

INCH-POUND

MIL-PRF-372F

13 November 2017

SUPERSEDING

MIL-PRF-372E

w/AMENDMENT 3

31 May 2017

PERFORMANCE SPECIFICATION

CLEANING COMPOUND, SOLVENT (FOR BORE OF WEAPONS)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification describes the performance requirements and verification methods for a type of solvent cleaning compound, also known as rifle bore cleaner (RBC), for use in removal of copper fouling and firing residue in the bore of weapons. This product is for use in cleaning caliber military weapons, operating in the temperature range of - 45°C to + 43°C (-49°F to +110°F). (see 6.1).

1.2 Classification. RBC products are of the following types, as specified (see 6.2).

1.2.1 Types.

Type A - Traditional, (i.e., non-biobased)

Type B - Biobased

1.2.2 Biobased. Biobased RBC is defined as RBC that is derived from plants and other renewable agricultural, marine, and forestry materials in a formulation yielding a percentage of biobased content meeting the requirement of 3.2.6.

Comments, suggestions or questions on this document should be addressed to: Commander, U S Army Armament Research, Development, and Engineering Center (ARDEC), ATTN: RDAR-EIQ-SA, Picatinny Arsenal, NJ 07806-5000, or emailed to usarmy.picatinny.ardec.list.ardec-stdzn-branch@mail.mil. Since contact information can change, you may want to verify the currency of this address using the ASSIST Online database at <https://assist.dla.mil>.

AMSC/NA

FSC 6850

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 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 cited in the solicitation or contract.

FEDERAL SPECIFICATIONS

O-M-232 Methanol (Methyl Alcohol)

FEDERAL STANDARDS

FED-STD-791 Testing Method of Lubricants, Liquid Fuels, and Related Products

(Copies of these documents are available online at <http://quicksearch.dla.mil>).

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

ASTM A109/A109M	Standard Specification for Steel, Strip, Carbon, (0.25 Maximum Percent), Cold-Rolled
ASTM B36/B36M	Standard Specification for Brass Plate, Sheet, Strip, And Rolled Bar
ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B209	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM D56	Standard Test Method for Flash Point by Tag Closed Cup Tester
ASTM D92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
ASTM D97	Standard Test Method for Pour Point of Petroleum Products
ASTM D1748	Standard Test Method for Rust Protection by Metal Preservatives in the Humidity Cabinet
ASTM D4057	Standard Practice for Manual Sampling of Petroleum and Petroleum Products

ASTM D4177	Standard Practice for Automatic Sampling of Petroleum and Petroleum Products
ASTM D6779	Standard Classification System for and Basis of Specification for Polyamide Molding and Extrusion Materials (PA)
ASTM D6866	Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis

(Copies of these documents are available from <http://www.astm.org> or ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, 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. RBC furnished under this specification shall be products authorized by the Qualifying Activity for listing on the applicable Qualified Products List (QPL) before contract award (see 4.1.1 and 6.3).

3.1.1 Conformance inspection. A sample of RBC shall be subjected to a qualification conformance inspection (see 6.3.1).

3.2 Support and ownership requirements.

3.2.1 Graphite. RBC shall contain no graphite or powdered metals.

3.2.2 Ozone depleting substances (ODS). RBC shall contain no ODS.

3.2.3 Toxicity and hazardous materials. RBC shall have no adverse effect on the health of personnel when used for its intended purpose.

3.2.4 Color and appearance. RBC shall be uniform in color and appearance when examined in reflected light after shaking to disperse residue.

3.2.5 Physical properties. RBC shall conform to properties specified in Table I.

TABLE I. Physical properties.

Properties	Limits
Flash Point, min	43°C (110°F)
Pour Point, max	- 45°C (- 49°F)

3.2.6 Biobased content. The percentage of biobased content in Type B RBC shall be not less than 28 percent.

3.3 Interface requirements.

3.3.1 Allowable weight change.

3.3.1.1 Aluminum submersion. The RBC shall not cause an average weight change in excess of 0.1 milligrams per squared centimeter (mg/cm^2) of aluminum on three panels when each is submersed for 8 hours.

3.3.1.2 Steel submersion. The RBC shall not cause an average weight change in excess of 0.1 mg/cm^2 of steel on three panels when each is submersed for 8 hours.

3.3.1.3 Brass submersion. The RBC shall remove an average of a minimum 0.15 mg/cm^2 of copper alloy on three panels when each is submersed for 8 hours.

3.3.2.4 Plastic submersion. The RBC shall not cause an average weight change in excess of 1.5 mg/cm^2 , nor shall the RBC cause an average dimension change excessive of 15% on three panels when each is submersed for 8 hours.

3.4 Environmental requirements.

3.4.1 Salt-spray resistance. RBC, applied to three test panels, shall protect the panels so that the corrosion dots do not exceed the corrosion of an untreated control panel in size and number after 1 hour of exposure to a spray of 5 % salt solution.

3.4.2 Water displacement and water stability. RBC, applied to three test panels, shall displace water so that the corrosion dots on each panel do not exceed the corrosion of an untreated control panel in size and number after storage in the static humidity chamber for 1 hour.

3.5 Operating requirements.

3.5.1 Firing residue removal. RBC shall provide cleaning capability to remove a minimum average of 95% of the residue generated from the ignition of WC 844 propellant.

3.5.2 Stability.

3.5.2.1 Freezing. The RBC shall show no separation after storage throughout a temperature range of -54°C (-65°F) to 25°C (77°F).

3.5.2.2 Heating. The RBC shall show no separation after storage at 66°C (150°F).

3.5.3 Copper removal.

3.5.3.1 Abrasive cleaning. The RBC shall remove an average of a minimum 0.10 mg/cm² of copper on three panels when each is abrasively cleaned for 600 seconds.

4. VERIFICATION

TABLE II. Requirement/verification cross-reference matrix.

Property	Requirement	Verification	Classification of Inspections	
			Qualification Testing	Conformance Inspection
Qualification	3.1	4.1.1	X	
Conformance inspection	3.1.1	4.1.2		X
Graphite	3.2.1	4.2.1	X	X
ODSs	3.2.2	4.2.2	X	X
Toxicity and hazardous materials	3.2.3	4.2.3	X	X
Color and appearance	3.2.4	4.2.4	X	X
Flash Point	3.2.5	4.2.5	X	X
Pour Point	3.2.5	4.2.5	X	X
Biobased Content (Type B)	3.2.6	4.2.6	X	X
Aluminum Submersion	3.3.1.1	4.3.1	X	X
Steel Submersion	3.3.1.2	4.3.1	X	X
Brass Submersion	3.3.1.3	4.3.1	X	X
Plastic Submersion	3.3.1.4	4.3.2	X	X
Salt-spray Resistance	3.4.1	4.4.1	X	X
Water Displacement/Stability	3.4.2	4.4.2	X	X
Firing Residue Removal	3.5.1	4.5.1	X	X
Freezing	3.5.2.1	4.5.2.1	X	X
Heating	3.5.2.2	4.5.2.2	X	X
Abrasive Cleaning	3.5.3.1	4.5.3	X	X

4.1 Classification of inspection.

4.1.1 Qualification inspection. Upon formal application, RBC qualification inspection shall consist of the specified tests for all requirements specified in Section 3, (see Table II).

4.1.1.1 Qualification samples. Qualification testing shall require two gallons of the candidate RBC product. If the final formulation contains solid materials, a one-half gallon sample shall be provided identical to the final product but without the addition of solid materials.

4.1.1.2 Qualification rejection. If a product sample fails to meet any of the requirements specified in Section 3, that product shall not be qualified, and shall not be listed in the QPL.

4.1.2 Conformance inspection. Conformance inspection of production lots (see 6.3.1), shall consist of the specified tests for all the requirements specified in Section 3 (see Table II.)

4.1.2.1 Rejection of lots. If a product sample fails to pass any of the specified tests, the production lot represented by that sample, shall be rejected.

4.1.3 Sampling for tests. Samples for tests shall be taken in accordance with ASTM D4057 or ASTM D4177, as applicable.

4.2 Support and ownership verifications.

4.2.1 Graphite. Objective evidence shall be examined to verify the product formulation contains no graphite or powdered metals. (see 6.3.2)

4.2.2 Ozone depleting substances. Objective evidence shall be examined to verify the product formulation contains no ODSs. (see 6.3.2)

4.2.3 Toxicity and hazardous materials. A Toxicity Clearance by the US Army Public Health Center (USAPHC) shall confirm conformance. (see 6.4).

4.2.4 Color and appearance. A 4 oz translucent container of product shall be shaken for a period not to exceed 30 seconds to disperse any visible residue. Immediately after shaking, the product shall be visually inspected to check for full dispersion of residue. Failure of residue to fully disperse after shaking or failure of the product to achieve a uniform color shall be cause for failure of product qualification.

4.2.5 Physical properties. Physical properties shall be verified by methods identified in Table III.

TABLE III. Test methods.

Properties	Method
Flash Point	ASTM D56 <u>1/</u>
Pour Point	ASTM D97
<u>1/</u> If the flash point is over 79 °C (175 °F), use the Cleveland Open Cup Method, ASTM D92.	

4.2.6 Biobased content. The percentage of biobased content in Type B RBC shall be determined by testing the RBC in accordance with ASTM D6866. A test result of less than 28 percent biobased content shall be cause for failure of product qualification as Type B. A RBC that does not meet this requirement, but meets all other requirements of this specification may be qualified as a Type A RBC.

4.3 Interface verifications.

4.3.1 Allowable weight change.

TABLE IV. Coupons for allowable weight change.

Metal	Specification
Aluminum	ASTM B209
Steel	ASTM A109/A109M
Copper Alloy	C22000 ASTM B36

4.3.1.1 Preparation of test coupons. Three test coupons 1 in x 1 in x 1/32 in shall then be cleaned by swabbing with hot heptane with a final rinse in warm anhydrous methanol conforming to Grade A of O-M-232. The test coupons shall be held in a manner to avoid contact with the operator's hands.

4.3.1.2 Exposure of test coupons. After weighing to 0.1 mg, place the test coupons individually in 25 mL beakers. Add 22 mL of RBC to each beaker containing a test coupon. Maintain temperature at $24^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($75^{\circ}\text{F} \pm 5^{\circ}\text{F}$) for a period of 8 hours \pm 15 minutes.

4.3.1.3 Examination of test coupons. Upon completion of the test, remove the RBC and any loose corrosion products from the specimen by swabbing with surgical gauze pads moistened with heptane, then with methanol, and follow by a rinse with clean methanol. Visually examine and re-weigh the specimens and calculate the weight loss or gain in milligrams per square centimeter.

4.3.2 Plastic submersion.

4.3.2.1 Exposure of plastic tests coupons. Plastic nylon 1 in x 1 in x 1/32 in, ASTM D 6779 0161 or 0162, test coupons will be weighed and the length, width, and thickness will be measured. Once plastic specimens are measured expose to RBC following 4.3.1.2.

4.3.2.2 Examination of plastic coupons. Upon completion of the test, remove the RBC and any loose corrosion products from the specimen by swabbing with surgical gauze pads. Visually examine and re-weigh the specimens and calculate the weight loss or gain in milligrams per square centimeter. Re-measure the dimension and calculate the dimension change.

4.4 Environmental verifications.

4.4.1 Salt-spray (5 % solution) resistance.

4.4.1.1 Test panels and preparation. Three test panels conforming to Annex A1.10, "Humidity Cabinet Apparatus - Steel Panels," of ASTM D1748 shall be used. The panels shall be cleaned and sandblasted in accordance with FED-STD-791, Method 5329, except that 120 grit white aluminum oxide shall be used in place of silica sand.

4.4.1.2 Panel edge dressing. Panel edges shall be examined closely, and sanded if necessary, to insure panel edges are fully rounded so as not to promote corrosion initiating at a sharp edge. No additional protective substance (e.g. wax or asphalt) shall be applied to the panel edges to inhibit corrosion.

4.4.1.3 Salt-spray test. The salt-spray resistance test shall be performed in accordance with ASTM B117 except that the panels shall be placed at an angle of 10-20° from the vertical with the four inch edge with drilled holes facing down in the cabinet during exposure to salt-spray.

4.4.1.4 Salt-spray failure criteria. Visually examine the test panels after exposure. Corrosion on the outer ¼ inch (6.4 mm) of the panels shall not be cause for rejection.

4.4.2 Water displacement and water stability. Conduct the water displacement and water stability test in accordance with Method 3007 of FED-STD-791, except that the test shall be made only on the compound-water mixture.

4.5 Operating verifications.

4.5.1 Firing residue removal. Clean porcelain evaporating dish (round bottom type) of approximately 102 mm in diameter with acetone, heptane, soap, and water on the inside and outside. Weigh 5.00 + 0.03 grams of WC 844 propellant powder into dish and spread it around evenly without jarring with the bottom of a 10 mL glass test tube. Ignite the propellant in the center of the dish with an extended reach lighter and burn until all visible propellant is consumed. Allow dish to cool for 10 minutes. The first run of a brand new dish is discarded.

4.5.1.1 Dish preparation. Invert the dish, rap it sharply several times against the table top and then blow it out with a 15 psi stream of filtered air, to remove any non-adhering residue. The dish shall be held approximately 15 cm from the end of the air hose. Weigh the dish with the adhering residue, and subtract the weight of the evaporating dish (empty) to determine the weight of propellant residue adhering to the dish (W_1).

4.5.1.2 Cleaning process. Add enough of the RBC product to cover the burned surface, cover with a watch glass, and permit it to soak for 45 ± 3 min, at $54^\circ\text{C} \pm 1^\circ\text{C}$ ($129^\circ\text{F} \pm 2^\circ\text{F}$) in convection oven. Remove the dish and immediately swab the residue with a double layer of cotton gauze pad (Webril® Handi-Pad or equivalent) wrapped around the wide end of a CoorsTek® 60323 porcelain pestle, weighing approximately 470 grams and measuring approximately 190 mm high by 57 mm at its widest point. Excess RBC may be removed, but the pad must remain wet. Swab the dish in both a circular and back and forth motion for a period of 90 seconds, letting the weight of the pestle perform the actual removal of the residue. Do not apply any downward force to the pestle.

4.5.1.3 Calculation of residue removed. After swabbing, decant the remaining oil and thoroughly wash the inside of the dish with 75 ml of heptane. Note if the candidate does not dissolve in heptanes as another solvent may be approved by the preparing activity in these cases. Clean the outside of the dish with heptane. Heat the evaporating dish to $55^\circ\text{C} \pm 1^\circ\text{C}$ ($131^\circ\text{F} \pm 2^\circ\text{F}$) for 30 ± 2 minutes, cool to room temperature and weigh the dish with the remaining residue. Subtract the weight of the evaporating dish (empty) to determine the weight of propellant residue still adhering to the dish after the cleaning cycle (W_2). Calculate the percent residue removed by the equation:

$$\% \text{ residue removed} = 100 \times \frac{W_1 - W_2}{W_1}$$

4.5.1.4 Firing residue removal failure criteria. If the average residue removal of three test iterations is less than ninety five percent (95 %), the product shall fail to qualify.

4.5.2 Stability.

4.5.2.1 Freezing. A sample of the cleaner shall be placed in a pour point tube, stoppered, and subjected to $-54^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($-65^{\circ}\text{F} \pm 5^{\circ}\text{F}$) for 16 hours followed by 8 hours at $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 5^{\circ}\text{F}$). This cycle shall be repeated for a total of three times. Following this procedure the sample shall be inverted once, permitted to stand at $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 5^{\circ}\text{F}$) for 16 hours, and then examined for separation. Any evidence of separation in this sample shall be cause for rejection.

4.5.2.2 Heating. A sample of the cleaner shall be placed in a pour point tube, loosely stoppered, and subjected to 66°C (150°F) for 30 minutes. Upon completion of the heating period, the sample is permitted to cool to $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 5^{\circ}\text{F}$) and examined for separation. Any evidence of separation in the sample shall be cause for rejection.

4.5.3 Abrasive cleaning.

TABLE V. Coupons for copper removal.

Metal	Specification
Copper Alloy (UNS No. C22000)	ASTM B36/B36M

4.5.3.1 Preparation of test coupons. Three test coupons 1.5 in x 1.5 in x 1/32 in, shall be cleaned by swabbing with hot heptane with a final rinse in warm anhydrous methanol conforming to Grade A of O-M-232. The test coupons shall be held in a manner to avoid contact with the operator's hands.

4.5.3.2 Exposure of test coupons. After weighing, affix the test metal coupon to a rubber suction cup mounted to a stable base. Cut 4 layers of cotton gauze pad (Webril Handi-Pad or equivalent) to adequately cover the metal test coupon. With an eyedropper, coat the gauze pad with sufficient cleaner to ensure the entire padding is saturated. Use an apparatus with a 200 gram dead weight flat spindle of 1.5" diameter that can achieve a spindle speed of 450 rpm. With a hooked fastener adhered to the flat spindle, bring the spindle down to establish contact with the center of the gauze pad atop the entire test metal coupon. Run spindle for 600 seconds to apply a constant 200 gram dead weight at 450 rpm to the specimen.

4.5.3.3 Examination of test coupons. Upon completion of the test, remove the RBC and any loose corrosion products from the specimen by swabbing with surgical gauze pads moistened with heptane, then with methanol, and follow by a rinse with clean methanol. Visually examine and re-weigh the specimens and calculate the weight loss or gain in milligrams per square centimeter.

5. PACKAGING

5.1 Packaging For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. RBC covered by this specification is a highly penetrating, mobile liquid and is intended for field application to satisfy the complete need of cleaning of military weapons. RBC facilitates the effective removal of copper, firing residues, gums and other contaminants from weapon components.

6.1.1 Ventilation requirements. Due to the solvent systems often employed in RBC type formulations, field users should avoid using RBC in conditions of limited ventilation, that is, closed rooms, sealed vehicles, etc.

6.1.2 Preservative application limitation. RBC is not intended for storage and should be removed after use. An appropriate lubricant such as Cleaner, Lubricant & Preservative (CLP), described by MIL-PRF-63460, should be used for preservative and lubrication in accordance with an appropriate weapons manual or lubrication order.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification, and its related QPL (see 6.3).
- b. Title, number, and date of all documents referenced (see 2.1).
- c. Type of RBC required (see 1.2.1).
- d. Quantity of RBC required.
- e. Conformance tests required (see 6.3.1).
- f. Type and size of container (see 6.6).
- g. Packaging requirements (see 5.1 and 6.6).
- h. Toxicological Data Requirements (see 3.2.3 and 4.2.3 and 6.4).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products that are, at the time of award of contract, qualified for inclusion on the Qualified Products List, QPL-372. The attention of the contractors is called to these requirements, 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

purchase orders for the products covered by this specification. The addition of a RBC product to the QPL for competitive procurement does not guarantee future procurement by the Federal Government. Information pertaining to qualification of products may be obtained from U.S. Army ARDEC, ATTN: RDAR-EIQ-SA, Picatinny Arsenal, NJ 07806-5000 or by email at usarmy.picatinny.ardec.list.ardec-stdzn-branch@mail.mil. An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at <http://quicksearch.dla.mil/>.

6.3.1 Conformance testing. Verification of successful conformance testing in accordance with Table II, along with a one gallon conformance sample should be provided with each production lot (see 6.7) delivered. In addition, subsequent deliveries more than 12 months after initial conformance tests were performed should require retesting, and submission of another one gallon sample. Test reports and samples should be sent to U.S. Army ARDEC, ATTN: RDAR-EIQ-SA, Picatinny Arsenal, NJ 07806-5000.

6.3.2 Product formulation disclosure. As part of the qualification process towards inclusion on the QPL, RBC suppliers will be requested to submit to the Qualifying Activity a detailed quantitative description of the complete product formulation, identifying each constituent material (solvent, base oil, additive, etc.) by CAS number and percentage weight used in the finished product. Company proprietary information will be safeguarded from unauthorized disclosure. Also required to be submitted is the manufacturing source of each constituent material, and the location of the manufacturing facility of the finished product.

6.4 Toxicity clearance. Department of the Army (DA) regulations AR 40-5, Preventive Medicine, AR-70-1, Acquisition Policy, and DA Pamphlet 70-3, Acquisition Procedures, require that all new chemicals and materials being added to the Army supply system have a Toxicity Clearance. This involves a toxicological evaluation of materials to assure the safety of their use. The toxicological evaluation includes a thorough review of all data included on the RBC's Safety Data Sheet, as well as that which is included in the complete product formulation disclosure (see 6.3.2). Any toxicity related questions, or questions regarding the Toxicity Clearance should be addressed to: Director, US Army Public Health Center (USAPHC) (MCHB-IP-TEP), 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5403.

6.5 WC 844 propellant. The source of supply for WC 844 propellant may be obtained upon request from the Qualifying Activity identified in 6.3.

6.6 Containers.

6.6.1 Container materials. Container material should be of a density sufficient to prevent migration of the product or any constituent materials through the container. Container may require pretreatment to ensure that printed identification will properly adhere and will not be removed by the product. Plastic, Polyethylene, Type I, Class H, Grade 2, Translucent in accordance with L-P-390 is recommended.

6.7 Definitions.

6.7.1 Production lot. An indefinite quantity of a homogeneous mixture of product offered for acceptance in a single, isolated container, or manufactured in a single plant run, through the same processing equipment, with no change in the ingredient materials in a 24 hour time period.

6.8 International standardization agreements. This specification implements NATO STANAG 1135, Interchangeability of Fuels, Lubricants and Associated Products used by the Armed Forces of NATO Nations. When amendment, revision, or cancellation of this specification is proposed the preparing activity should coordinate the action with the U. S. National Point of Contact for the international standardization agreement, as identified in the ASSIST database at <https://assist.dla.mil>.

6.9 Subject term (keyword listing).

biobased
copper removal
corrosion
formulation
heptane
humidity
methanol
propellant
residue
water stability

6.10 Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

CONCLUDING MATERIAL

Custodian:

Army - AR
Navy - AS
Air Force - 68
DLA - GS

Preparing activity:

Army - AR
(Project 6850-2018-004)

Review Activities:

Army - AT, AV, CR, EA, MD, MI, MR, SM
Navy - MC, OS, SH
Air Force - 50

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST online database at <https://assist.dla.mil>.