

NOT MEASUREMENT SENSITIVE

MIL-C-11090F  
 24 October 1991  
 SUPERSEDING  
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 30 May 1985

## MILITARY SPECIFICATION

## CLEANING COMPOUND, DEGREASING AND DEPRESERVING SOLVENT

This specification is approved for use by the Army Materials Technology Laboratory, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

## 1. SCOPE

1.1 This specification covers one class of cleaning compounds suitable for use in removing oils, greases, asphalt, tars and rust preventive compounds, other than wax type, from metallic and painted surfaces.

## 2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

## SPECIFICATIONS

## FEDERAL

QQ-A-250/2	-	Aluminum Alloy 3003, Plate and Sheet
QQ-M-44	-	Magnesium Alloy Plate and Sheet (AZ31B)
TT-E-515	-	Enamel, Alkyd, Lustreless, Quick-Drying
TT-P-664	-	Primer Coating, Synthetic, Rust-Inhibiting, Lacquer-Resisting
PPP-D-729	-	Drums, Metal, 55-Gallon (for Shipment of Noncorrosive Material)
PPP-D-1152	-	Drum: Steel, 55-Gallon (24 Gage) Reinforced
PPP-P-704	-	Pails, Metal: (Shipping Steel, 1 through 12 Gallon)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, US Army Materials Technology Laboratory, ATTN: SLCMT-MEE, Watertown, MA 02172-0001 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 6850

DISTRIBUTION STATEMENT A Approved for public release; distribution unlimited.

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## MILITARY

- MIL-P-116 - Preservation, Methods of
- MIL-G-10924 - Grease, Automotive and Artillery

## STANDARDS

## FEDERAL

- FED-STD-313 - Material Safety Data Sheets, Preparation and Submission of

## MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- DOD 6050.5 - Hazardous Material Information
- DOD 6050.5-H - DoD Hazardous Chemical Labeling
- 29CFR 1910.1200 - OSHA Hazard Communication Standard

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D93 - Flash Point by Pensky-Martens Closed Tester
- ASTM D490 - Specification for Tar
- ASTM D512 - Chloride Ion in Water
- ASTM D808 - Chlorine in New and Used Petroleum Products (Bomb Method)
- ASTM D1783 - Water, Phenolic Compounds in
- ASTM D2667 - Biodegradability of Alkylbenzene Sulfonates
- ASTM D3951 - Standard Practice for Commercial Packaging

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

EPA Method 8020 - Test Methods for Evaluating Solid Waste SW-846 Third Edition, November 1986

(Application for copies should be addressed to U.S. EPA Office of Solid Waste and Emergency Response, Washington, DC)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 Qualification. Cleaning compound furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable qualified products list at the time of award of contract (see 4.3). The cleaning compound supplied under contract shall be identical with the material receiving qualification. Any change in formulation will necessitate requalification. See 4.2.2 for a change in the High-Flash naphtha only.

3.2 Materials and chemical composition. The compound shall be equal or superior to the comparison formula of 4.10.2 in all respects when tested in accordance with this specification.

3.2.1 Biodegradability. The synthetic detergents used in the compound shall be biodegradable when tested as specified in 4.8.

3.2.2 The compound shall contain no detectable concentrations of the following:

- (a) Phenolic or cresylic acids or their salts, i.e., compounds in which a hydroxyl group is directly attached to an aromatic nucleus or in which the hydrogen of such a hydroxyl group has been replaced to form a metal derivative (4.5).
- (b) Chlorine (4.6).
- (c) Benzene or toluene (4.7).

3.3 Physical properties. The compound shall have a minimum flash point (Pensky-Martin closed tester) of 140°F (60°C) when tested in accordance with 4.9.

3.4 Performance properties.

3.4.1 Soil removal properties. The compound, when tested in accordance with 4.13, shall remove the following soils:

#### Soil

Grease	MIL-G-10924
Tar	ASTM D490

The soils shall be prepared as a blend prior to testing as described in 4.13.4. Neither the number of test panels showing residual soil or stain nor the amount of such soil or stain shall exceed that found when the corresponding soil is tested by using the comparison formula in accordance with the method described therein, equal numbers of panels being used in both cases. The rating of cleaning performance of the compound being tested shall

be as given in 4.13.4. The bottom one-eighth inch of the panels shall be disregarded in making the comparison.

3.4.2 Corrosion. No panel shall show any corrosion or discoloration greater than that obtained with the comparison formula when tested in accordance with 4.14.

3.4.3 Attack on paint. The compound shall show no evidence of loosening of paint when tested in accordance with 4.15.

3.4.4 Phase separation and stability. The compound shall not require agitation prior to use and shall show no separation, precipitation into separate phases, or gelation on six months storage greater than that obtained from the comparison formula similarly stored. In addition the compound shall be equal to the comparison formula in performance properties of 3.4 when tested by the methods designated therein at the end of the storage period as specified in 4.16.

3.5 Instruction labels. A suitable label with the following instructions printed thereon shall be attached to each container:

Instructions for use. The cleaning compound may be used by soak, brush or spray application. Do not dilute. Allow the cleaning compound to remain on work for 3 to 5 minutes before rinsing. Two recommended procedures for spray application are as follows:

Method 1. Apply compound by spray gun at pressure of 4 pounds/square inch. Hold spray nozzle of the gun about 6 inches away from the work. Use a heavy stream of liquid rather than a dispersion. Examine the soil 3 to 5 minutes after application. If the soil is not softened, spray a second application of the compound. Allow 3 to 5 minutes, then rinse by means of a steam jenny at pressure of 40 to 50 pounds/square inch, or if not available, then with hot water preferably at pressure of 25 to 50 pounds/square inch. If water must be avoided, rinse with Stoddard Solvent.

Method 2. Apply compound by spray gun at pressure of 20 pounds/square inch. Hold spray nozzle of the gun about 6 inches away from the work. Do not rinse. In this method the compound may be repeatedly recycled and reused.

**WARNING - COMBUSTIBLE**

Keep away from heat or flame.

Use with adequate ventilation.

Avoid breathing of vapor.

May be irritating to skin, eyes, and respiratory tract.

Hands should be protected by wearing gloves when using this material.

If skin or eye contact occurs, flush with large amounts of water.

Do not take internally.

**CAUTION: DO NOT USE ON ACRYLIC PLASTICS.** Care should be exercised when using this solvent on other plastics, rubber, etc., including pretesting on the specific material, to insure no deleterious effects.

Information on container label must include Flash point by Pensky-Martin method using ASTM D93 or other equivalent method. Labeling for this product must be in compliance with DOD 6050.5, DOD 6050.5H, FED-STD-313 and 29CFR1910.1200.

3.6 Toxicity. The cleaning compound shall have no adverse effect on the health of personnel when used for its intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as an advisor to the contracting agency.

3.7 Workmanship. The ingredients shall be carefully formulated so as to produce a compound that is stable. The product shall be homogeneous and be free from abrasive materials.

3.8 Material safety data sheets. The manufacturer must provide a Material Safety Data Sheet (MSDS) for each product or formulation supplied under this specification. MSDS must be in compliance with the OSHA Hazard Communication Standard 29CFR1910.1200 and FED-STD-313C.

#### 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 (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase 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 this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

Failure to meet the requirements of section 3 as defined by sampling techniques and methods of testing of section 4 shall be construed as failure to meet the inspection requirements of this specification. Methods of Section 4 accordingly form part of the inspection requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

#### 4.2 Sampling.

4.2.1 Samples for analysis. For the purpose of sampling and inspection, a lot shall consist of the compound from a single batch offered by the

manufacturer for delivery at one time. A batch is that quantity of compound produced at one operation. A two quart sample shall be taken from each batch and immediately placed in a clean, dry, air and watertight container which shall be sealed, marked for identification, and sent to the Laboratory for tests.

4.2.2 Validation for high-flash naphtha characteristics or change of supplier. When a contractor desires to change his formulation by substituting a high-flash naphtha not already used, a one-pint sample of the new high-flash naphtha together with a request for a waiver for its use must be forwarded to US Army Research and Development Command, Materials, Fuels and Lubricants Laboratory, Fort Belvoir, VA 22060-5606.

4.3 Classification of inspections. The inspection requirements of cleaning compound, degreasing, and depreserving solvent, specified herein are classified as follows:

- (a) Qualification inspection (see 4.3.1)
- (b) Quality conformance inspection (4.3.2).

4.3.1 Qualification inspection. Qualification inspections shall consist of tests for all the requirements of this specification.

4.3.2 Quality conformance inspection. Quality conformance testing of individual lots shall normally consist of tests for all requirements specified in section 3 with the exception of the chemical tests for phenolic or cresylic type acids, benzene or toluene (3.2.2, 4.5 and 4.7), soil removal tests for grease (3.4.1 and 4.13.4.1) and phase separation (3.4.4 and 4.16). For acceptance testing, the Beilstein copper wire flame test for compounds containing chlorine may be used. In case of doubt, the method of 4.6 shall be the deciding method. The procuring agency, however, reserves the right to make the tests for compliance to all the requirements specified above.

4.3.2.1 Examination of filled containers. The filled containers shall be examined for defects in accordance with the classification below. The sample unit shall be one filled container or one pallet of filled containers, as applicable. The lot size shall be the number of filled containers of the same type and volume presented for acceptance at one time and filled from a single batch or lot of compounds. The inspection level shall be S-2 of MIL-STD-105 and the acceptable quality level (AQL) shall be 2.5 expressed as defects per 100 units.

<u>Examine</u>	<u>Defect</u>
Filled container	Not type specified
Workmanship (as applicable)	Dented, damaged, cracked or otherwise defective affecting serviceability Leaks Not palletized when specified

Markings

Incorrect: incomplete, illegible; omitted;  
of improper size, location, sequence or  
method of application  
Instructions labels, not in accordance  
with requirements (3.5)

4.3.2.2 Examination of filled containers for contents. The filled containers shall be examined for compliance with the requirement of average net contents. The sample unit shall be one filled container. The lot size shall be the number of filled containers of the same type and volume presented for acceptance at one time and filled from a single batch or lot of compound. The inspection level shall be S-2 of MIL-STD-105. There shall be no evidence of failure to meet the requirement that the average net contents shall not be less than the specified or indicated quantity.

4.3.2.3 Inspection of packaging. Except when commercial packaging is specified, the sampling and inspection of the preservation and interior package marking shall be in accordance with groupss A and B quality conformance inspection requirements of MIL-P-116. The sampling and inspection of the packing for shipment and storage shall be in accordance with the quality assurance provisions of the applicable container specification shown in section 5. The inspection of marking for shipment and storage shall be in accordance with MIL-STD-129. The inspection of commercial packaging shall be as specified in the contract (see 6.2).

4.4 Reagents. All reagents used in the chemical composition tests (4.5, 4.6 and 4.7) shall be of reagent grade.

4.5 Phenolic or cresylic acids or their salts.

4.5.1 Sample preparation. Measure 50 ml of sample into a clean 250 ml separatory funnel. Add 100 ml of 0.05 N calcium hydroxide solution. Shake vigorously for 2 minutes, venting frequently. Allow layers to separate, then transfer the aqueous layer to a 500 ml volumetric flask. Repeat the extraction two more times, combining the aqueous layers. Dilute the combined extracts to volume with distilled water.

4.5.2 Analysis. Analyse the sample according to ASTM D1783, Method B. The preliminary distillation step described in the method is required. Analysts should check the pH of the sample prior to distillation and again prior to analysis, and adjust as necessary to meet the limits required by the method. Using the above extraction technique, the detection limit is 0.5 mg/l. If less than 0.5 mg/l of phenols, cresylic acids and salts are detected, the value should be reported as  $<0.5$  mg/l.

4.6 Halogenated hydrocarbons and other chlorine or halogen compounds. Either of the following two methods may be used for determining halogen content. The second method (bomb combustion/mercuric nitrate titration) is somewhat simpler and will normally be the method of choice. While both methods are intended for determination of chlorine, the other halogens are positive interferences. Thus results should be reported as "total halogens, as chlorine" rather than as "total chlorine."

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4.6.1 Combustion/gravimetric method. Prepare and analyze the sample as directed in ASTM D808. Detection limit for this method is 0.1 percent chlorine. If less than 0.1 percent chlorine is detected, the value should be reported as <0.1 percent chlorine.

4.6.2 Combustion/mercuric nitrate titration method. Combust the sample as directed in ASTM D808. Rinse the bomb interior, sample cup, cup supports, and terminal bases using distilled water and a rubber policeman. Collect the washings in a 600 ml glass Griffin beaker. Continue until the total volume of the bomb washings is about 350 ml. Do not test the washings with methyl red.

Analyze the washings in accordance with ASTM D512, Method A (mercuric nitrate titration). Detection limits for chlorine are similar to those discussed under 4.6.1.

4.7 Benzene and toluene. In this method, covering the determination of benzene and toluene in the commodity, the following apparatus and materials are required:

standard laboratory glassware

gas chromatograph - as specified in EPA method 8020 for the analysis of aromatic compounds.

Stock standard solutions - prepare solutions of benzene and toluene in hexane at a minimum of three concentrations. The lowest concentration should be equivalent to the detection limit of interest for the method (approximately 50 micrograms per gram).

4.7.1 Test procedure. The test procedure involved includes the following sequency of steps:

(a) Add 1.0 gram of each sample to be tested to a glass container containing 50 ml of hexane.

(b) Add 1 ml of each stock standard solution to a glass container containing 50 ml of hexane.

(c) Add 1 ml of hexane to a glass container containing 50 ml of hexane. This is the reagent blank.

(d) Shake each container briefly to completely disperse the sample in the hexane. Allow any solids to settle. Remove 1 to 2 ml to an injection vial.

(e) Inject 2 ul of each calibration standard into the gas chromatograph. Prepare a standard curve of the area or height versus concentration for both benzene and toluene. The correlation coefficient of the standard curve should be greater than 0.995.

(f) Inject 2 ul of the reagent blank into the gas chromatograph. Use the standard curve to calculate the benzene and toluene concentration in the reagent blank.



(g) Inject 2 ul of each sample extract into the gas chromatograph. Use the standard curve to calculate the benzene and toluene concentration in the sample.

(h) Reinject one of the calibration standards every 10 injections to verify that the analytical system has remained in calibration. If the response of the standard has changed by more than 15 percent, the system must be recalibrated.

4.8 Biodegradability of the synthetic detergents. The supplier shall submit a certificate of compliance with the requirements for biodegradability. The certificate shall be accompanied by the actual test data (field or laboratory) including the test procedure utilized in making the biodegradability determination (see 6.2.2).

4.8.1 Anionic synthetic detergents. When the detergent is an alkyl benzene sulfonate or a linear alkylate sulfonate, the biodegradability shall be determined in accordance with ASTM D2667.

4.8.2 Nonionics and other synthetic detergents. Until an acceptable method of determining the biodegradability of a nonionic detergent is agreed upon by industry and is acceptable to the Government, testing shall be performed in accordance with a method currently being used by the detergent industry for evaluation of these compounds.

4.9 Flash point. Determine the flash point by the Pensky-Martin closed tester in accordance with ASTM D93.

4.10 Soil removal properties. The comparison formula (4.10.2), and compound being evaluated shall each be tested for removal of a blend of grease and tar soils. All compounds shall be tested concurrently.

4.10.1 Soils used. The grease and tar soils described in this section shall be prepared as a blend prior to testing as described in 4.13.4.

4.10.1.1 Grease. The grease shall conform to MIL-G-10924.

4.10.1.2 Tar. The tar shall conform to grade RT-11 of ASTM D490.

4.10.2 Comparison formula. The comparison formula shall consist of:

Solvent	70 volume percent
Kerosene	30 volume percent

4.10.2.1 Solvent. The solvent used in preparation of the comparison formula shall be an aromatic petroleum fraction containing less than 1 ppm by weight of benzene and toluene and having a flash point (Pensky-Martin closed tester used in accordance with ASTM D93) of 140°F (60°C) minimum.

4.11 Preparation of test panels. All soil tests shall be made on panels as prepared in this section. Panels shall be made of U.S. Standard 18 gage FS 1010 cold rolled steel and shall measure 1/2 by 2 inches. A 1/8 inch diameter hole shall be placed near one end. The face of the panel shall be polished in a rotating manner against coarse emery cloth until clean. It shall then be

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immersed in heptane, removed, dried with paper toweling, and placed in a desiccator over activated silica gel. Care shall be taken not to touch the panels with anything but forceps during the drying operation. Panels shall be kept in desiccate condition for not less than 16 hours nor more than 48 hours prior to soil application.

4.11.1 Soil tests. A mixture of grease conforming to MIL-G-10924 and tar conforming to grade RT-11 of ASTM D490 is prepared by mixing 3 parts by weight of tar with one part by weight of grease in a beaker with heating by immersion of the bottom of the beaker in hot water (about 140°F (60°C)).

About 20 mg of this mixture is applied to one side of each steel panel after it has been prepared in accordance with 4.11. About 1-1.5" (25-38 mm) of the surface of the test panel are covered with the tar/grease mixture. The panels shall then be placed in a horizontal position in an oven at 302°F  $\pm$  4°F (150°C  $\pm$  2°C) with all air vents open, for one hour. Panels shall not be allowed to touch each other. At the end of one hour, the panels shall be removed from the oven and allowed to cool to room temperature.

Four test panels are used for each compound tested. Four test tubes having inside diameters from 15 to 9 mm containing about 15 ml of the compound are set up in a test tube rack for each compound tested. Test panels are immersed in the compound at room temperature for ten minutes.

Two of the four test panels immediately upon removal from the test solvent, are wiped each with a fresh paper towel and laid out for later inspection with an identification of the solvent and a notation that the test strips were not dipped in boiling water as below.

Discoloration of the test solvent in the test tubes is noted.

The other two of the four test panels, immediately upon removal from the test solvent, are immersed in a beaker containing boiling water for 1 minute, taken out and wiped each with a fresh paper towel while hot, and laid out for later inspection with an identification of the solvent and a notation that they were dipped in boiling water.

Discoloration of the test solvent in the test tubes and any scum floating on the boiling water in the beakers is noted.

All wiping is done with paper towels with one stroke using moderate pressure, as uniform as possible from one test panel to the next within any series of tests.

In any series of tests, solvents are compared with the comparison formula (prepared as given in 4.10.2). Accordingly, the above sequence of steps is carried out with each solvent being tested as well as with comparison formula.

The following rating scale for the cleanliness of the test panels after treatment as above is used:

- 5 cleaner than comparison formula
- 4 comparable to comparison formula

- 3 significant soil removal, but dirtier than comparison formula
- 2 some soil removal
- 1 no noticeable soil removal

Ratings for each solvent are established for both immersion without subsequent dipping in boiling water, and immersion with subsequent dipping in boiling water.

Any solvent receiving a 4 or a 5 rating in both tests is deemed to be acceptable.

**4.12 Corrosion.** Aluminum panels conforming to QQ-A-250/2 and steel panels of FS 1010 cold rolled steel shall be 3 by 1/4 inches. The magnesium panels conforming to QQ-M-44 shall be 3 by 1/2 inches. Drill a hole approximately 1/8 inch from each end of each panel so that the panels can be tied together. Polish the panels with No. 50 aluminum oxide cloth followed by No. 320 carborundum paper. Wash the panels with 95% ethyl alcohol and dry with paper toweling. Tie the three panels together top and bottom with cotton string, the magnesium being sandwiched between aluminum and steel panels, place in a test tube and cover with cleaner. Use four sets for the comparison formula (4.10.2) and four sets for the compound under test. After 24 hours remove the panels from the compounds, separate, wash with water, then alcohol and dry. Examine each panel for pitting, other types of corrosion and discoloration.

#### **4.13 Attack on paint.**

**4.13.1 Preparation of panels.** Panels shall be U. S. Standard 20 gage FS 1010 cold rolled steel, 3 by 4 inches. They shall be degreased in a trichloroethylene degreaser, wiped with lint-free cloth to remove any soil. The degreasing shall be repeated. One coat of primer conforming to TT-P-664 shall be applied by spray to give a coat thickness of 0.7 mil to 0.8 mil. After the panel has been air dried for one hour, one coat of topcoat conforming to TT-E-515, shall be applied by spray to give a coat thickness of 0.7 mil to 0.8 mil. After the panel has again been air dried for one hour, it shall be kept at 120°F (49°C) for 24 hours, and then at room temperature for not less than 24 hours nor more than 30 days.

**4.13.2 Evaluation.** Four panels, prepared as above, shall be used for each compound evaluated. Each panel shall be placed horizontally (resting at a slight angle) in a 2-liter beaker and covered with compound. After 30 minutes, the panels shall be removed and rinsed in water at 80° to 85°F (26° to 30°C). The panels shall then be air dried for 1 hour. Then the panels shall be rubbed with paper toweling to determine whether or not paint has been loosened. If any of the four panels show evidence of loosening, the compound shall be considered to loosen paint.

**4.14 Phase separation and stability.** The compound, when received, shall be thoroughly mixed, and a representative sample poured into a liter glass stoppered bottle until full. It shall be kept together with 1 liter of the comparison formula (4.10.2) in a place relatively free from vibration at 100°F (37.8°C) for 6 months, and shall be compared at the end of that time

to the comparison formula for evidence of precipitation, separation into separate phases, or gelation, and for performance in all tests of 4.11.

4.15 Toxicity. The contractor shall have the toxicological product formulations and associated information available for review by the contracting activity to evaluate the safety of the material for the proposed use.

4.16 Rejection. When any sample fails one or more requirements of section 3 of this specification when tested as specified in section 4, the lot represented by that sample shall be rejected.

## 5. PACKAGING

5.1 Preservation. Requirements shall be in accordance with ASTM D3951.

5.1.1 Packing. Packing shall be Level A, B or Commercial as specified (see 6.2).

5.1.2 Level A. Unless otherwise specified (see 6.2) the compound shall be supplied in 5 gallon pails conforming to PPP-P-704, type I, class 3, or 55 gallon drums conforming to PPP-D-729, type II.

5.1.2.1 Palletization. Pallets shall be used in contract or order (see 6.2).

5.1.3 Level B. Level B packing shall be the same as level A except that closed head 55 gallon drums conforming to PPP-D-1152 may be substituted for drums conforming to type II of PPP-D-729 or ASTM D3951, 29CFR1910.1200, FED-STD-313C and 6050.5-H.

5.1.4 Commercial. The compounds shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. Containers shall be in accordance with ASTM D3951.

5.2 Marking. In addition to the labeling required in 3.5 and any special marking required in the contract or order, marking for shipment shall be in accordance with MIL-STD-129 or ASTM D3951 as applicable.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The compound covered by this specification is intended for use in removing oils, greases, asphalt, tars, and preservative type materials from metallic and painted surfaces. The compound should be capable of application by swab, brush, spray or soak. It is to be used as received in the container.

6.2. Acquisition requirements. The following shall be as specified or approved in the contract or in the applicable drawings:

- (a) Title, number, date of this specification.
- (b) Quantity required.
- (c) Size containers.
- (d) Selection of level of packing required.
- (e) Pallets required.

6.3 Qualification: With respect to products requiring qualification, awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the US Army Belvoir Research and Development Center, Materials, Fuels and Lubricants Laboratory, Fort Belvoir, VA 22060-5606, and information pertaining to qualification of products covered by this specification may be obtained from that activity.

6.4 Subject Term (key word) listing.

cleaning compound	biodegradability
degrease	depreserve

6.5 Health hazards. This product when used as directed shall not expose any person to hazardous substances above those levels specified in applicable laws and regulations.

Custodians:

Army - MR  
Navy - YD

Preparing activity:

Army - MR

Project 6850-1094

Review activities:

Army - MD, AR  
Navy - OS, SH

User activities:

Army - ME  
Navy - MC, OS, SH

(KBWP# ID-0276A/DISK-0012A. FOR MTL USE ONLY)

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-C-11090F		2. DOCUMENT TITLE CLEANING COMPOUND, DEGREASING AND DEPRESERVING SOLVENT	
3. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
6. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
5. PROBLEM AREAS		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify): _____	
		a. Paragraph Number and Wording:	
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
7. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		8. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
7c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	