

P-W-155C
February 22, 1978
SUPERSEDING
Fed. Spec. P-W-155B
July 6, 1973

FEDERAL SPECIFICATION

WAX, FLOOR, WATER-EMULSION

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. The water emulsion floor wax covered in this specification is one grade intended for use on all non-wood floors and for sealed wood floors.

2. APPLICABLE DOCUMENTS

2.1 The following document, of the issues 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:

- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-C-96 - Cans, Metal, 28 Gage and Lighter.
- PPP-D-729 - Drums, Shipping and Storage, Steel, 55-Gallon.
- PPP-P-704 - Pails, Metal; (Shipping, Steel, 1 through 12 gallon).
- PPP-P-1655 - Pail, Plastic, Shipping and Storage.

Federal Standard:

- Fed. Std. No. 123 - Marking for 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, 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 Service Administration Regional Offices in Boston, New York, Philadelphia, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Houston, 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.)

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Military Standard:

MIL-STD-120 - 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.)

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.

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, NW, 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.)

American Society for Testing and Materials (ASTM) Standards:

- D 1290 - Sediment in Water-Emulsion Polishes by Centrifuge.
- D 1791 - Accelerated Aging of Liquid Water-Emulsion Floor Polishes.
- D 1792 - Potential Long-Term Removability Properties of Conventional Type Water-Emulsion Floor Polishes.
- D 1793 - Water Spotting of Emulsion Floor Polishes.
- D 2834 - Nonvolatile Matter (Total Solids) In Water-Emulsion Floor Polishes, Solvent-Based Floor Polishes and Polymer-Emulsion Floor Polishes.
- D 3206 - Soil Resistance of Floor Polishes.
- D 3210 - Comparing Colors of Films From Water-Emulsion Floor Polishes.
- E 70 - pH of Aqueous Solutions with the Glass Electrode.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

3. REQUIREMENTS

3.1 Qualification. Floor wax furnished under this specification shall be a product which has been tested and has passed the qualification tests specified herein (see 6.2).

3.1.1 Standard samples. Standard samples represent the performance acceptable for Government use with respect to all performance factors including slip resistance and durability and will serve as the reference standards for qualification and the examination of deliveries (see 6.3).

3.1.2 Identification of samples. The qualification sample submitted by the manufacturer will be identified for the purpose of comparing with material subsequently submitted for acceptance. Within experimental limits, qualification and acceptance samples should be identical. Any lot or lots

found not to be identical with the standard sample shall be rejected.

3.1.2.1 Infra-red spectroscopy. The infra-red spectra shall be measured according to 4.4.7. The spectra of qualification and acceptance samples should be identical with respect to the number and location of infra-red absorption peaks. The peak heights may vary within +/- 2 percent.

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3.1.2.2 Color. Color, expressed as the Whiteness Index, shall be measured according to 4.4.8.

3.1.2.3 Resistance to soiling. Resistance to soiling shall be measured according to 4.4.9.

3.2 Performance. Performance consists of slip resistance, durability, dirt retention, and general appearance in use. When tested in accordance with 4.5, the product shall equal or surpass the performance of the standard sample.

3.3 Composition.

3.3.1 Total solids. The total solids (nonvolatile content) shall be not less than 16.0 percent when tested as specified in 4.4.1.

3.3.2 Sediment. Any sediment present in the floor wax shall be soft and free from grit. The amount of sediment present shall not exceed 0.1 percent by volume when tested as specified in 4.4.2.

3.3.3 Alkalinity. The pH of the floor wax shall be not greater than 10.0 when tested as specified in 4.4.3.

3.3.4 Stability. When tested as specified in 4.4.4, the floor wax shall develop no offensive odor, exhibit no creaming, gelling, or separation.

3.4 Film characteristics.

3.4.1 Removability. When tested as specified in 4.4.5, the dried film shall be completely removed after 75 oscillations.

3.4.2 Water spotting. When tested as specified in 4.4.6, the dried film shall show an appearance comparable to that of the standard sample.

3.5 Odor. The product shall have no offensive odor.

3.6 Workmanship. Products under this specification shall be produced by the application of normal commercial practice.

4. QUALITY ASSURANCE PROVISIONS

4.1 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.

4.2 Sampling procedures for acceptance testing.

4.2.1 For inspection lots. For purpose of sampling, a lot shall consist of all floor wax offered for delivery at one time. Samples shall be protected from any possibility of freezing. The sample shall consist of ten 1-gallon subdivisions of floor wax taken in accordance with 4.2.2.

4.2.2 Method of sampling.

- (a) From 1-gallon original containers. Select at random ten 1-gallon containers. Retain all, if no code marks are present. If cans or containers are coded, or production identified, retain all of the same mark and attempt to fill back with containers from the same

production so that the sample will consist of ten 1-gallon containers.

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- (b) From original unopened 5-gallon drums. Select at random two drums (same identifying code, if possible). Make five 1-gallon representative subdivisions from one drum and retain the other drum.
- (c) For original unopened 55-gallon drums. Select a drum at random. Make ten 1-gallon representative subdivisions from the same drum.

4.2.3 Identification and disposition. All subdivisions of the sample taken in accordance with 4.1.2 shall be properly identified, including any code or batch numbers, and numbered 1 to 10 inclusive (not applicable to the reserve 5-gallon drum). Subdivisions 1 to 5 inclusive shall be distributed as directed by the procuring agency or authorized representative. The remaining subdivisions shall be set aside and retained at the site of sampling pending further instructions.

4.2.4 Sampling procedures for qualification testing. The sample offered for qualification by the manufacturer shall be from production batches of the same size used in producing floor wax in commercial quantities. Small pilot plant and experimental formulations will not be considered as complying. The Government inspector shall take sufficient 1-gallon cans for qualification (see 3.1). Each container shall be labeled as follows:

DATE OF MANUFACTURE
CODE NUMBER (TO BE ENTERED BY INSPECTOR)
"KEEP FROM FREEZING" (CAN AND CONTAINER)

Acceptance testing shall consist of all tests in 4.4 only, while qualification testing shall consist of all tests in 4.4 and 4.5.

4.3 Inspection of deliveries. Inspection shall be made by the procuring agency or a duly authorized representative at the time and place designated by the procuring agency (see 6.2).

4.3.1 Examination of preparation for delivery. An examination shall be made to determine whether the packaging, packing, and marking comply with the requirements of section 5. Defects shall be scored as specified in table I. Sampling shall be in accordance with MIL-STD-105. The sample unit shall be one container fully prepared for delivery. The lot shall be the number of containers for inspection at one time. The inspection level shall be S-2 with an AQL of 4.0 expressed in terms of percent defective.

Table I. Examination of preparation for delivery.

Examine	Defects
Containers	Not as specified.
Contents	Not as specified.
Markings	Omitted; incorrect; illegible; improper size, location, sequence or method of application.
Materials	Component missing or damaged.
Workmanship	Bulging or distortion of containers. Cushioning inadequate, improper or missing.

4.3.1.1 Examination of closure and reinforcement of containers. When shipping containers are required to comply with PPP-B-636 or PPP-P-704, examination for defects in closure and reinforcement shall be in accordance with the appendix of that specification.

4.4 Laboratory tests. The following tests shall be made on one 1-gallon sample selected as specified in 4.2.2.

4.4.1 Nonvolatile matter (total solids). Total solids shall be determined according to ASTM D 2834.

4.4.2 Sediment. The sediment of the floor wax shall be determined according to ASTM D 1290.

4.4.3 Alkalinity. The pH of the floor wax shall be determined according to ASTM E70.

4.4.4 Stability. The stability of the floor wax shall be determined according to ASTM D 1791, over a period of 30 days at 51.6 degrees +/- 1 degree C. (125 degrees +/- 2 degrees F.).

4.4.5 Removability. The ease of removability of floor wax shall be determined according to ASTM D 1792, except that a solution of 2 percent potassium oleate and 2.5 percent ethanalamine shall be substituted for the standard soap solution.

4.4.6 Water spotting. Concurrent testing of the floor wax and the standard sample shall be carried out according to ASTM D 1793.

4.4.7 Infra-red spectra.

4.4.7.1 Preparation of sample. Cut a 2-1/2 inch square of aluminum foil of 3 ml thickness (minimum) having one side mirror bright [1]. Wash the square with absolute alcohol and air dry. The mirror bright side should give a spectra that differs less than 2 percent transmittance from the standard front surface test mirror used in the specular reflectance accessory [2]. Apply approximately 1 ml of floor wax with an eye dropper in a zig-zag pattern, and produce a uniform layer by means of a 2-inch doctor blade with 0.008 in gap. The sample thus prepared is allowed to dry overnight before use.

4.4.7.2 Measurement of sample. The spectra of the coated foil is run on an infra-red spectrophotometer equipped with a specular reflectance accessory. The base line of the spectra should show approximately 90 percent transmittance, and the most intense band should show approximately 10 percent (see 6.5).

4.4.8 Color. color shall be measured according to ASTM D 3210 (see 6.5).

4.4.9 Soil resistance test. Soil resistance shall be measured according to ASTM D 3206. The tile prepared using the qualification sample shall be preserved for future comparison with acceptance samples (see 6.5).

4.5 Floor test procedures for slip-resistance and durability, for qualification testing.

4.5.1 Selection and preparation for test floor.

4.5.1.1 Light colored (such as buff or light yellow) vinyl-asbestos tile floor of new or like new quality should be selected. The floor should be free from abnormal bumps and irregularities. Floors surrounding the test panels should not be unreasonably dirty. The surrounding floors need not be cleaned or stripped at the sample time as the test panels but they should be normal with respect to cleanliness.

4.5.1.2 Relatively heavy and as nearly equal as possible traffic conditions should prevail on all test panels. Test panels should not be selected in areas of abnormal traffic conditions such as in or adjacent to elevators, heavy traffic main doorway entrances, etc.

4.5.1.3 Size of test panels. Each test panel should be not less than 12 feet in length along the normal line of traffic and should not be smaller than 60

square feet.

- [1] Such a foil is available from Alu-Foil Company, 1143 Conklin Street, Farmdale, Long Island, NY 11735.
- [2] Individual spectrophotometers have different accessories. For a Perkin-Elmer Model 2S7 spectrophotometer a Model 220-0036 Specular Reflectance attachments was used, while for a Perkin Elmer Model 180 Spectrophotometer a Model 186-0324 Micro Specular Reflectance accessory was used.

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4.5.1.4 Preparation of test floor. The test floor should be cleaned and thoroughly stripped of old polish by use of an effective stripper. Before application of wax, each test panel should be rinsed three times with clear water to remove all traces of cleaner or detergent. The effectiveness of good cleaning can be measured by gloss readings which should be not greater than 10 and many floors go as low as 4 or 5. More than one treatment may be necessary on floors which have a "built-up" film of polish.

4.5.1.5 Placement of test panels. Samples of qualification and standard samples should be applied at the same time adjacent to each other if possible, but in no case more than one panel removed.

4.5.2.1 Equipment. A clean pail and a 16- to 24-ounce mop, new or like new, should be provided for each sample. The identification of the pail and mop with the respective code numbers of the samples will reduce the possibility of any mix-up or contamination. Mop should be very clean, wrung almost dry of clear rinse water, and dried before it is used to apply finish.

4.5.2.2 Application. Apply the first thin coat of each sample of wax to the test panel which has previously been marked with its code number. Uniformity of application on all panels is essential. Allow 20 to 30 minutes for drying, and apply the second thin coat on top of the first as lightly as possible.

4.5.2.3 Maintenance. The test panels should be swept daily with a soft bristle brush and damp-mopped weekly with new, or like new, mops and clean, cold water. Mop should only be sufficiently damp for dirt pick-up and should not leave water on the floor. After damp-mopping, the floor should be buffed.

4.5.3 Evaluation of samples. The floor wax shall be evaluated against the standard sample for period of 6 weeks. Evaluation shall be made immediately after application of the samples to the test floor and thereafter weekly, after damp-mopping and buffing but prior to traffic. Known variables from one test panel to another, such as traffic conditions or floor surfaces, should be carefully translated to insure there is neither compromise in quality of samples, nor unfair elimination due to imposing extra-ordinary conditions. At any time the sample under test is considered inferior to the standard, it shall be rejected. For acceptance, the samples shall be equal to or better than the standard at all times for every quality considered.

4.5.3.1 Slip-resistance. Determine the relative slip-resistance by comparison against the standard sample by exerting an angular foot pressure on the floor panel using clean, dry leather soles. Any finish accumulation on the sole should be removed. Small differences in slip-resistance are magnified by use of a clean, smooth sheet of paper under the foot.

4.5.3.2 Durability. Durability is determined by observing dirt retention, general appearance, gloss and buffability.

4.5.3.2.1 Dirt retention. Determine the degree of dirt retention by comparison against the standard sample by visual examination, noting particularly discoloring traffic marks.

4.5.3.2.2 General appearance, gloss, buffability. Determine the general appearances, including gloss and buffability, by comparison against the standard sample by examination, noting particularly nondiscoloring traffic scuff marks.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or Commercial as specified (see

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5.1.1 Level A. The floor wax shall be furnished in 1-gallon, 5-gallon, or 55-gallon quantities as specified (see 6.4). The 1-gallon quantity shall be packaged in an oblong metal container conforming to PPP-C-96, type V, class 4 with exterior coating plan B; or in a round, high density polyethylene bottle (.95 density minimum) with handle and plastic screw type closure alternatively, leakproof plastic screwcaps or leakproof plastic nozzle and screwcap closure shall be used. The 5-gallon quantity shall be packaged in a pail conforming to PPP-F-704, type I, class 3, 4, or 5, or type II, class 3 or 4 with pouring device alternatively, leakproof plastic nozzle and screwcap closure shall be used. The 55-gallon quantity shall be packaged in a drum conforming to PPP-D-729, type II or IV.

5.1.2 Commercial. The floor wax shall be preserved and packaged in accordance with normal commercial practice. The complete package shall be designed to protect the item against damage during shipment, handling, and storage.

5.2 Packing. Packing shall be level A or Commercial as specified (see 6.4).

5.2.1 Level A.

5.2.1.1 One-gallon metal containers. Six 1-gallon metal containers shall be packed together in a close-fitting box conforming to PPP-B-636, V3c. The box shall be closed and strapped in accordance with the appendix to the box specification.

5.2.1.2 One-gallon plastic bottles. Six 1-gallon plastic bottles shall be packed in a box conforming to grade W5c of PPP-B-636. The bottles shall be separated by an "angle II divider" made of the same material used in constructing the container. The divider shall be the full height of the inside of the container. The box shall be close-fitting, except that there shall be not less than 3/8-inch clearance between the top of the plastic bottle and the inside surface of the inner flaps. The box shall be closed and strapped in accordance with the appendix to the box specification.

5.2.1.3 One-gallon plastic bottles. Four 1-gallon plastic bottles shall be packed together in a box conforming to PPP-B-636, W5c. The bottles shall be nested in four separate, non-slotted, individual fiberboard separators. The fiberboard forming the separators shall be made of the same material used in the construction of the container. Each separator shall be one continuous piece, center folded, forming two faces of the separator. Separators shall be the full height of the containers. The box shall be close-fitting, except that there shall be not less than 3/8-inch clearance between the top of the plastic bottle and the inside surfaces of the inner flaps. The box shall be closed and strapped in accordance with the appendix to the box specification.

5.2.1.4 Five-gallon pail or 55-gallon drums. Five-gallon pail or 55-gallon drums shall not require packing.

5.2.2 Commercial. The packaged floor wax shall be packed in containers to insure safe delivery at destination, to provide safe redistribution by the initial receiving activity, and shall be acceptable by common carrier under National Motor Freight Classification or Uniform Freight Classification.

5.3 Marking. Packages, shipping containers, and unitized loads (when applicable) shall be marked in accordance with Fed. Std. No. 123.

5.3.1 Military activities. In addition to markings required by the contract or order, the packages and shipping containers shall be marked in accordance with MIL-STD-129.

5.4 Unitization. When shipments to Government depots are full car or truck load, the packed floor wax shall be unitized for shipment and handling in accordance with normal commercial practice. The unitized load shall not exceed 2,500 lbs in weight, 63 inches in height, 56 inches in length, and 45 inches in width.

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6. NOTES

6.1 To obtain the performance which this floor wax can give, reasonable care should be exercised in its use. Before initial application, the old wax should be removed completely, and the floors rinsed with clear water to remove all traces of detergent or cleaner. Likewise, the factory finish on new floors should be removed. Successive applications of the floor wax may be made until build-up along the walls and in corners requires removal. If difficulties are encountered in stripping the floor wax, add one or two cups of household ammonia per gallon of cool (room temperature) cleaning solution.

6.2 The attention of suppliers and procuring activities is called to the requirements for qualification as provided in section 3 of this specification; GSA Reg. 1-II-201.03 which provides that solicitations for bids by advertising shall contain, in substance, the following statement: "In the procurement of products requiring qualification, bids secured through formal advertising will be considered only for such products as have, prior to the bid opening date, been tested and approved for inclusion in the qualified products list whether or not such products have actually been so listed by that date." Manufacturers are urged to communicate with the Director, Paints and Chemicals Division, Federal Supply Service, General Services Administration, Washington, DC 20406, and arrange to have the product they propose to offer tested for qualification. (Time may not permit qualification for eligibility under this invitation, but products which qualify would be eligible under future invitations.)

6.3 Standard sample is available at cost in 1-gallon cans. Inquiry should be addressed to the Director, Paints and Chemicals Division, Federal Supply Service, General Services Administration, Washington, DC 20406.

6.4 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) Levels of packaging required (see 5.1 and 5.2).
- (c) Size of unit package desired (see 5.1).

6.5 The results from 4.4.7, 4.4.8 and 4.4.9 are to be maintained by the qualifying activity and made available on request to the acceptance laboratory.

MILITARY INTERESTS:

The Defense Department has waived coordination of all future revisions and amendments until further notice.

Preparing Activity:

GSA - FSS

CIVIL AGENCY COORDINATING ACTIVITIES:

VA - VOC

HUD - TCS

HEW - FEC

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Int. Amendment-1
March 3, 1980

INTERIM AMENDMENT

TO

FEDERAL SPECIFICATION

WAX, FLOOR, WATER-EMULSION

This interim amendment was developed by the General Services Administration, Federal Supply Service, Washington, DC 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement, and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized use of this interim amendment as a valid exception to Federal Specification P-W-155C, dated February 22, 1978.

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Paragraph 4.3.1, in Table I, under "Defects":

Add, after "contents": "Average weight less than amount specified on container."

Add, after "Workmanship": "Leakage."

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