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November 27, 1974 ✓  
SUPERSEDING  
Fed. Spec. O-C-434A  
March 22, 1974 and  
MIL-C-18718B  
April 30, 1969

## FEDERAL SPECIFICATION

### CLEANING COMPOUND, SOLVENT

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 one type and grade of safety solvent cleaning compound (see 6.1).

#### 2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue 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-T-236	-	Tetrachloroethylene (Perchloroethylene), Technical
P-D-680	-	Dry Cleaning Solvent
PPP-C-96	-	Cans, Metal, 28 Gage and Lighter
PPP-D-729	-	Drums, Shipping and Storage, Steel, 55-Gallon
PPP-D-1152	-	Drum, Shipping, Steel, 55-Gallon (24 and 21 Gage Reinforced)
PPP-P-704	-	Pails, Metal: (Shipping, Steel, 1 through 12 Gallon)

#### Federal Standards:

Fed. Test Method Std. No. 123	-	Marking for Domestic Shipment (Civil Agencies)
Fed. Test Method Std. No. 141	-	Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling and Testing

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(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 bases 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.)

Military Specification:

MIL-D-6998 - Dichloromethane, Technical

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-129 - Marking for Shipment and Storage

MIL-STD-147 - Palletized Unit Loads for 40" x 48" Pallets, Skids, Runners, or Pallet-Type Base

(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

16 CFR 1500 - Federal Hazardous Substances Act

(The Code of Federal Regulations (CFR) and Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20404.) Information on the availability of the above document may be obtained from the U.S. Department of Health, Education, and Welfare, Washington, DC 20204.)

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U.S. Postal Service Manual

(Copies of the manual may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

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., 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.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Materials. The cleaning compound shall consist of Stoddard solvent, dichloromethane and tetrachloroethylene of such physical characteristics and in such proportions as to conform to the requirements of this specification.

3.1.1 Stoddard solvent. The Stoddard solvent shall conform to P-D-680, type I.

3.1.2 Dichloromethane. The dichloromethane (methylene chloride) shall conform to grade B of MIL-D-6998.

3.1.3 Tetrachloroethylene. The tetrachloroethylene (perchloroethylene) shall conform to O-T-236.

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3.2 Composition. The composition of the cleaning compound shall be the approximate percentages listed in table I to meet the requirements specified in 3.2.1, 3.2.2, and 3.2.3 when tested as specified in 4.2.3.

TABLE I. Composition

Component	Percent by volume
Stoddard solvent	70
Dichloromethane	25
Tetrachloroethylene	5

3.2.1 Specific gravity 20°/20°C. The cleaning compound shall have a specific gravity of not less than 0.900 and not more than 0.980 when tested as specified in 4.2.3. The specific gravity of the first 20 ml of distillate shall be not less than 1.270 nor more than 1.330 (see 4.3.2).

3.2.2 Distillation range. The cleaning compound shall have the following distillation range when tested as specified in 4.2.3.

<u>Distillation range</u>	<u>Minimum</u>	<u>Maximum</u>
Initial boiling point, °F	100	--
Percent recovered at 350°F	65	--
End point, °F	--	410

3.2.3 Flash point. The flash point of the cleaning compound shall be not less than 200°F. After evaporating 35 percent (by volume) of the cleaning compound, the flash point shall be not less than 100°F when tested as specified in 4.2.3.

3.3 Labeling. Each container shall be durably and legibly marked with the following information and precautions, and shall be in compliance with the provisions of the Federal Hazardous Substances Act:

## CAUTION

THIS CLEANING COMPOUND IS COMBUSTIBLE AND SHALL NOT BE USED IN CONFINED AREAS WHERE THERE ARE OPEN FLAMES, ARCING EQUIPMENT, HOT SURFACES OR WHERE SMOKING IS PERMITTED.

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USE ONLY WITH ADEQUATE VENTILATION.

AVOID PROLONGED OR REPEATED BREATHING OF VAPOR.

DO NOT GET IN EYES, ON SKIN, OR CLOTHING.

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES: FOR EYES, GET MEDICAL ATTENTION.

3.4 Workmanship. The cleaning compound shall be uniform in appearance, free from foreign matter when examined visually, and shall conform to the quality levels established herein.

#### 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 supplies and services conform to prescribed requirements.

4.2 Inspection. Except where otherwise indicated sampling for inspection shall be performed in accordance with MIL-STD-105.

4.2.1 Inspection of component and materials. In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications and standards unless otherwise excluded, amended, or qualified in this specification or applicable purchase documents.

#### 4.2.2 Inspection of the end item.

4.2.2.1 Examination of the end item. The end item shall be examined for the defects in the applicable subparagraphs at the inspection levels and acceptable quality levels (AQL's) set forth in 4.2.2.5. The lot size shall be expressed in unit containers of the specified capacity for the examinations in 4.2.2.2 and 4.2.2.3, in units of shipping containers for examinations in 4.2.2.4.1, and in units of pallets for examination in 4.2.2.4.2.

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4.2.2.2 Examination of the end item for visual defects. The sample unit for this examination shall be one filled unit container.

<u>Examine</u>	<u>Defects</u>
Container	Not in accordance with contract requirements. Not size, shape, type or class container specified, as applicable. Inner or outer seal not as required. Interior and exterior coating, as applicable, not as specified. Any evidence of seepage or leakage from any part of the container including closure and seams. Any dented, bulged or deformed closure not as specified.
Labeling	Not as specified, missing, incomplete, incorrect, illegible or smeared.
Workmanship of cleaner	Not uniform in appearance. Presence of foreign matter.

4.2.2.3 Examination for average net content. The sample unit for this examination shall be one filled unit container. The average net content per container shall be not less than specified.

4.2.2.4 Examination of preparation for delivery requirements.

4.2.2.4.1 Examination for packaging, packing and marking. An examination shall be made to determine that packaging, packing and marking requirements comply with section 5 of this specification. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery, except that it shall not be palletized and need not be sealed. Shipping containers fully prepared for delivery, that have not been palletized shall be examined for closure defects. The lot size shall be the number of shipping containers in the end item inspection lot.

<u>Examine</u>	<u>Defects</u>
Marking (exterior and interior)	Omitted; incorrect; illegible; incomplete; of improper size, location, sequence or method of application.
Materials	Any component missing, damaged or not as specified.
Workmanship	Inadequate application of components, such as: incomplete closure of container flaps, loose strapping, improper taping, or inadequate stapling. Bulged or distorted containers.

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<u>Examine</u>	<u>Defects</u>
Content	Number of packages (when applicable) per shipping container is more or less than required.

4.2.2.4.2 Examination for palletization. An examination shall be made to determine that the palletization complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully prepared for delivery. The lot size shall be the number of palletized unit loads in the end item inspection lot.

<u>Examine</u>	<u>Defects</u>
Finished dimension	Length, width or height exceeds specified maximum requirements.
Palletization	Not as specified. Pallet pattern not as specified. Interlocking of loads not as specified. Load not bonded with required straps as specified.
Weight	Exceeds maximum load limits.
Marking	Omitted; incorrect; illegible; incomplete; of improper size, location, sequence or method of application.

4.2.2.5 Inspection levels and acceptable quality levels (AQL's) for examination. The inspection levels, for determining the sample size in accordance with the provisions of MIL-STD-105, and the acceptable quality levels (AQL's), expressed in defects per 100 units, shall be as follows:

<u>Examination paragraph</u>	<u>Inspection level</u>	<u>AQL</u>
4.2.2.2	I	2.5
4.2.2.3	S-4	N.A.
4.2.2.4.1	S-2	2.5
4.2.2.4.2	S-1	6.5

4.2.3 Testing of the end item. The methods of testing listed in table II shall be followed for each lot. The lot size shall be expressed in gallons of cleaning compound. The sample unit for testing shall be a one (1) gallon composite obtained by combining equal portions from samples selected at random throughout the lot in the frequency indicated below. The composite shall be placed in a clean, dry, sealed gallon container. Care shall be exercised to

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prevent contamination or alteration of the composite during the sampling, compositing, storage and testing. The number of determinations on the composite sample shall be as indicated in table II. All test reports shall contain the individual values utilized in expressing the final results. The lot shall be unacceptable if the composite fails to meet any test requirement specified.

<u>Lot size</u>	<u>Sample frequency</u>
800 or less	2
801 up to and including 22,000	3
22,001 or more	5



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## INSTRUCTIONS FOR TESTING OF THE END ITEM

TABLE II

CHARACTERISTIC	Specification Reference		Requirements Applicable To		Per Composite Unit	Results Reported As		Inspect Level	AQL
	Requirement	Test Method	Samp Coupl Unit	Unit		Pass or Fail	Numerically to Nearest		
Specific gravity, 20°/20° C, of:									
Cleaning compound	3.2.1	4.3.1	X		2	Average of 2 determinations to nearest 0.001 value.			
First 20 ml of distillate	3.2.1	4.3.2		X	2	Average of 2 determinations to nearest 0.001 value.			
Distillation range	3.2.2	4.3.2		X	2	Average of 2 determinations to nearest 1°F.			
Flash point of:									
Cleaning compound	3.2.3	4.3.3		X	2	Average of 2 determinations to nearest 1°F.			
65 percent residue	3.2.3	4.3.3		X	2	Average of 2 determinations to nearest 1°F.			

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#### 4.3 Test procedure.

4.3.1 Specific gravity 20°/20°C. The specific gravity of the cleaning compound shall be determined in accordance with Fed. Test Method Std. No. 141, Method 4183 (Specific Gravity of Solvents and Thinners), except that a 10-milliliter capacity pycnometer shall be used.

4.3.2 Distillation range. The distillation range consisting of initial boiling point, percent recovered at 350°F, and dry point shall be determined on the cleaning compound in accordance with Fed. Test Method Std. No. 141, Method 4301. In addition, the first 20 ml of the distillate shall be collected and tested for specific gravity as specified in 4.3.1.

4.3.3 Flash point. The flash point of the cleaning compound and of the 65 percent residue shall be determined in accordance with Fed. Test Method Std. No. 141, Method 4291 (Flash Point of Volatile Materials, Tag Closed Tester). The 65 percent residue shall be obtained as follows: Use a crystallizing dish which is 125 mm in diameter and 65 mm high. On the side of the dish, make a mark at the 195 ml level. Pour 300 mls of the cleaning compound into the dish. Place the cleaner and dish on a steam bath and evaporate to the 195 ml mark. Determine the flash point of the residue in the dish.

#### 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.

5.1.1.1 One pint. One pint of cleaning compound shall be packaged in an oblong 1-pint capacity can conforming to type V, class 4 of PPP-C-96. Cans shall be made from hot dipped tinplate or electrolytic tinplate, except that No. 25 electrolytic tinplate shall not be used. The exterior coating of each can shall conform to plan B. Each can shall be fitted with an innerseal and be closed as specified in the appendix of PPP-C-96. The filled cans shall be packaged in fiberboard boxes as specified in the appendix of PPP-C-96.

5.1.1.2 One gallon. One gallon of cleaning compound shall be packaged in an oblong 1-gallon capacity can conforming to type V, class 4 of PPP-C-96. Cans shall be made from hot dipped tinplate or electrolytic tinplate, except that No. 25 electrolytic tinplate shall not be used. Each can shall have a formed bridge type handle securely affixed to the top. The exterior coating of each can shall conform to plan B. Each can shall be fitted with an innerseal and closed as specified in the appendix of PPP-C-96.

5.1.1.3 Five gallons. Five gallon quantities of cleaning compound shall not require packaging.

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5.1.1.4 Fifty-five gallons. Fifty-five gallon quantities of cleaning compound shall not require packaging.

5.1.2 Level B. Cleaning compound shall be packaged as specified in 5.1.1, except that plan A shall apply for the exterior coating of cans.

5.1.3 Level C (Commercial packaging). Cleaning compound shall be packaged to afford adequate protection against physical damage during shipment from the supplier to the first receiving activity. The package and the quantity per package shall be the same as that normally used by the supplier for retail distribution.

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

5.2.1 Level A.

5.2.1.1 One pint. One pint quantities of cleaning compound, packaged as specified in 5.1, shall be packed in accordance with the applicable level A requirements as specified in the appendix of PPP-C-96.

5.2.1.2 One gallon. One gallon quantities of cleaning compound, packaged as specified in 5.1, shall be packed in accordance with the applicable level A requirements as specified in the appendix of PPP-C-96.

5.2.1.3 Five gallons. Five gallon quantities of cleaning compound shall be packed in a 5-gallon capacity pail conforming to type I, class 4 of PPP-P-704. The nozzle of each pail shall be provided with an innerseal and screwcap. Each pail shall be closed in accordance with the applicable requirements as specified in the appendix of PPP-P-704.

5.2.1.4 Fifty-five gallons. Fifty-five gallon quantities of cleaning compound shall be packed in a 55-gallon capacity drum conforming to type I, class A of PPP-D-729. Each drum shall be closed and have an outer cap seal applied in accordance with the applicable requirements of PPP-D-729.

5.2.2 Level B.

5.2.2.1 One pint. One pint quantities of cleaning compound, packaged as specified in 5.1, shall be packed in accordance with the applicable level B requirements as specified in the appendix of PPP-C-96.

5.2.2.2 One gallon. One gallon quantities of cleaning compound, packaged as specified in 5.1, shall be packed in accordance with the applicable level B requirements as specified in the appendix of PPP-C-96.

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5.2.2.3 Five gallons. Five gallon quantities of cleaning compound shall be packed in a 5-gallon capacity pail conforming to type I, class 3 of PPP-P-704. The nozzle of each pail shall be provided with an innerseal and screwcap. Each pail shall be closed in accordance with the applicable requirements as specified in the appendix of PPP-P-704.

5.2.2.4 Fifty-five gallons. Fifty-five gallon quantities of cleaning compound shall be packed in a 55-gallon capacity drum conforming to type II of PPP-D-729, or type II of PPP-D-1152. Each drum shall be closed and have an outer cap seal applied in accordance with the applicable drum specification.

5.2.3 Level C (Commercial packing). Cleaning compound, packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The quantity per shipping container shall be the same as that normally used by the supplier for retail distribution. Containers shall comply with the U.S. Postal Service Manual, Uniform Freight Classification Rules, or National Motor Freight Classification Rules, as applicable.

5.3 Palletization. When specified (see 6.2), cleaning compound, packed as specified in 5.2, shall be palletized as hereinafter specified.

5.3.1 One pint. Shipping containers packed with filled 1-pint cans shall be palletized in accordance with load type I of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the pallet patterns specified in MIL-STD-147, the pallet pattern used shall first be approved by the contracting officer.

5.3.2 One gallon. Shipping containers packed with filled 1-gallon cans shall be palletized as specified in 5.3.1.

5.3.3 Five gallons. Filled 5-gallon pails shall be palletized in accordance with load type III of MIL-STD-147. Each prepared load shall be bonded with primary, secondary and horizontal straps in accordance with bonding means K, L, and E, respectively; and shall have storage aid 5 applied.

5.3.4 Fifty-five gallons. Filled 55-gallon drums shall not require palletization.

#### 5.4 Marking.

5.4.1 Civil agencies. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in

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accordance with Fed. Test Method Std. No. 123. Each 1-pint can, 1-gallon can, 5-gallon pail and 55-gallon drum shall be labeled as specified in 3.3.

5.4.2 Military requirements. In addition to any special marking required by the contract or order, interior packages, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129. Each 1-pint can, 1-gallon can, 5-gallon pail, and 55-gallon drum shall be labeled as specified in 3.3.

## 6. NOTES

6.1 Intended use. The safety solvent cleaning compound covered by this specification is intended to be used to remove grease, fungus and ground-in dirt from, but not limited to, photographic processing equipment, electrical and electronic material, engine components, small arms, and armament.

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) Selection of the applicable levels of packaging and packing (see 5.1 and 5.2).
- (c) Package or pack (as applicable) quantity put up desired (see 5.1 and 5.2).
- (d) When palletization is required (see 5.3).

6.3 Basis of purchase. The cleaning compound should be purchased by volume, the unit purchase being a U.S. gallon at 20°C (68°F).

### Custodians:

Army - GL  
Navy - AS

### Preparing activity:

Army - GL

### Civil Agency Coordinating Activities:

### Review activities:

Army - MU, MD, WC

DOT-SMS  
GPO  
GSA-FSS  
HEW-FDA, NIH  
TVA  
VA-DMS

### User activities:

Army - ME, MI

Project No. 6850-0352

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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 40 cents each.