

O-D-1563A

April 26, 1976

SUPERSEDING

Fed. Spec. O-D-1563

July 14, 1972

FEDERAL SPECIFICATION

DISINFECTANT-DETERGENT,
GENERAL PURPOSE (PHENOLIC TYPE)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 This specification covers a combination of non-selective phenolic disinfectants and synthetic detergents in a concentrated liquid form, intended for concurrent cleaning and disinfecting.

2. APPLICABLE DOCUMENTS

2.1 The following documents, 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:

- O-S-642 - Sodium Phosphate, Tribasic, Anhydrous; Dodecahydrate; and Monohydrate; Technical.
- QQ-S-766 - Steel Plates, Sheets, and Strip-Corrosion Resisting.
- SS-T-312 - Tile, Floor; Asphalt, Rubber, Vinyl, Vinyl-Asbestos.
- TT-E-508 - Enamel: Interior Semigloss, Tints and White.
- TT-E-543 - Enamel, Interior, Undercoat, Tints and White.
- LLL-F-1238 - Floor Covering, Linoleum.
- 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-D-732 - Drums, Metal, 55-Gallon Reconditioned (For Shipment of Non-Corrosive Material).
- PPP-D-1152 - Drum Shipping: Steel, 55-Gallon, (24 and 21 Gage Reinforced).
- PPP-P-704 - Pails, Metal: Shipping, Steel, (1 Through 12 Gallon).
- PPP-P-1655 - Pail, Plastic, Shipping and Storage.

Federal Standards:

- Fed. Std. No. 123 - Marking for Shipment (Civil Agencies).
- Fed. Test Method Std. No. 141 - Paint, Varnish, Lacquer, and Related Material; Methods of Inspection, Sampling and Testing.
- Fed. Test Method Std. No. 536 - Soap and Soap-Products (Including Synthetic Detergents); Sampling and Testing.

(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.)

O-D-1563A

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.

(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:

40 CFR 162 - Federal Insecticide, Fungicide, and Rodenticide Act.

(The code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

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.

American Society for Testing and Materials (ASTM) Standard:

E 70 - Determination of 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.)

Association of Official Analytical Chemists (AOAC):

Official Methods of Analysis, Eleventh Edition, 1970.

(Application for copies should be addressed to the Association of Official Analytical Chemist, P.O. Box 540, Benjamin Franklin Station, Washington, DC 20044.)

National Fire Protection Association (NFPA):

NFC No. 56A.

(Application for copies should be addressed to the National Fire Protection Association, 60 Batterymarch Street, Boston, MA 02110.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Tariff Order Section, 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.)

3. REQUIREMENTS

3.1 Materials. The product shall be a homogeneous liquid. The active germicidal ingredients shall be non-selective phenolic derivatives. The cleaning agent shall be a synthetic detergent combined with suitable chelating and sequestering agents.

3.2 Test dilution. The test-dilution of the product, unless otherwise specified, shall be the use-dilution specified by the supplier, in distilled water.

3.3 Antimicrobial requirements.

3.3.1 Use-dilution method. The test-dilution of the product shall be germicidal for Staphylococcus aureus, Salmonella Choleraesuis, and Pseudomonas aeruginosa when tested in accordance with 4.4.1.1.

3.3.2 Fungicidal and tuberculocidal activity. The test-dilution of the product shall kill Trichophyton interdigitale and Mycobacterium tuberculosis when tested in accordance with 4.4.1.2 and 4.4.1.3.

3.4 pH range. The pH of the test-dilution, shall be within the range of 6.5 to 10.5 when prepared with distilled water at $25^{\circ} \pm 2^{\circ}\text{C}$. and tested in accordance with 4.4.2.

3.5 Acute oral toxicity. When tested as specified in 4.4.3, the test-dilution shall not kill more than 50 percent of a group of 10 rats (LD (oral) = 4 ml/kg of body weight).

50

3.6 Solubility. The product shall show no tendency to form a precipitate, to stratify, or show any evidence of insolubility when tested in accordance with 4.4.4.

3.7 Odor. The product when diluted with distilled water to the test-dilution shall be either substantially odorless or show only a faint pleasant odor, when tested in accordance with 4.4.5.

3.8 Detergency activity. The test-dilution of the product, shall demonstrate the following detergent requirements.

3.8.1 Cleaning efficiency. The test-dilution shall exhibit a cleaning efficiency of not less than 70 percent, when tested in accordance with 4.4.6.

3.8.2 Rinsability. The product shall leave no more residue after rinsing with water than left by a 10 grain hard water comparison control when tested in accordance with 4.4.7.

3.8.3 Deleterious action on painted surfaces. The product shall not cause greater than one-half the loss of 60 degree specular gloss of painted surfaces caused by a 0.2 percent solution of trisodium phosphate, when tested in accordance with 4.4.8.

3.8.4 Deleterious action on linoleum, asphalt, and rubber tile flooring. The product shall not cause any softening, swelling, cracking and whitening or bleaching of the test specimen, when tested in accordance with 4.4.9.

3.8.5 Conductive flooring. The product shall not cause the resistance of conductive flooring to exceed the limits specified in the section on the reduction in electrostatic hazard of conductive flooring of NFC 56A, Part IV. Resistance shall be measured as specified in 4.4.10.

3.9 Biodegradability. The synthetic detergents used in the manufacture of the product shall be 90 percent (minimum) biodegradable, when tested as specified in 4.4.10.

3.10 Registration. The product shall be registered as a disinfectant under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act.

3.11 Labeling. The labeling shall be in compliance with the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act. Appropriate warning or caution statements required by the Act or required to insure safe usage of the product shall be included. The final printed label and Registration Number for the product shall be submitted and made a part of all bids.

O-D-1563A

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 that supplies and services conform to prescribed requirements.

4.2 Sampling for inspection and acceptance. Sampling for inspection and acceptance shall be performed in accordance with the provisions set forth in MIL-STD-105, except where otherwise indicated herein. For purposes of sampling, an inspection lot shall consist of disinfestant-detergent of same composition, manufactured under the same conditions and essentially at the same time.

4.3 Inspection.

4.3.1 Inspection of material and components. In accordance with 4.1, the supplier is responsible for insuring that materials and components used were manufactured, tested and inspected in accordance with the requirements of referenced subsidiary specifications and standards to the extent specified or, if none, in accordance with this specification. In the event of conflict, this specification shall govern.

4.3.2 Inspection and test of the end item.

4.3.2.1 Examination of the end item. The end item shall be examined in accordance with the classification of defects, inspection levels and acceptable quality levels (AQLs), set forth below. The lot size, for purpose of determining the sample size in accordance with MIL-STD-105, shall be expressed in units of filled primary containers for examinations under 4.3.2.1.1, 4.3.2.1.2 and 4.3.2.1.3.

4.3.2.1.1 Examination of the end item container for defects in closure, appearance, markings, construction and workmanship. The sample unit for this examination shall be one filled primary container. Defects shall be scored as listed below. The inspection level shall be S-3 with an AQL of 2.5 in terms of percent defective.

Examine	Defect
Container	Not specified type, size or style container. Any evidence of leakage or seepage from any part of the container. Any hole tear, puncture, scuff, dent or other defect in body of container. Closures not as specified. Interior and exterior coating (when applicable), not as specified.
Labeling	Printing or stenciling pertaining to the applicable information and instructions for end item use of the specified type material omitted, illegible, incorrect, incomplete, smeared.

4.3.2.1.2 Examination of the end item container for defects in appearance of the product. The sample unit for this examination shall be one open filled primary container. Defects shall be scored as listed below. The inspection level shall be S-3 with an AQL of 1.5 in terms of percent defective.

Examine	Defect
Appearance of product	Presence of dirt or foreign matter. Not homogeneous. Form not as specified.
Net contents	Net contents less than specified.

4.3.2.1.3 Examination of preparation for delivery. An examination will be made to determine compliance 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 shipping container fully prepared for delivery. The lot shall be the number of shipping containers offered for delivery at one time. The inspection level shall be S-2 with an AQL of 4.0 in terms of percent defective.

TABLE I. Examination of preparation for delivery

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

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

4.4 Testing of the end item. The end item shall be tested for the characteristics listed in table II and 4.4.1. Sixteen ounces of the product shall be drawn from each of five shipping containers and composited. The test sample shall consist of a 32-ounce composite. Unless otherwise specified, duplicate determinations shall be performed on the composite with no evidence of failure to meet the specified requirements.

TABLE II. Instructions for testing

Characteristics	Specification reference		Results reported	
	Requirement	Test Method	pass or fail 1/	Numerically to nearest
pH at 25°C.	3.4	4.4.2	-	0.1 pH
Toxicity	3.5	4.4.3	X	-
Solubility	3.6	4.4.4	X	-
Odor	3.7	4.4.5	X	-
Detergency activity:				
Cleaning efficiency	3.8.1	4.4.6	-	0.5%
Rinsability	3.8.2	4.4.7	X	-
Deleterious action on:				
Painted surfaces	3.8.3	4.4.8	X	1.0% decrease in gloss
Linoleum, asphalt, and rubber tile	3.8.4	4.4.9	X	-

1/ If failure is indicated, report either description of failure or numerical point of failure, as applicable.

2/ The testing shall be performed, and actual test data (field and laboratory), furnished.

4.4.1 Antimicrobial tests. The following tests (4.4.1.1, 4.4.1.2, and 4.4.1.3) shall be determined in accordance with Official Methods of Analysis of the Association of Official Analytical Chemists, Eleventh Edition, 1970.

O-D-1563A

4.4.1.1 Use-dilution method. Page 61, paragraph 4.007 - 4.011. Sixty replicates on each of three samples, representing three different preparations, against Staphylococcus aureus. Thirty replicates on each of three samples, representing three different preparations against Salmonella choleraesuis and Pseudomonas aeruginosa. Thirty replicates each on duplicate samples of one preparation representing a 60 day shelf-life stability study against Staphylococcus aureus.

4.4.1.2 Fungicidal test. Page 65, paragraphs 4.018 - 4.022. Tests shall be run on duplicate samples of one preparation.

4.4.1.3 Tuberculocidal test. Page 71, paragraphs 4.048 - 4.050. One test shall be run on one sample preparation.

NOTE: The test specified in 4.4.1.3 requires a 90 day incubation period.

4.4.2 pH of use-dilution. The pH shall be determined in accordance with ASTM E 70.

4.4.3 Acute oral toxicity. Ten healthy albino rats of the Wister strain, weighing between 150 and 250 gm., shall be used for the oral toxicity test. The animals, none of whom shall be pregnant, shall be fasted for 24 hours preceding dosing. A wooden tongue depressor, narrowed at its central width and with a hole bored into its center large enough to admit a No. 10 French rubber catheter, shall be used as a gag to hold open the rat's mouth and permit entrance of the catheter. The test rats shall be weighed and a one ml. tuberculin syringe to which a No. 10 French catheter has been attached shall be filled with a measured amount of the product (5 ml per kilogram of body weight). The rat shall then be held in one hand while the narrow edge of the center of the tongue depressor shall be held firmly with the other hand against the anterior teeth of the animal, thus forcing the mouth open. Place the flat edge of the gag against the tongue. By turning the gag through a half-turn (counter-clockwise), the tongue is pulled forward and the bored hole in the depressor is approximated with the pharynx. With the animal's jaws open, the depressor is locked behind the teeth. The forefinger of the operator's hand holding the rat is then hooked over the end of the gag. With the other hand, insert the catheter firmly through the hole in the gag, through the pharynx and esophagus and into the stomach. When certain that the tip of the catheter is in the stomach, depress the plunger of the syringe to deliver the calculated amount of the product. Withdraw catheter, remove gag, and place animal in normal environment with usual food and water. Keep the animals under observation for a period of 1 week.

4.4.4 Solubility. 100 ml of the test-dilution shall be placed in a 100 ml graduated cylinder. Cap open end and slowly invert, hold for 30 seconds, then return to up-right position. Allow to stand undisturbed for two hours at room temperature ($25^{\circ} \pm 2^{\circ}\text{C}$). Note presence of any precipitate, stratification, or other evidence of insolubility of the solution.

4.4.5 Odor. A 6-inch square of bleached cotton sheeting shall be immersed in a solution, as specified in 3.7. The sheeting shall be thoroughly wetted, wrung to remove excess liquid and hung up to dry for 48 hours in a well ventilated room. At the end of 48 hours, the treated section of sheeting shall be examined for residual odor.

4.4.6 Cleaning efficiency. The cleaning efficiency shall be determined in accordance with method 6701 of Fed. Test Method Std. No. 536.

4.4.7 Rinsability. Dilute product to the test-dilution, using 10 grain hard water. Fill a 250 ml. flask with this solution at room temperature. Shake the solution vigorously in the flask, then pour it out. Rinse flask three times with separate portions of 10 grain hard water. Invert flask and allow to dry. Examine for any residual film. There shall be no more residue than that obtained when a similar flask is rinsed with hard water alone and allowed to dry.

4.4.8 Deleterious action on painted surfaces.

4.4.8.1 Measurement of specular gloss. Gloss shall be determined in accordance with method 6101 of Fed. Test Method Std. No. 141.

O-D-1563A

4.4.8.2 Test panels. Stainless steel (QQ-S-766), approximately 3-1/2 by 6 by 1/16 inches shall be used. The panel shall be prepared by applying (brush or spray) one coat of each of the following paints: (1) Enamel undercoat, white, (TT-E-543), as the first coat. (2) Enamel, semi-gloss, white, (TT-E-508), with a 60° gloss of 50 to 60 as the final coat. A drying time of not less than 24 hours between coats, and a minimum of not less than 24 hours after the application of the final coat shall be allowed. When tests are to be made on panels that had been used, roughen the surface (to obtain good adhesion) before applying the final coat (TT-E-508, 60° gloss 50-60, white). Allow the final coat to dry for 1 day minimum of 4 days maximum.

4.4.8.3 Procedure. Prepare one liter each of a solution of trisodium phosphate (sodium phosphate, tribasic) conforming to type II of O-S-642 and a solution of the product under test at concentrations of 2 gm. per liter in distilled water. Measure the specular gloss of two panels and then immerse one panel in each of these solutions, keep at room temperature, for one hour. Remove the panels, rinse thoroughly in distilled water, and dry at room temperature for at least one hour. Again measure the specular gloss of each panel. The percentage decrease in gloss of the portion of the panel immersed, compared with the gloss of the same panel before immersion, shall be reported for the compound under test and for the trisodium phosphate.

4.4.9 Deleterious action on linoleum, asphalt, and rubber tile flooring.

4.4.9.1 Test panels. These panels shall be as specified below:

- White linoleum panels - 2 by 4 by 1/8 inches, conforming to LLL-F-1238, type I, class 2, grade A.
- Black asphalt panels - 2 by 4 by 1/8 inches, conforming to SS-T-312, type I.
- Black rubber tile panels - 2 by 4 by 1/8 inches, conforming to SS-T-312, type II.

4.4.9.2 Procedure. Pour 150 ml. of the test-dilution into each of the three 250 ml. beakers. Immerse one panel of each type in the beakers containing the cleaning solution. Allow the panels to remain in the solution at room temperature ($25^{\circ} \pm 2^{\circ}\text{C.}$) for 16 hours. At the end of this time, remove the panels, rinse thoroughly with distilled water, and dry at room temperature for at least one hour. Examine for softening, swelling, cracking, bleaching and discoloration.

4.4.10 Conductive flooring. The resistance of the conductive flooring shall be measured as specified in NFC 56A, Part IV.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A, B, or C, as specified (see 6.2).

5.1.1 Level A. The product shall be furnished in 1-gallon, 5-gallon or 55-gallon containers as specified (see 6.2). One-gallon oblong containers shall conform to type V, class 4 or 5 coating plan B of PPP-C-96, and the handles shall be of the bridge type. Five-gallon containers shall conform to type I or II, class 8, with interior coating of PPP-P-704. The container shall be equipped with spout or nozzle closure with an outer seal. Fifty-five gallon drums shall conform to type II or IV of PPP-D-729.

O-D-1563A

5.1.2 Level B. The containers shall be as specified in 5.1.1, except that 1-gallon containers shall have an exterior coating plan A. Alternatively, the product shall be furnished 1-gallon in a high density polyethylene bottle (.95 density minimum) with handle and plastic screw cap closure. Alternatively, the product shall be furnished in a pail conforming to PPP-P-1655, type II, grade GP, or in a drum conforming to PPP-D-732 or PPP-D-1152.

5.1.3 Level C. The disinfectant detergent shall be furnished in containers to afford adequate protection against damage during shipment from the supply source to the first receiving agency.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. One-gallon containers packaged as specified in 5.1.1 shall be packed in accordance with the level C packing requirements of PPP-C-96. The 5- and 55-gallon containers, packaged as specified in 5.1.1, shall require no overpacking.

5.2.2 Level B. Six (6) one-gallon metal cans shall be packed in accordance with the Level B packing requirements of PPP-C-96. Six (6) one-gallon plastic containers shall be packed in a box conforming to PPP-B-636, class domestic except that the corrugated medium shall be not less than 33 pounds per thousand square feet. The box shall be fitted with full height partitions, dividers or separators which are $3/8 + 1/8$ inch higher than the bottles. The box shall be closed in accordance with the appendix of PPP-B-636. The five and fifty-five gallon containers specified in 5.1.2 shall require no overpacking.

5.2.3 Level C. The product, packaged as specified in 5.1.3, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rates for such supplier. Containers shall be in accordance with National Motor Freight Classification or Uniform Freight Classification as applicable.

5.3 Marking. In addition to any special markings required by the contract or order and the requirements of 3.11, the unit and shipping containers shall be marked in accordance with Fed. Std. No. 123 for civil agencies or MIL-STD-129 for military agencies, as applicable (see 6.2).

6. NOTES

6.1 Intended use. The product covered in this specification is intended for use in hospitals, for disinfecting and cleaning floors, walls and woodwork.

6.2 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) Size (see 5.1 and 5.2).
- (c) Level of Packaging and Packing required (see 5.1 and 5.2).
- (d) Marking required (see 3.11 and 5.3).

MILITARY INTERESTS:

DOD has waived coordination on revisions and amendments to this Federal Specification until further notice.

Civil Agency Coordinating Activities:

EPA
DOT-FAA
HEW - NIH
VA-DMS

Preparing activity:

GSA-FSS

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 cents each.