applicable characteristics. The sample unit shall be six plates for use in the following tests: one plate for rigidity, one plate for water resistance, one plate for grease resistance and three plates for reflectance. The sample unit shall be drawn at inspection level S-1 and the acceptable quality level (AQL) shall be 4.0 percent defective.

#### Test Methods

Rigidity. The test plate shall be mounted on a Marks III plate rigidity tester per manufacturers instructions. The test plate shall be oriented on the tester such that the force will be applied to the plate rim where the short rib intersects the rim. The test plate shall be deflected one-half inch and a measurement taken of the force required for this deflection. A minimum force of 250 grams shall be necessary to cause the required deflection. Any force less than 250 grams shall be cause for failure.

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Water resistance. Distilled water with a pouring temperature of 160 degrees Fahrenheit  $\pm$  2 degrees Fahrenheit shall be poured onto the test plate surface to a depth of approximately one-half the total depth of the plate. The plate shall rest on a flat sheet of double faced corrugated board approximately 1/4 inch thick, with a sheet of clean, white bond paper between the plate and the supporting surface. After a minimum of 30 minutes the water in the test shall be drained into a clean flask and the test plate then examined for evidence of delamination. Separation of plies extending more than 1/4 inch in diameter shall be considered delamination. The bond paper and the underside of the test plate shall be examined for visible evidence of water leakage. Slight dampness of the paper due to condensation shall not be considered as a failure. Any sign of delamination or water leakage shall constitute failure of the test.

Odor and taste. The distilled water used in the resistance to water test shall be collected and allowed to stand in a clean, stoppered flask for two hours. At the end of the two hours, the odor and taste of the sample water shall be compared with that of freshly distilled water contained in a stoppered flask for the same length of time and at the same temperature.

Grease resistance. Place a mixture of 3 ml of food grade corn oil, and 10 grams of clean, dry sand, of such particle size that all of it will pass through a No. 20 U. S. Standard sieve, in a 50 ml glass beaker and heat it in an oven to 160 degrees Fahrenheit. Remove the hot mixture from the oven and swirl the beaker and contents to assure thorough mixing of sand and oil. Cover the beaker with the eating surface of the test plate. Invert the test plate and beaker and place the plate on a hard, flat surface with a sheet of clean, white bond paper directly under the plate with the beaker in a inverted position over the oil and sand mixture. Allow the mixture to stand, as specified, for 30 minutes. At the end of the 30 minutes, examine the bond paper and the underside of the test plate for any evidence of staining. Evidence of staining shall constitute noncompliance.

Reflectance. The plate shall be tested for reflectance in accordance with ASTM E97. Three plates shall be tested and the results averaged. Any average less than 71 shall be considered noncompliance.

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Inspection for preparation and delivery. An inspection shall be made to determine whether the packaging, packing, and marking comply with the requirements of the contract or purchase order. Examination for defects shall be in accordance with Table II. For examination of interior packaging, the sample unit shall be one shipping container fully prepared for delivery. Sampling shall be in accordance with MIL-STD-105. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 with an AQL of 4.0 defects per hundred units.

Table II  
Preparation for delivery defects.

<u>Examine</u>	<u>Defects</u>
Markings	Omitted; incorrect; illegible; improper size, location, sequence, or method of application.
Material	Any component missing, damaged, or not conforming to applicable requirements stated herein.
Workmanship	Inadequate application of components such as incomplete closure of container flaps, loose strapping, or distortion of container.
Contents	Quantity of container is more or less than required. Gross weight exceeds requirements of the box specification.

Regulatory requirements. In accordance with section 23.403 of the Federal Acquisition Regulations, the Government's policy is to acquire items composed of the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials.

Preservation, packaging, packing, labeling, and marking (Civil Agencies). The preservation, packaging, packing, labeling, and marking shall be as specified in the contract or order.

Packaging (DoD). The packaging shall be in accordance with ASTM Standard D3951.

NOTE: Purchasers should specify the Type required.

Copies of 21 CFR Parts 170 to 199 may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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ASTM standards are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

**MILITARY INTERESTS:**

**Military Coordinating Activity:**

Army - GL

**CIVIL AGENCY COORDINATING ACTIVITY:**

VA - OSS

**Custodians:**

**PREPARING ACTIVITY:**

Army - GL

Navy - SA

Air Force - 99

GSA - PSS

**Review Activities:**

Army - MD

Navy - MS

Air Force - 84