T–M–550a
September 19, 1961
SUPERSEDING
Int. Fed. Spec. T–M–00550 (GSA–FSS)
August 28, 1958

FEDERAL SPECIFICATION

MOP, DUSTING, COTTON, UNIVERSAL ACTION SWIVEL

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 a universal action swivel cotton dry sweep mop (handle, frame, and mophead) primarily intended for use in dusting floors.

1.2 Classification.

1.2.1 *Classes.* Mops covered by this specification shall be of one type and four classes, as specified:

Class 1.—18 inches.
Class 2.—24 inches.
Class 3.—36 inches.
Class 4.—48 inches.

2. APPLICABLE SPECIFICATIONS AND STANDARDS

2.1 The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification:

Federal Specifications:

V–T–276—Thread, Cotton.
QQ–P–416—Plating, Cadmium (electrodeposited).
QQ–Z–325—Zinc Coating, Electrodeposited, Requirements for.
CCC–C–426—Cloth, Cotton, Drill.
CCC–T–191—Textile Test Methods.
PPP–B–636—Box, Fiberboard.
PPP–T–97—Tape; Pressure-Sensitive Adhesive, Filament Reinforced.

Federal Standards:

Fed. Std. No. 102—Preservation, Packaging, and Packing Levels.
Fed. Std. No. 123—Marking for Domestic Shipment (Civilian 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, Standards, and Handbooks 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 25, D.C.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, Seattle, and Washington, D.C.

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

Military Standards:

MIL–STD–129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Components.

3.1.1 *Handle.* The handle shall be of not less than 22-gauge cold-rolled tubular steel, with electric-welded seam or spotwelded at not less than each foot of the length of the handle, treated with a chromic-acid sealer, and coated with a baked-on enamel finish. The length of the handle shall be 60 inches $\pm \frac{1}{2}$ inch and the outside diameter shall be $\frac{7}{8}$ inch. One end of the handle shall be covered with a handgrip of nonmarring material.

3.1.2 *Universal action swivel connector.* The swivel connector shall be type A or B at the option of the manufacturer.

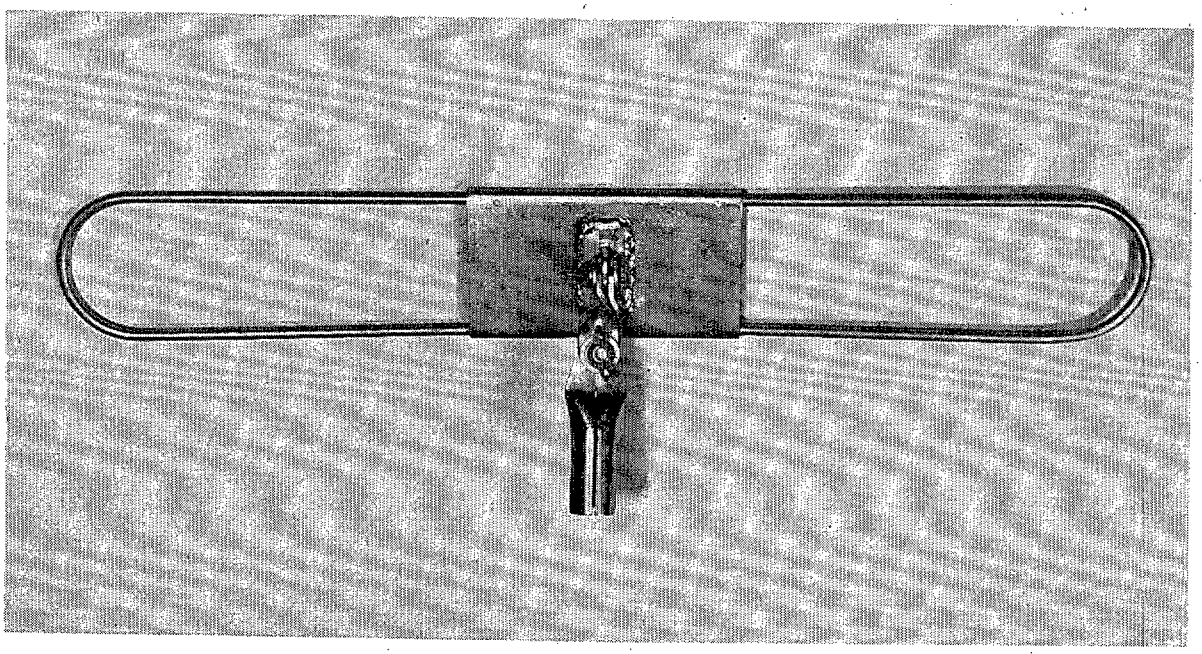

FIGURE 1.—Type A.

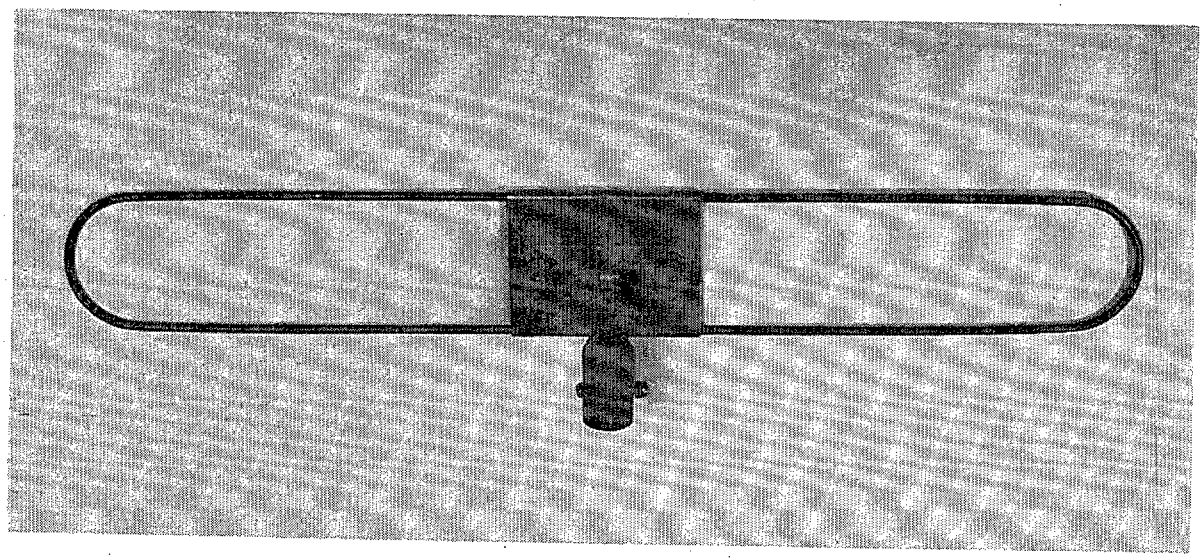

FIGURE 2.—Type B.

3.1.2.1 *Type A (see figure 1).*

3.1.2.1.1 *Handle sleeve.* The sleeve shall be of not less than 16-gauge cadmium or zinc-plated steel, or stainless steel, and 4 inches±1/16 inch long. The tubular portion shall be 2 inches±1/16 inch in length and 7/8-inch inside diameter with an open seam down one side slotted to the flattened portion of the sleeve. The other end of the sleeve shall be flattened 90 degrees to the slotted seam and the flattened edges tapered to a rounded end semicircular in shape, finished to approximately a 7/16-inch radius. The rounded end shall have a 5/16-inch hole through the flattened portion centered on the 7/16-inch radius. A 3/16-inch-diameter hole shall be through both walls of the tubular portion 90 degrees to the seam and 1 inch from the tubular end to line up with a similar hole in the handle when the two are assembled together with a 3/16-inch machine screw, lockwasher and

capnut. All edges and surfaces shall be finished smooth. The slotted seam shall not meet when handle is assembled in handle sleeve.

3.1.2.1.2 *Connecting link.* The connecting link shall be made of two mating pieces of approximately 1/8-inch-thick cadmium or zinc-plated steel, 7/8 inch wide by approximately 2 5/8 inches long so manufactured that the semicircular ends of each piece are at an angle of approximately 90 degrees relative to one another. The semicircular shaped ends of each piece shall be rounded to approximately a 7/16-inch radius and shall have a 5/16-inch hole centered on the 7/16-inch radii. The link pieces shall be interchangeable and have true mating surfaces to provide, upon assembly, smooth and bind-free swiveling action in any normal operating position.

3.1.2.1.3 *Base plate.* The base plate shall be not less than 17-gauge stainless steel or cadmium or zinc-plated steel 3 13/32 inches ±1/16 inch wide (outside to outside width in completed form) and not less than 4 1/4 inches long. The lengthwise edges of the plate shall be crimped around the 1/4-inch-diameter metal frame and the base plate centrally located from each end of the frame. The base plate, shall be secured to the frame by spotwelding of not less than four points. A 2-inch-long tee section with vertical flange, 1 1/16 inches in height, 1 inch wide and 1/8 inch thick shall be centrally located in an inverted position on the base plate and the edges welded all around to the base plate with the 2-inch length in the 3 13/32-inch base-plate dimension. The tee flange shall have a 5/16-inch-diameter hole centrally located above the base plate to mate with the connecting link pieces. The top of the tee flange shall be arched to permit the swivel action of the function without binding.

3.1.2.1.4 *Connecting link bolts and washers.* Connecting link bolts shall be standard 5/16-inch type "s" thumbscrew, 1 inch long with wingnut. Washers shall be standard 5/16-inch flat washers with an outside diameter of approximately 7/8 inch, and standard 5/16-inch lockwasher.

3.1.2.1.5 *Screw and capnut.* Screw and capnut shall be standard 3/16-inch round-head machine screw approximately 1 1/4 inches long with a 3/16-inch lockwasher and capnut.

3.1.2.1.6 *Frame.* The frame shall be solid steel and shall be cadmium or zinc plated to resist rust. The overall length shall be 18, 24, 36, and 48 inches as specified ±1/8 inch; the width shall be 3 1/8 inches ±1/16 inch from center to center and the diameter of the frame shall be not less than 3/16 inch.

3.1.2.1.7 *Assembly.* The handle shall be assembled to the sleeve by inserting it into the tubular portion of the sleeve so that the 3/16-inch-diameter hole in the handle matches with the 3/16-inch hole in the sleeve, after which the parts shall be secured with a 3/16-inch machine screw, lockwasher, and capnut. The connecting link shall be assembled to the flattened end of the sleeve by matching the hole in one end of each of the two link pieces with the 5/16-inch hole in the sleeve, after which the parts shall be secured (one link piece on either side of the flattened part of the sleeve) with a 5/16-inch thumbscrew, flat washer, lockwasher and wingnut. The other end of the parallel connecting link pieces shall be secured, one link piece on either side, to the upright connector flange of the base plate with a 5/16-inch thumbscrew, flat washer, lockwasher, and wingnut.

3.1.2.2 *Type B (see figure 2).* Type B universal action connector shall consist of a base, double-yoke member, and socket bolted to the base plate.

3.1.2.2.1 *Base.* The base shall be 3/16 inch thick and approximately 3 3/4 inches long by 1 3/8 inches wide tee section with an inverted vertical flange 9/16 inch wide, 3/4 inch high and 1/2 inch thick centered approximately 2 inches from one end of the base of the tee section. The top of the inverted vertical flange shall be rounded and have a hole approximately 7/32 inch in diameter centered 1/2 inch above the base of the tee section. The base of the tee section shall have one hole approximately 1/4 inch in diameter centered approximately 3/8 inch from each end.

3.1.2.2.2 *Double-yoke member.* The overall length of the double-yoke member shall be approximately 1 15/16 inches long. Metal components shall be 3/16 inch thick except one finger of the upper yoke shall be approximately 11/32 inch thick, and an elongated slot 1/2 inch wide and approximately 5/32 inch deep shall be formed therein to hold the sliding lock key.

3.1.2.2.2.1 *Lower yoke.* The fingers of the lower yoke shall be approximately 11/16 inch wide, 27/32 inch (inside) long, and 1/2 inch apart. The ends of the fingers shall be rounded to approximately 3/8-inch radius with a 7/32-inch hole centered approximately 5/16 inch from the end of each finger. The outside end of one finger shall have an 11/16-inch-diameter serrated face to correspond to the serrated face of a flat-sided washer so as to provide locking at any point.

3.1.2.2.2.2 *Upper yoke.* The fingers of the upper yoke shall be approximately 7/8 inch wide, 7/8 inch (inside) long, and 1/2 inch apart. The ends of the fingers shall be rounded to approximately 7/16-inch radius with a 7/32-inch hole centered 7/16 inch from the end of each finger. An elongated slot shall be formed in the outside of one finger as specified in 3.1.2.2.2.

3.1.2.2.3 *Socket.* The socket shall be approximately 7/64 inch thick, 2 1/2 inches long (including shank), and 7/8-inch inside diameter. The base shall consist of a shank approximately 3/4 inch long, 11/16 inch wide, and 1/2 inch thick. The end of the shank shall be rounded to approximately 7/16-inch radius with a 7/32-inch hole centered approximately 5/16 inch from the end of the shank. The shank shall fit into the upper yoke (3.1.2.2.2.2) to form a hinge joint. The handle sleeve portion shall be approximately 1 5/8 inches deep (shall permit insertion of handle 1 5/8 inches) and the base of the sleeve shall contain an elongated slot to receive the sliding lock key. A 3/16-inch-diameter hole shall be drilled through both sides of the sleeve 5/8 inch from the bottom (inside).

3.1.2.2.4 *Sliding lock key.* The sliding lock key shall be cadmium or zinc-plated steel and shall be 1 5/16 inches long, 3/16 inch thick, and approximately 1/2 inch wide. An elongated slot 7/32 inch wide and approximately 5/8 inch long shall be cut (centered) in the key.

3.1.2.2.5 *Serrated washer.* The serrated washer shall consist of an 11/16-inch-diameter serrated section with a flat base approximately 1 inch in length. The serrated face shall mesh with the serrated face of the lower yoke (see 3.1.2.2.2.1). A 7/32-inch hole shall be centered approximately 5/16 inch from top of washer.

3.1.2.2.6 *Base plate.* The base plate shall be not less than 17-gauge steel, cadium or zinc plated to resist rust and not less than 4 1/4 inches in length, and shall be 3 13/32 inches ±1/16 inch wide (outside to outside width in completed form). The lengthwise edges of the base plate shall be crimped around the 3/16-inch-diameter frame and the plate shall be centrally located from each end of the frame. The base plate shall be secured to the frame by spotwelding at not less than 4 points. Two holes in the base plate approximately 1/4 inch in diameter shall line up with the holes in the base for bolting the base to the base plate which shall be centrally located in the lengthwise dimension.

3.1.2.2.7 *Frame.* The frame shall be solid stainless steel or cadmium or zinc-plated solid steel to resist rust and the overall length shall be 24 inches ±1/8 inch. The width shall be 3 1/8 inches ±1/16 inch from center to center and the diameter of the frame shall be not less than 3/16 inch.

3.1.2.2.8 *Assembly.* The base (3.1.2.2.1) of the tee section shall be bolted to the base plate with two 7/32-inch-diameter flat-headed bolts and 3/4-inch hexagonal rubber thumb nut (with molded-in metal nut). The lower yoke of the double-yoke member shall be attached by means of a 7/32-inch-diameter bolt and wingnut to the inverted vertical flange to form a hinge unit. The serrated washer shall be placed in contact with the serrated surface of the lower yoke (3.1.2.2.2.1), with flat base of washer against base of tee section, and attached by the same bolt as the yoke and inverted vertical flange. The shank of the socket (3.1.2.2.3) shall be inserted in the upper yoke (3.1.2.2.2.2) and together with the sliding lock key (3.1.2.2.4), attached by a 7/32-inch-diameter bolt and 3/4-inch hexagonal rubber thumb nut (with molded-in metal nut). The handle shall be inserted in the handle sleeve portion of the socket, the hole in the handle aligned with the holes in the handle sleeve, a 3/16-inch-diameter bolt inserted through the hole, and the bolt secured with an acorn nut.

NOTE. When die-cast zinc alloy is used, it shall have a tensile strength of not less than 40,000 p.s.i.

3.1.3 *Steel component parts.* All steel component parts, except if stainless steel parts are

used and except the handle, shall be plated with electrodeposited cadmium or zinc plating of not less than 0.0003-inch thickness. The thickness of the cadmium and zinc plating shall be determined as specified in Federal Specification QQ–P–416 and QQ–Z–325 respectively.

3.1.4 *Mophead.*

3.1.4.1 *Mophead yarn.* The mophead yarn shall be made from clean cotton containing not more than 5 percent of nonfibrous materials, and shall be of a suitable grade and staple to meet the following requirements.

Ply of yarn	4 ply.
Yards per pound	300 to 350 yards.
Twist per inch of plied yarns	2 to 2½ turns.
Breaking strength (minimum)	18 pounds.
Color of yarn	Natural or bleached.

3.1.4.2 *Thread.* Sewing thread shall conform to the requirements of Federal Specification V–T–276, type IA1, 4 cord, ticket number 24 for sewing yarn and binding to body of mop. Bobbin thread shall be ticket number 40. Bartack needle thread shall be ticket number 36 and bartack bobbin thread shall be ticket number 40.

3.1.4.3 *Drill cloth.* The drill cloth used in the construction shall conform to the requirements of Federal Specification CCC–C–426, type I, class 2, except that the cloth shall not shrink more than 1 percent in the direction of the warp or more than 1 percent in the direction of the filling when tested as specified in 4.4 of CCC–C–426.

3.1.4.4 *Tie tape.* Tape for ties shall be a tubular braid of unbleached cotton yarn. The tape shall measure not less than ¼ inch in width.

3.1.4.5 *Binding.* Binding shall be of the same material as the mophead fabric or conform to type III, class 1, of Federal Specification CCC–C–426, and shall be cut on the bias.

3.2 **Mophead construction.** The mop assembly shall consist of a removable mophead. The mophead shall be made from two pieces of drill (3.1.3.3). One piece, forming the bottom, shall have two rows of yarn (not including the row of yarn around outer edge) securely sewn thereon. The other piece forming the top shall have an opening for the insertion of the frame. The opening shall be bound. Class 1 mop shall have two ties, and classes 2, 3, and 4 shall have four ties. The ties shall be at corresponding sides of the opening and shall be attached by means of bartacking. Ties shall be cut approximately 8 inches long. The two pieces of drill, top and bottom, shall be securely bound together around the edges, thus giving the appearance of a slipper. After binding together, an additional row of yarn shall be sewn around the outer edge. The yarns, after being sewn to the bottom section, shall be not less than 6 (plus or minus ½) inches long. The sweep (mop surface) of the finished mop shall measure not less than 15½ inches in width, and 31, 37, 49, and 61 inches ±½ inch in length for classes 1, 2, 3, and 4 respectively. (Length and width shall be measured from yarn tip to yarn tip.)

3.3 **Workmanship.** The finished mop shall conform to the quality of product established by this specification. The occurrence of defects shall not exceed the acceptable quality levels specified in section 4.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 **Contractor's inspection responsibility.** The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government as specified in the contract or order. 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.

4.2 **Inspection for acceptance.** Except when otherwise specified by Civil Government agencies, inspection shall be in accordance with Military Standard MIL–STD–105, except where otherwise indicated (see 6.1).

4.3 **Inspection lot.** All complete mops or component parts (when purchased separately) of the same type and class submitted at one time, shall be considered a lot for examination and tests.

4.4 **Examination of the end item or component part (when purchased separately).**

Classification of Defects

Examine	Defect	Classification	
		Major	Minor
Handle	Other than steel	X	
	Handgrip omitted		X
	Handgrip not of nonmarring material		X
	Holes in handle do not line up with holes in handle sleeve	X	
	Not a snug fit in handle sleeve		X
	Not welded seam as specified	X	
Handle finish	Not baked-on enamel	X	
Handle sleeve	Not stainless steel or cadmium or zinc-plated steel	X	
	Not slotted	X	
Base plate	Not formed and positioned as specified	X	
	Not stainless steel or cadmium or zinc-plated steel	X	
	Holes do not line up with holes in base (type B)	X	
Base	Not welded or securely bolted to base plate as specified for applicable type	X	
Frame	Not shaped as specified	X	
Type A	Not cadmium or zinc-plated steel	X	
Type B	Not stainless steel or steel cadmium or zinc plated	X	
Connecting link:			
Type A	Not stainless steel or cadmium or zinc-plated steel	X	
Sliding lock key:			
Type B	Not cadmium or zinc-plated steel	X	
Mophead	Rancid or objectionable odor		X
	Insect infestation		X
	Spotted, soiled, or stained		X
	Not fabricated as specified	X	
	Ties omitted:		
	Class 1:		
	1 omitted		X
	2 omitted	X	
	Classes 2, 3, and 4:		
	1 or 2 omitted		X
	3 or more omitted	X	
	Ties not bartacked		X
	Ties not opposite each other		X
	Number of rows of stitching less than specified	X	

4.4.1 *Visual examination.* The required number of mops or parts shall be taken at random from the lot and the defects classified in accordance with the classification of defects above. The unit of product for this examination shall be one mop or component part. The sample size shall be based upon inspection level II of Military Standard MIL–STD–105. The acceptable quality levels shall be 2.5 major and 6.5 total defects (major and minor combined) per 100 units of product. The lot size shall be expressed in units of one mop or component part each.

4.4.2 *Dimensional examination.* The number of mops taken for this examination shall be in accordance with inspection level L–7 of Mili-

tary Standard MIL–STD–105. The unit of product shall be one mop each and the acceptable quality level shall be 2.5 defects per 100 units. The mops examined shall be taken from the sample size in 4.4.1. Any measurement not meeting the applicable requirements of section 3 shall be considered a defect. Where tolerances are not shown, industry tolerances shall apply.

4.3 Tests. The methods of testing specified in Federal Specification CCC–T–191, wherever applicable, and as listed in table I shall be followed. The physical and chemical values specified in section 3 apply to the average of the determinations made on a unit of product for test purposes as specified in the applicable test method.

TABLE I.—*Test methods*

Characteristic	Requirement paragraph	Test method
Yarn, Mop, (plied):		
Yards per pound	3.1.3.1	4010
Breaking strength	3.1.3.1	4102
Twist (turns per inch)	3.1.3.1	4054
Nonfibrous material	3.1.3.1	2611
Identification of cotton	3.1.3.1, 3.1.3.3, 3.1.3.4	1200

4.3.1 *Testing criteria.* The sample unit for testing shall be as specified in subsidiary specifications and as follows:

Component	Lot size expressed as	Sample unit
Cloth, cotton, drill.	Yards	3 yards full width.
Thread, cotton	Bobbins, cones, or spools.	A sufficient number to total a minimum of 360 yards.[1]
Yarn (mop)	Yards	40 yards.[2] [3]

[1] When thread is purchased on cones, spools, and bobbins, each shall be tested.

[2] Not less than 3 sample units from each lot shall be tested.

[3] Unless otherwise specified, 5 specimens shall be tested from each sample unit.

4.3.2 *Mop yarn.* No sample unit test result shall fall below the minimum or above the maximum specified. The acceptable quality level for each characteristic shall be 6.5 defects per 100 units. The sample size shall be in accordance with inspection level L–4 of Military Standard MIL–STD–105. The lot size shall be expressed in units of 1 yard each.

5. PREPARATION FOR DELIVERY

(Federal Standard No. 102 shall be referred to for definitions and applications of the various levels of packaging and packing protection for supplies and equipment (for civil agencies only).)

5.1 Packaging.

5.1.1 *Levels A, B, and C.* Mops shall be packaged in accordance with the manufacturer's commercial practice.

5.2 Packing.

5.2.1 *Level A.*

5.2.1.1 *Complete units.* Unless otherwise specified, twelve complete units shall be packed in a style FOL compliance symbol V3s, solid fiberboard container, constructed, sealed and strapped in conformance with Federal Specification PPP–B–636.

5.2.1.2 *Mopheads (when procured separately).* Twelve mopheads shall be packed in a snug-fitting, style RSC, 200-pound bursting strength corrugated-fiberboard container or a solid-fiberboard container in conformance with style RSC of Federal Specification PPP–B–636. Each container shall be securely sealed with an adhesive commercially used for the specific product being packed, by application throughout the entire area of contact between the flaps. Six containers (72 mopheads) shall be overpacked in a style RSC, compliance symbol V3s solid-fiberboard container, constructed and sealed in conformance with Federal Specification PPP–B–636.

5.2.2 *Level B.*

5.2.2.1 *Complete units.* Unless otherwise specified, the mops shall be detached from the handles and twelve complete units shall be packed in a snug-fitting fiberboard container constructed in accordance with style RSC (275 p.s.i.) of Federal Specification PPP–B–636.

5.2.2.1.1 *Strapping.* Each container shall have three flat steel straps ½ inch wide by 0.015 inch thick applied girthwise around the con-

tainer. Spacing shall be such as to divide the length into four equal portions. Alternatively, each container shall be reinforced by application of strips of pressure-sensitive tape in conformance with Federal Specification PPP–T–97 and Appendix thereto.

5.2.2.2 *Mopheads (when procured separately).* Unless otherwise specified, twelve mopheads shall be packed in a snug-fitting style RSC, 200 pound p.s.i. bursting strength, corrugated or solid fiberboard container in conformance with Federal Specification PPP–B–636. Each container shall be sealed with an adhesive commercially used for the specific product being packed, by application throughout the entire area of contact between flaps.

5.2.3 *Level C.* Mops packaged as specified in 5.1.1 shall be packed in a manner to insure carrier acceptance and safe delivery at destination. Shipping containers shall conform to carrier rules and regulations applicable to the mode of transportation.

5.3 Marking.

5.3.1 *Civil agencies.* In addition to any special marking required by the contract or order, intermediate packages and shipping containers shall be marked in accordance with Federal Standard No. 123.

5.3.2 *Military agencies.* In addition to any special marking required by the contract or order, shipments shall be marked in accordance with Military Standard MIL–STD–129.

6.1 Ordering data. Purchasers should exercise any desired options offered herein and procurement documents should specify the following:

(*a*) Title, number, and date of this specification.

(*b*) Class required (1.2).

(*c*) Use of Military Standard MIL–STD–105 (4.2).

(*d*) Selection of applicable levels of packaging and packing (5.1 and 5.2).

(*e*) Packing options (5.2.1.1, 5.2.2.1, and 5.2.2.2).

6.2 Level B packaging and packing should be used by ordering agencies only when shipment is known to be made to a holding supply depot or warehouse from which partial shipments will be made to ultimate consumers.

6.3 Transportation description. Transportation descriptions and minimum weights applicable to this commodity are:

Rail:

Mops or mop parts, not otherwise indexed by name. Carload minimum weight 24,000 pounds, subject to Rule 34, Uniform Freight Classification.

Motor:

Mops or mop parts, not otherwise indexed. Motor volume minimum weight 30,000 pounds.