INCH-POUND
MIL-DTL-12285E
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SUPERSEDING
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DETAIL SPECIFICATION

SWITCHES, THERMOSTATIC

Inactive for new design after 8 March 1999

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

1. SCOPE

1.1 This specification covers a level high coolant temperature switch that is designed to generate an alarm by light or audible sound when fluid temperature exceeds predetermined conditions (see 6.1).

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 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 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

MILITARY

MIL-DTL-12285/1 - Switch, Thermostatic (Long Sensor).
MIL-DTL-12285/2 - Switch, Thermostatic (Short Sensor).

STANDARDS

FEDERAL

FED-STD-H28 - Screw Thread Standards for Federal Services.

Comments, suggestions or questions on this document should be addressed to Defense Supply Center Columbus, ATTN: VAT, Post Office Box 3990, Columbus, OH 43216-5000, or emailed to switch@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at www.dodssp.daps.mil.

MILITARY

MIL-STD-130	-	Identification Marking of US Military Property.
MIL-STD-202	-	Test Methods of Electronic and Electrical Component Parts.
MIL-STD-889	-	Dissimilar Metals.

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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 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 G-21	-	Materials to Fungi, Synthetic Polymeric, Determining Resistance of

(Copies of these documents are available online at www.astm.org/ or from American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania, 19428-2959.)

INTERNATIONAL ORGANIZATION FOR STANDARDS (ISO)

ISO 10012-1	-	Quality Assurance Requirements for Measuring Equipment - Part 1; Metrological Confirmation System for Measuring Equipment.

(Copies of these documents are available online at www.nssn.org/search.html or from the American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036-8002, telephone 212-642-4900, fax 212-302-1286.)

NATIONAL CONFERENCE OF STANDARDS LABORATORIES (NCSL)

NCSL Z540-1	-	Calibration Laboratories and Measuring and Test Equipment - General Requirements

(Copies of these documents are available online at www.ncsli.org/, or from National Conference of Standards Laboratories, 2995 Wilderness Place Suite 107, Boulder, Colorado, 80301-5404.)

2.4 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification takes precedence.

3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets. In the event of any conflict between requirements of this specification and the specification sheets, the latter shall govern.

3.2 Qualification. Switches 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 4.5 and 6.3).

3.3 Materials. Materials shall be as specified herein and in referenced specifications, standards and drawings. Specifications and standards for all materials, parts, and processes which are not specifically designated herein and which are necessary for the execution of this specification shall be selected to meet the performance requirements of this specification. (see 4.7.1).

3.3.1 Dissimilar metals. Except where necessary to complete an electrical circuit, the switch shall be designed and fabricated to minimize galvanic corrosion in dissimilar metal couples as specified in MIL-STD-889 (see 4.7.1).

3.3.2 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements and promotes advantageous life cycle cost.

3.4 Design and construction. Switches covered by this specification shall be in accordance with MIL-DTL-12285/1 and/or MIL-DTL-12285/2 (see 4.7.2 and 6.2).

3.4.1 Threaded parts. Screw threads, of the form, number per inch, and class specified on the applicable drawing, military standard, or figure, shall be in accordance with the applicable sections of FED-STD-H28 (see 4.7.1).

3.5 Performance.

3.5.1 Calibration. The switch shall operate within the temperature ranges specified in MIL-DTL-12885/1 or MIL-DTL-12285/2 (see 4.7.3).

3.5.2 Dielectric withstanding. The switch shall operate within the temperature specified in 3.5.1 with the insulation showing no evidence of cracking, charring, burning, smoking or other damage (see 4.7.4).

3.5.3 High temperature. The switch shall withstand being heated for one minute in an oil bath at 177º ± 3ºC (350º ± 5ºF), then cooled to room temperature, with the resultant change in calibration (see 3.5.1) being no more than ± 3ºC (5.4ºF) (see 4.7.5).

3.5.4 Waterproofness. The switch shall withstand being submerged for 30 minutes while being operated at full rated current and voltage, with no evidence of leakage. It shall subsequently meet the requirements of 3.5.1 (see 4.7.6).

3.5.5 Corrosion. The switch shall withstand being subjected to a salt spray (fog) condition for 200 hours with the resultant change in calibration (see 3.5.1) being no more than ± 3ºC (5.4ºF) (see 4.7.7).

3.5.6 Fungus. The switch shall operate as specified herein after exposure to 90 days of continuous incubation (see 4.7.8).

3.5.7 Shock. The switch shall withstand shock impact of 100 gravity units (g) with no intermittent contact, sticking of contacts or delay in functioning. The resultant change in calibration (see 3.5.1) shall be no more than ± 3ºC (5.4ºF) (see 4.7.9).

3.5.8 Vibration. The switch shall withstand simple harmonic motion having an amplitude of 0.03 ± 10 percent ohms or 50g peak, whichever is less, along each of three mutually perpendicular axes with no intermittent contact, sticking of contacts or delay in functioning. The resultant change in calibration (see 3.5.1) shall be no more than ± 3ºC (5.4ºF) (see 4.7.10).

3.5.9 Endurance. The switch, when connected in series with a 28 volt direct current (vdc) power source and a 3 candle power (cp) 24v lamp, shall withstand the cyclic thermal exposures specified below with a resultant change in calibration (see 3.5.1) of not more than ± 3ºC (5.4ºF) (see 4.7.11).

a. 2500 cycles of alternating immersion in circulating oil baths at temperature of 11ºC (20ºF) above and below the switch operating temperature at a frequency that will produce "on" and "off" cycling.

b. 25,000 cycles of alternating immersion in circulating oil baths at temperatures 38ºC (100.4ºF) and -12ºC (10ºF) below the switch operating temperature at a frequency of one cycle every four minutes.

3.6 Marking. Each switch shall be marked, in accordance with MIL-STD-130, with the manufacturer's name trade-mark or Federal manufacturer's code, the operating temperature limits, and the Army part number (see 4.7.2).

3.7 Workmanship. Workmanship shall be such as to assure a finished product free of burrs, scratches, rust, and sharp edges (see 4.7.1).

4. VERIFICATION

4.1 Classification of inspection. The inspection requirements specified herein are classified as follows:

a. Qualification inspection (see 4.5).
b. Periodic inspection (see 4.6.2).

4.2 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with NCSL Z540-1, ISO 10012-1, or equivalent system as approved by the qualifying activity.

4.3 Testing apparatus. Testing apparatus shall include a mounting manifold, a 3 candlepower (cp), 24-volt indicating lamp, connected to a 28-volt direct current (dc) source of electrical energy; laboratory thermometers; pressure gages; and temperature sensors with pressure interlock. Separate temperature controls and heating or cooling apparatus shall be provided for the mounting manifold and bath.

4.4 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the general requirements of MIL-STD-202.

4.5 Qualification inspection (category I switches, see 3.1, and 3.3). Qualification inspection shall be performed at a laboratory acceptable to the Government (see 6.3), on sample units produced with equipment and procedures normally used in production.

4.5.1 Sample. For qualification inspection, the sample size shall be as specified in table I and the appendix to this specification. The sample units which have been subjected to qualification inspection shall be forwarded to the preparing activity.

TABLE I. Qualification test sequence.

Sample No.	Paragraph	Test
1	4.7.3 4.7.5 4.7.10 4.7.3 4.7.8	Calibration High temperature Vibration Calibration Fungus
2	4.7.3 4.7.11 4.7.7	Calibration Endurance Corrosion
3	4.7.3 4.7.9 4.7.6 4.7.4	Calibration Shock Waterproofness Dielectric withstanding

4.5.2 Failures. Failure of any switch to comply with the applicable requirements shall be cause for refusal to grant qualification.

4.5.3 Certification of material. When submitting samples for qualification, the manufacturer shall submit certification that the materials used in his components are in accordance with the applicable specification requirements, or shall state whether other materials are used. With the qualification test report, the manufacturer shall submit a cross-reference list of the switch parts and the materials used to fabricate those parts.

4.6 Conformance inspection.

4.6.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection (see. 4.6.1.2)

4.6.1.1 Inspection lot. All switches that appear on the same MS standard or specification sheet and that are offered for delivery at one time shall be considered a lot for purposes of sampling and inspection.

4.6.1.2 Group A inspection. Group A inspection shall consist of the inspections specified in table II. The inspections may be performed in any order, except dielectric withstanding voltage shall be performed after seal testing.

4.6.1.2.1 Sampling plan. Statistical sampling shall be in accordance with table II and table III. A randomly selected group(s) of samples is required. For acceptance of the lot there shall be zero occurrences of defects.

TABLE II. Group A inspection.

Inspection	Requirement paragraph	Test method paragraph	Sampling Plan
Examination of product	3.1	4.7.1	4.6.1.2.1
Material	3.3	4.7.1	
Design construction	3.4	4.7.1	
Calibration	3.5.1	4.7.3	
Dielectric withstanding	3.5.2	4.7.4	
Marking	3.6	4.7.2	
Workmanship	3.7	4.7.2	

TABLE III. Zero defect sampling plan.

Lot Size	Minimum number of switches to be tested 1/
1 - 8	All
9 - 15	5
16 - 50	5
51 - 90	7
91 - 150	11
151 - 280	13
281 - 500	16
501 - 1,000	19
1,201 - 3.200	23
3,201 - 10,000	29
10,001 - 35,000	35

1/ For lot sizes that are less than the required sample size, all switches shall be tested.

4.6.2 Periodic inspection.

4.6.2.1 Group B inspection. Group B inspection shall be completed in accordance with table IV, in the order shown, within each 3-year period after initial qualification. When a manufacturer has switches qualified under various MS standards or specification sheets, the qualifying activity may authorize group B tests that do not require redundant testing on similar product features. Group B inspection shall be performed on sample units that have been produced, using the same manufacturing facilities and processes normally used in production and which have passed group A inspection. A manufacturer's normal quality control tests, production tests, and environmental tests may be used to fulfill all or part of group B inspection; however, all of group B inspection shall be completed as specified. Data used may be accumulated within the previous 24 months.

4.6.2.1.1 Sampling plan. The sampling plan and test procedures shall be as specified in the appendix to this specification. The sample units shall be selected from current production. If switches are not in current production, they may be selected from stock; however, all switches shall be date coded within 24 months of the required group B submittal date. When there has been no production of a particular type of switch for a 3-year period, sample units shall be selected from the next production lot presented for acceptance and for each subsequent 3-year period.

4.6.2.1.2 Noncompliance. If a sample fails to pass group B inspection, the supplier shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured under essentially the same conditions, with essentially the same materials, processes, etc., and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action, acceptable to the preparing activity, has been taken. After the corrective action has been taken, group B inspection shall be repeated on additional sample units (all inspections, or the inspection which the original sample failed, at the option of the preparing activity). Group A inspection may be reinstituted; however, final acceptance shall be withheld until the group B reinspection has shown that the corrective action was successful.

TABLE IV. Group B inspection.

Inspection	Requirement paragraph	Test method paragraph
High temperature	3.5.3	4.7.5
Waterproofness	3.5.4	4.7.6
Corrosion	3.5.5	4.7.7
Fungus	3.5.6	4.7.8
Shock	3.5.7	4.7.9
Vibration	3.5.8	4.7.10
Endurance	3.5.9	4.7.11
Examination of product	3.1	4.7.1

4.6.3 Retention of qualification. To retain qualification, the supplier shall forward to the qualifying activity via Government quality assurance representative at yearly intervals, summaries of group A inspection for that period, along with group B test reports, when applicable. The summary of group A inspections shall indicate as a minimum the number of inspection lots which have passed and the number which failed (including the number and type of any part failures, the reason for failure, the corrective action taken and how the lot was reexamined). The group B test report shall cover the actual tests performed. If the results for group B tests indicate nonconformance with the specification requirements, action shall be taken to remove the failing products from the qualified products list. Failure to submit the summary shall result in loss of qualification for that product. In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item.

4.7 Methods of inspection.

4.7.1 Materials, design, and construction. Conformance to 3.3 through 3.3.2, 3.4.1 and 3.7 shall be determined by inspection of contractor records providing proof or certification that design, construction, processing, and materials conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports, and rating data.

4.7.2 Examination. Conformance to 3.4 and 3.6 shall be determined by examination for the defects specified in table II.

4.7.3 Calibration. To determine conformance to 3.5.1, the sample shall be mounted as specified in 4.3 in such a position that the circulating oil-bath will cover it to the smaller end of the tapered thread. The switch shall be connected through the indicator lamp to the voltage supply. The initial oil-bath temperature shall be a minimum of 6ºC (10.8ºF) below the rated temperature of the switch. Oil bath temperature shall be increased at a rate no greater than 0.58ºC (1ºF) per minute. The temperature at which the switch contacts close the circuit shall be recorded.

4.7.4 Dielectric withstanding. To determine conformance to 3.5.2, the switches shall be tested in accordance with MIL-STD-202, method 301. The following conditions are applicable:

a. The switch temperature shall be maintained at 14º ± 3ºC (25º ± 5ºF) below the rated contact closing temperature.
b. A potential of 440 volts root mean square (vrms) shall be applied.
c. The potential shall be 60 cycles per second (cps), alternating current (ac).
d. One conductor shall be attached to the switch terminal and one to the switch body.
e. After the voltage application the switch shall be examined and the calibration checked as specified in 4.7.1.

4.7.5 High temperature resistance. To determine conformance to 3.5.3, the switch shall be heated for one minute at 177º ± 3ºC (350º ± 5ºF) in an oil bath, cooled to room temperature, and then tested as specified in 4.7.3.

4.7.6 Waterproofness. To determine conformance to 3.5.4, the switch shall be subjected to the waterproofness test of 4.7.6.1. Subsequently, the switch shall be tested as specified in 4.7.3.

4.7.6.1 Waterproofness test method

4.7.6.1.1 Pre-test of switch. Prior to submersion, the sample switch shall be installed in a test circuit equivalent to the normal dry environment and operating both mechanically and electrically, as applicable, for a period of 30 minutes at full rated current and voltage.

4.7.6.1.2 Submersion. The component with its electrical connections shall be submerged in a container with the uppermost surface a minimum of one inch below the surface of the saline solution and installed in the chamber. The component shall be carefully observed during its entire period of submersion and shall be operated while submerged for 30 minutes at full rated current and voltage. The chamber shall be evacuated to a pressure six pounds below atmospheric so as to apply a minimum of six pounds per square inch (psi) in internal pressure to all voids within the component. Test results obtained shall be compared with the data obtained from the test of 4.7.6.1.1. During this period the component shall be carefully observed for poor seals, as evidenced by bubbles escaping from the interior of the component (see 4.7.6.1.5). Leakage thus indicated shall be considered as noncompliance with the waterproofness requirement and the component shall be rejected. Bubbles that are the result of entrapped air on the exterior surfaces of the component shall not be considered a leak.

4.7.6.1.3 Chamber pressure. The chamber shall then be pressurized to six pounds above atmospheric and the component again operated for 30 minutes. Test results obtained shall be compared with the data from the test of 4.4.

4.7.6.1.4 Test results. The switch shall evidence no leakage and shall be mechanically and electrically operable during and subsequent to submersion, when subjected to the tests specified in 4.7.6.1.2 and 4.7.6.1.3.

4.7.6.1.5 Leakage definition. The term “leakage”, as used in this document, is intended to mean that there shall be no bubbles escaping from the interior of the component when the test chamber is evacuated to a pressure six pounds below atmospheric

4.7.7 Corrosion. To determine conformance to 3.5.5, the switch shall be subjected to the salt spray (fog) test specified in MIL-STD-202, method 101, except that the test duration shall be 200 hours. After the test, the switch shall be tested as specified in 4.7.3. Resultant change in calibration (see 3.5.1) shall be no more than ± 3ºC (5.4ºF).

4.7.8 Fungus. To determine conformance to 3.5.6, the switch shall be subjected to the fungus resistance test for class 1, method B, components specified in ASTM-G21. After 90 days of continuous incubation the switch shall be tested as specified in 4.7.3. Resultant change in calibration (see 3.5.1) shall be no more than ± 3ºC (5.4ºF).

4.7.9 Shock. To determine conformance to 3.5.7, the switch shall be mounted to simulate actual mounting in use. The unit shall be subjected to the shock test as specified in MIL-STD-202, method 202, in such a manner that an impact of 100g will be obtained. The test shall be repeated 10 times and applied in the vertical axis while the test unit is in its normal mounting orientation. Subsequently the switch shall be subjected to the test specified in 4.8.3. Resultant change in calibration (see 3.5.1) shall be no more than ± 3ºC (5.4ºF).

4.7.10 Vibration. To determine conformance to 3.5.8, the switch shall be mounted in a test fixture simulating actual mounting in use and shall be connected in a series circuit with a 24 vdc (nominal) power source and applicable indicator. Care shall be taken to see that the mounting is free from resonances over the frequency range. While energized, the switch shall be subjected to a simple harmonic motion having an amplitude of 0.03 inches or 50g peak, whichever is less. Tolerance of ± 10 percent is permissible for the amplitude. The vibrational frequency shall be varied over the range from 10 to 3500 cps. Rate of frequency change shall be logarithmic. When there is no provision for logarithmic cycling, other automatic cycling rates of frequency change may be used. The vibrational cycle from 10 to 3500 and back to 10 cps shall be accomplished in 20 ± 2 minutes. This scanning cycle shall be repeated three times in order that critical (see 6.4.2) frequencies may be identified, recorded and checked. After the scanning cycles, the switch shall be vibrated at the critical frequency for two hours. If there is more than one critical frequency, the two hour period shall be divided equally between the critical frequencies. If there are more than three critical frequencies, the three more critical shall be selected and the switch vibrated for 40 minutes at each of the frequencies selected. If no critical frequency is identified, the specimen shall be vibrated at 50g acceleration, with frequency cycled from 10 to 3500 and back to 10 cps. Rate of change of frequency shall be logarithmic or where there is no provision for logarithmic cycling, other automatic cycling rates of frequency change may be used. Time for each cycle shall be 20 ± 2 minutes. Duration of the test shall be two hours (six complete cycles). At the end of the two hour vibrational period, the switch shall be subjected to the test specified in 4.7.3. This test procedure shall be accomplished along each of three mutually perpendicular axes. Total vibrating time shall be nine hours (three hours along each side).

4.7.11 Endurance. To determine conformance to 3.5.9, the sample shall be mounted as specified in 4.3 and positioned so that it is covered by the circulating oil bath to the smaller end of the tapered thread. Connect the switch in series to the lamp and the voltage supply. The switch shall be subjected to 2500 and 25,000 cycles respectively, of exposure to the conditions specified in 3.5.9a and 3.5.9b. The measured calibration shall remain the same as the recorded calibration (see 4.7.3) within ± 3ºC (5.4ºF).

5 PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. 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. The switches covered by this specification are intended primarily for use in the lubricating oil of air-cooled, internal combustion engines to warn of excessive lubricating oil temperatures. However, if designed and built for other operating conditions, they may be used to warn of excessive temperatures in other fluids.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Issue of DODISS to be cited in the solicitation and, if required, the specific issue of individual documents referenced (see 2.1.1).
c. Military part number (see 3.6).
d. Switching temperature (see 3.6).
e. Applicable drawing (see 3.6).
f. Responsibility and place of inspection if other than specified (see 4.1).
g. Selection of applicable level and packaging requirements (see 5.1).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in QPL whether or not such products have actually been so listed by that date. 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 orders for the products covered by this specification. Information pertaining to qualification of products may be obtained via email to vqp.chief@dla.mil or from Defense Supply Center Columbus, ATTN.: DSCC-VQP, Post Office Box 3990, Columbus, OH 43216-5000.

6.4 Definitions.

6.4.1 Recovered materials. “Recovered materials” means materials that have been collected or recovered from solid waste (see3.3.2).

6.4.1.1 Solid waste. “Solid waste” means (a) any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and (b) other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. It does not include solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Clean Water Act, (33 U.S.C. 1342 et seq.), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act or 1954 (42 U.S.C. 2011 et seq.) (Source: Federal Acquisition Regulations, section 23.402).

6.4.2 Critical frequency. Critical frequency is a resonant frequency developed in the transmitter such that amplitude exceeds that of the applied vibration. The greater the amplitude the more highly loaded the transmitter and the more critical the vibration environment.

6.5 Subject term (key word) listing.

Endurance
Fungus
High temperature
Marking
Recycled, virgin and reclaimed material
Shock
Vibration

6.6 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. Table VII lists the Environmental Protection Agency (EPA) top seventeen hazardous materials targeted for major usage reduction. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see Section 3).

Table VII. EPA top seventeen hazardous materials.

Benzene	Dichloromethane	Tetrachloroethylene
Cadmium and Compounds	Lead and Compounds	Toluene
Carbon Tetrachloride	Mercury and Compounds	1,1,1 - Trichoroethane
Chloroform	Methyl Ethyl Ketone	Trichloroethylene
Chromium and Compounds	Methyl Isobutyl Ketone	Xylenes
Cyanide and Compounds	Nickel and Compounds	

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodian:
Army - AT
DLA - CC

Preparing activity:
DLA - CC

(Project 5930-1814)

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 www.dodssp.daps.mil.