

NOTICE
OF VALIDATION

INCH-POUND

MIL-I-81765A(AS)
NOTICE 1
29 October 1991

MILITARY SPECIFICATION

INSULATING COMPONENTS, MOLDED, ELECTRICAL, HEAT SHRINKABLE,
GENERAL SPECIFICATION FOR

MIL-I-81765A(AS), dated 15 June 1987, has been reviewed and determined to be valid for
use in acquisition.

Preparing activity:
Navy - AS

AMSC N/A

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FSC 5970



MIL-I-81765A
15 June 1987
SUPERSEDING
MIL-I-81765(AS)
20 July 1970

MILITARY SPECIFICATION

INSULATING COMPONENTS, MOLDED, ELECTRICAL, HEAT SHRINKABLE, GENERAL SPECIFICATION FOR

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

1. SCOPE

1.1 Scope. This specification covers requirements for material used in electrical insulating heat shrinkable components. The continuous operating temperature of these materials shall range from -75°C to $+200^{\circ}\text{C}$ (-103°F to $+392^{\circ}\text{F}$). (See 6.1).

1.2 Classification. The properties of heat shrinkable molded components shall be as specified in the applicable specification sheet.

2. APPLICABLE DOCUMENTS

2.1 Government Documents.

2.1.1 Specifications, and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Systems Engineering and Standardization Department (Code 93), Naval Air Engineering Center, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D 149 - Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies.
- ASTM D 257 - D-C Resistance or Conductance of Insulating Materials.
- ASTM D 374 - Thickness of Solid Electrical Insulation.
- ASTM D 412 - Rubber Properties in Tension.
- ASTM D 570 - Water Absorption of Plastics.
- ASTM D 635 - Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- ASTM D 747 - Apparent Bending Modulus of Plastics by Means of a Cantilever Beam.
- ASTM D 792 - Specific Gravity and Density of Plastics by Displacement.
- ASTM D 2240 - Rubber Property - Durometer Hardness.
- ASTM D 2671 - Testing Heat-Shrinkable Tubing for Electrical Use.
- ASTM D 3951 - Commercial Packaging
- ASTM G 21 - Resistance of Synthetic Polymeric Materials to Fungi, Recommended Practice for Determining.

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

Uniform Freight Classification Rules and Container Specification
for Rail Shipments

(Application for copies should be addressed to the Uniform Freight Classification Committee, 202 Union Station, Chicago, Illinois 60606.)

National Motor Freight Classification Rules and Container
Specifications for Truck Shipments

(Application for copies should be addressed to the National Classification Board, Sixteenth Street, Washington, D.C. 20002.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which 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 specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Specification sheets. The heat shrinkable molded component requirements shall be as specified herein and in accordance with the

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applicable specification sheets. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.3 and 6.2).

3.3 Dimensions and tolerances. All dimensions and tolerances of the molded components, when tested in accordance with 4.5.3 and the applicable specification sheet, shall be as specified in the applicable drawing, specification, contract, or purchase order (see 6.2).

3.4 Properties. The properties of molded components shall be as specified in Table I.

3.5 Storage life.

3.5.1 Shelf life. The manufacturer shall certify in writing that the molded component at the conditions specified in the applicable specification sheet, shall conform to "as received" dimensions and to "after shrinkage" dimensions for the shelf life specified in the applicable specification sheet.

3.5.2 Extension of shelf life. The expiration date may be extended by a period of time equal to fifty percent (50%) of the original shelf life for the molded components if the dimensions are still within specification limits when tested as specified in 4.6.9.

3.6 Workmanship. When examined visually, the molded components, before and after shrinkage, shall be free from internal voids, blisters, lumps, tears, dents, pinholes, seams, cracks, foreign matter and other defects that would be detrimental to fabrication, appearance, or performance.

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 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must 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 assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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4.2 Classification of inspections. The examination and testing of the molded components shall be classified as follows:

- a. First Article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First Article inspection. First Article inspection shall consist of all the tests in Table I and inspections of this specification. The First Article inspection shall be performed on the first lot or order of molded components furnished under this specification and on any subsequent lot or order when specified by the acquisition activity (see 4.3.1 and 6.2). Instructions for testing and approving the components are located in 6.2.2.

4.3.1 Prior approval. If a contractor has previously delivered an acceptable product meeting the requirements of this specification, First Article inspection may be waived at the discretion of the acquisition activity for a period of time not to exceed 2 years.

4.3.2 First article sample. Unless otherwise specified by the acquisition activity, the first article sample shall consist of ten 6 by 6 by 0.075 inch (150 by 150 by 2 mm) molded slabs and three molded components of the type specified in the contract or purchase order. The molded components shall have been prepared using the same facilities to be used in the manufacture of the production unit. The acquisition activity shall designate the laboratory to which the sample shall be forwarded. The samples shall be plainly and durably marked and packaged in accordance with Section 5 of this specification.

4.3.2.1 First Article sample identification. The First Article sample shall be plainly identified by securely attached durable tags or labels marked with the following information:

Sample for First Article inspection
MOLDED COMPONENT, ELECTRICAL, HEAT SHRINKABLE
Name of Manufacturer
Product Code Number
Date of Manufacture
Submitted by (name) (date) for First Article inspection
in accordance with the requirements of (give specification
sheet number, class, and part number as applicable)

4.3.3 Manufacturer's data. For each acquisition, the manufacturer shall submit two copies of his test report that show the components conform to the requirements of the specification. The data shall include certification that the molded components meet or exceed the shelf life established in the applicable specification sheet.

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4.4 Quality conformance inspection.

4.4.1 Lot formation. Unless otherwise specified, a lot shall consist of all the heat shrinkable molded components of one specification sheet, class, color and size that have been processed under essentially the same conditions into a finished form from one batch and available for inspection at one time. A batch shall be the quantity of material mixed, blended, or processed in a single operation intended to make the product uniform. If the material cannot be identified by batch, a lot shall consist of molded components from one specification sheet, class, color and size that has been produced at one plant under essentially the same conditions, processed in a continuous operation and available for inspection at one time.

4.4.2 Sampling.

4.4.2.1 Quality conformance. Molded slabs, 6 by 6 by 0.075 inch (150 by 150 by 2 mm) shall be prepared from randomly sampled material selected during the lot run. Molded slabs and molded components shall be selected in accordance with Inspection Level S-2 of MIL-STD-105 and tested as specified in 4.4.3.1.

4.4.2.2 Packaging. A quantity of shipping containers fully prepared for delivery, just prior to closure, shall be selected at random from each lot in accordance with MIL-STD-105 at Inspection Level S-2. The lot size for this inspection shall be the number of shipping containers. Containers selected shall be examined as specified in 4.4.3.2.

4.4.3 Inspection and tests.4.4.3.1 Quality conformance.

4.4.3.1.1 Molded slab. Test specimens from each sample selected as specified in 4.4.2.1 shall be tested for conformance to Table II. In addition, the sample may be subjected to any other test or inspection herein when considered necessary by the acquisition activity. Nonconformance of the sample to a single requirement (Table II) shall be cause for rejection of the lot represented by the sample.

4.4.3.1.2 End item (molded components). Samples selected in accordance with 4.4.2.1 shall be examined for conformance to 3.6.

4.4.3.2 Packaging inspection. Shipping containers selected in accordance with 4.4.2.2 shall be visually examined for conformance to Table III and all other applicable requirements of Section 5 of this specification. The Acceptable Quality Level (AQL) for this examination shall be 2.5 percent defective. In addition, shipping containers fully prepared for delivery shall be examined for closure defects.

4.5 Test methods.

4.5.1 Standard conditions. Unless otherwise specified herein, the molded components, molded slabs, and all measurement gages shall be conditioned for 4

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hours at $23 \pm 2^\circ \text{C}$ ($73 \pm 4^\circ \text{F}$) and a relative humidity of 50 ± 5 percent, prior to any tests. Unless otherwise specified in the specification sheet, a circulating air oven (100 to 200 feet per minute) shall be used whenever heating is specified.

4.5.2 Specimens for test. Unless otherwise specified, all test specimens shall be cut from molded slabs, approximately 6 by 6 by 0.075 inch (150 by 150 by 2 mm). The molded slabs shall be of the same material and shall have been subjected to the same formulating techniques and degree of crosslinking as the end item.

4.5.3 Dimensions and tolerances. Micrometer measurements shall be made in accordance with ASTM D 374.

4.5.4 ASTM tests. ASTM tests shall be performed in accordance with ASTM Standard Methods of Test (see 2.2), with any exceptions that may be specified herein or in the specification sheet.

4.6 Physical properties.

4.6.1 Dimensional recovery. One molded component shall be measured before and after shrinking. Heat application and conditioning time shall be as specified in the applicable specification sheet.

4.6.2 Elastic memory. Three specimens, 6 by 0.125 by 0.075 inch (150 by 3 by 2 mm), cut from molded slabs or molded components (see 4.5.2), shall be marked with 2 parallel gage lines, one inch (25.4 mm) apart. The lines shall be equidistant from the center of the specimen.

4.6.2.1 Expansion. A two inch (51 mm) portion of each of the three specimens, including the gage lines, shall be heated for the time and temperature specified in the applicable specification sheet. Within 10 seconds after the heat has been removed, the sample shall be stretched until the gage lines are separated the distance specified in the applicable specification sheet. The stretched specimen shall be cooled, the tension removed, and after conditioning 24 hours, the distance between the gage lines shall be measured (extended length). Expansion shall be calculated as follows:

$$\% \text{ Expansion} = (\text{Extended Length} - 1) \times 100$$

4.6.2.2 Retraction. Immediately following the extended length measurement, the three specimens shall be reheated for the time and temperature in 4.6.2.1. After cooling, the distance between gage lines shall be measured (retracted length) and retraction calculated as follows:

$$\% \text{ Retraction} = \frac{\text{Extended Length} - \text{Retracted Length}}{\text{Extended Length} - 1} \times 100$$

4.6.3 Tensile strength, tensile stress, and elongation. Tensile strength, tensile stress, and elongation shall be determined in accordance with ASTM D 412, Die D, using one inch (25.4 mm) bench marks and a two inch (51 mm)

initial jaw separation. A break at a bench mark or outside the gage length shall be cause for retest. The rate of jaw separation shall be 20 inches (50 cm) per minute unless otherwise specified.

4.6.4 Low temperature flexibility. Three specimens 6 by 0.25 by 0.075 inch (150 by 6 by 2 mm) shall be cut from molded slabs (see 4.5.2). The specimens and a mandrel, 1.125 ± 0.005 inch (28.6 ± 0.1 mm) diameter, shall be conditioned in a cold chamber at the temperature and for the time indicated in the applicable specification sheet. After completion of the conditioning period and while still in the cold chamber at the specified temperature, the specimen shall be bent around the mandrel through not less than 360 degrees within 10 ± 2 seconds. Visually examine the specimen for cracks.

4.6.5 Heat shock. Three specimens, 6 by 0.25 by 0.075 inch (150 by 6 by 2 mm), cut from molded slabs or molded components (see 4.5.2), shall be suspended by means of a wire in an oven for the time and temperature specified in the applicable specification sheet. During the conditioning period and after removal from the oven, the specimens shall be examined for evidence of flowing, cracking, or dripping.

4.6.6 Heat resistance. Three specimens, prepared and measured in accordance with ASTM Method D 412, Die D, shall be conditioned in an oven for the time and at the temperature specified in the applicable specification sheet. After conditioning, the specimens shall be removed from the oven, cooled to standard conditions and tested for tensile strength and elongation in accordance with 4.6.3.

4.6.7 Fluid resistance. Specimens from molded slabs shall be as specified for 4.6.3. Unless otherwise specified in the specification sheet, 3 specimens shall be immersed in each of the fluids specified in Table IV. The temperature and duration of immersion shall be as specified in the applicable specification sheet. The volume of fluid shall be not less than 20 times that of the specimens. After immersion, the specimens shall be lightly wiped and air dried for 30 to 60 minutes at standard conditions (see 4.5.1). Weight increase specimens shall be weighed prior to immersion and after the post immersion drying period. The weight increase shall be calculated as a percentage of the original weight. Each specimen shall meet the requirement in the applicable specification sheet.

4.6.7.1 Fluid resistance of molded composite specimens. Six 5-inch (125 mm) long specimens shall be prepared from fully recovered samples for each fluid listed in Table IV or the specification sheet. Identify and weigh three of the specimens for weight increase determination (WI). Both ends of each specimen shall be plugged with 1-inch (25-mm) lengths of stainless steel or glass rod, choosing a plug diameter which will provide a snug fit in the specimen leaving approximately one-half exposed. A suitable quantity of MIL-A-46864 epoxy adhesive, or equal, shall be prepared following the package instructions. The adhesive shall be applied to each cut end of the specimen and the plug, making sure that the cut end is completely sealed. Do not coat the specimen surface more than 1/4 inch (6.3 mm) from the cut end. The specimens shall be allowed to stand in air at room temperature overnight then

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cure one hour at $200^{\circ} \pm 5^{\circ} \text{ F}$ ($94^{\circ} \pm 2^{\circ} \text{ C}$). The specimens shall be cooled to room temperature and those designated for weight increase (W2) shall be weighed. Immerse all specimens in the test fluid for the time and temperature listed in Table III. Remove specimens from the fluid, lightly wipe and air dry for at least thirty minutes. Prepare specimens and perform the tests for tensile strength and elongation on three of the specimens in accordance with 4.6.3 within thirty to sixty minutes after removal from immersion. Reweigh the weight increase specimens (W3) after thirty to sixty minutes drying time and calculate weight increase as follows:

$$\% \text{ Weight Increase} = \frac{W3 - W2 \times 100}{W1}$$

4.6.8 Corrosion. A 1 by 0.25 by 0.075 inch (25 by 6 by 2 mm) specimen cut from a molded slab or molded component shall be placed in the bottom of each of two clean 0.5 by 12 inch (13 by 305 mm) test tubes. A third tube shall be used for control. A copper-glass mirror about 1 by 0.25 inch (25 by 6 mm) shall be suspended 6 to 7 inches (152 to 178 mm) above the bottom of each tube by fine copper wire attached to a cork wrapped in aluminum foil. The corks shall tightly seal the test tubes. The lower 2 inches (51 mm) of each tube then shall be placed in an oil bath at the temperature specified in the applicable specification sheet for 16 hours. After cooling, the mirror shall be examined in good light against a white background. Evidence of corrosion shall be the removal of copper from a mirror, leaving an area of transparency greater than 5 percent of the total area. Discoloration of the copper film or reduction of its thickness shall not be considered corrosion. The mirrors shall be vacuum-deposited copper with thickness equal to 10 ± 5 percent transmission of normal incident light of 5000 angstroms. They shall be stored in a vacuum and shall be used for test only if no oxide film is present and the copper is not visibly damaged.

4.6.9 Extension of shelf life expiration date. The dimensions of three representative molded components shall be measured "as is" and "after shrinkage" according to the specification sheet for the molded component under examination. Provided the dimensions are within limits, the shelf life expiration date may be extended as in 3.6.2.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial.

5.1.1 Level A.

5.1.1.1 Cleaning. The molded components shall be cleaned in accordance with process C-1 in MIL-P-116.

5.1.1.2 Preservatives. Preservatives are not required.

5.1.1.3 Unit pack. The unit pack shall be preserved Method III of MIL-P-116. The molded component shall be placed in a snug-fitting box conforming to PPP-B-676 or PPP-B-566 or a suitable sealed plastic bag. The dimensions of the item to be protected shall determine the size of the unit pack container. The closures shall be in accordance with the appendix of the applicable container specification.

5.1.1.4 Intermediate packing. The quantity per intermediate container shall be specified in the contract or order (see 6.2). Molded components preserved as in 5.1.1.3 shall be packed in containers conforming to PPP-B-636, type CF, class domestic, variety single wall, grade 125 or 175. Closure of the containers shall be Method IV of PPP-B-636 appendix.

5.1.2 Commercial. Commercial preservation and intermediate packing of the molded components shall be in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A or level B or Commercial. The shipping containers, as far as practicable, shall contain identical quantities, effect a snug fit and be of uniform dimensional configuration.

5.2.1 Level A. Molded components intermediately packed as in 5.1.1.4 shall be packed in shipping containers conforming to MIL-B-43666, type I or II. Closure shall be in accordance with the appendix of MIL-B-43666.

5.2.2 Level B. Molded components intermediately packed as in 5.1.1.4 shall be packed in shipping containers conforming to PPP-B-591, weather-resistant or MIL-B-43666, type III.

5.2.3 Commercial. Commercial packing shall be in accordance with ASTM D 3951.

5.3 Marking. Marking of unit packs, intermediate packs and shipping containers shall be in accordance with MIL-STD-129 and shall include the following:

- a. Part number
- b. Quantity per unit or intermediate pack
- c. Date of manufacture
- d. Log, batch or control number
- e. Expiration date
- f. Other marking requirements as required by contract or order.

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6. NOTES

6.1 Intended use. The heat shrinkable molded components covered by this specification are intended for use as insulating and protective components in high reliability cable harness assemblies as strain relief boots, transitions, or custom conforming molds containing molding or potting components. These components are also intended for such other uses as protective coverings in adverse environments or as splice covers, cable end seals or enclosure feed throughs.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number, date of this specification, and the applicable specification sheet
- (b) Dimensional configuration of moldings
- (c) Quantity
- (d) First Article approval, if required (see 3.2)
- (e) Levels of packaging and packing
- (f) Additional data, if required

6.3 Subject Term (key word) listing.

Electrical insulating
First article
Heat shrinkable
Material
Molded components
Specification sheets

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

Custodians:
Army - MR
Navy - AS
Air Force - 20

Preparing activity:
Navy - AS

(Project No. 5970-0657)

Review activities:
DLA - GS

TABLE I. Properties.

Property	Requirement	Test Method
Dimensional recovery	Specification sheet	4.6.1
Elastic memory	Specification sheet	4.6.2
Tensile strength	Specification sheet	4.6.3
Tensile stress at 100% elongation	Specification sheet	4.6.3
Ultimate elongation	Specification sheet	4.6.3
Low temperature flexibility	No cracking	4.6.4
Heat shock	No dripping, flowing or cracking	4.6.5
Heat resistance	Specification sheet	4.6.6
Fluid resistance	Specification sheet	4.6.7
Corrosion	Specification sheet	4.6.8
Flammability	Specification sheet	ASTM D 635
Fungus resistance	Specification sheet	ASTM G 21
Water absorption	Specification sheet	ASTM D 570 24 hours at 23° ± 2 °C (73° ± 4 °F)
Stiffness	Specification sheet	ASTM D 747
Specific gravity	Specification sheet	ASTM D 792
Hardness	Specification sheet	ASTM D 2240
Dielectric strength	Specification sheet	ASTM D 149 or D 2671
Volume resistivity	Specification sheet	ASTM D 257

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TABLE I (CONTINUED)

Property	Requirement		Test Method
	Type I	Type II	
Tensile strength, psi, min	1500	1200	4.6.3
Ultimate elongation, %, min	250	250	4.6.3
Low temperature flexibility	No cracking		4.6.4 $-55^{\circ} \pm 1^{\circ}\text{C}$ ($-67^{\circ} \pm 2^{\circ}\text{F}$) for 4 hours
Heat shock	No dripping, flowing or cracking		4.6.5 $225^{\circ} \pm 2^{\circ}\text{C}$ ($437^{\circ} \pm 5^{\circ}\text{F}$) for 4 hours
Heat resistance			4.6.6 $175^{\circ} \pm 1^{\circ}\text{C}$ ($347^{\circ} \pm 2^{\circ}\text{F}$) for 168 hours
Tensile strength, psi, min	1200	1000	
Elongation, %, min	200	200	
Fluid resistance			4.6.7 $25^{\circ} \pm 1^{\circ}\text{C}$ ($77^{\circ} \pm 2^{\circ}\text{F}$) for 24 hours
Tensile strength, psi, min	1200	750	
Elongation, %, min	200	200	
Corrosion	No corrosion		4.6.8
Hardness, Shore D	45 ± 5	40 ± 5	ASTM D 2240
Stiffness, psi, max	25,000	10,000	ASTM D 747
Dielectric strength, volts/mil, min	200	200	ASTM D 149
Volume resistivity, ohm-cm, min	10^{14}	10^{12}	ASTM D 257
Water absorption, %, max	0.5	0.5	ASTM D 570 24 Hrs @ 23°C (73°F)
Flammability			ASTM D 635
Ave. time of burning, sec., max.	150	120	
Ave. extent of burning, in. (mm) max	1 (25)	1 (25)	
Fungus resistance	Rating of 0		ASTM G 21
Specific gravity, max	1.40	1.40	ASTM D 792

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TABLE II. Quality conformance tests.

Requirement	Test Paragraph
Elastic memory	4.6.2
Low temperature flexibility	4.6.4
Heat shock	4.6.5
Corrosion	4.6.8
Flammability	4.5.4

TABLE III. Packaging inspection.

Examination	Defect
Packaging Individual and Intermediate	Not level required by contract or purchase order. Material or construction not as specified.
Packing	Not level required by contract or purchase order. Any nonconforming component. Closure not as specified, incomplete. Material or construction not as specified.
Count	Less than specified or indicated quantity per shipping container.
Marking	Warning labels/markings missing, omitted, illegible, incorrect, incomplete or not in accordance with contract requirements.

TABLE IV. Test fluids.

Fluid	Specification
Hydraulic fluid, petroleum base	MIL-H-5606
JP-4 fuel	MIL-T-5624
Lubricating oil	MIL-L-7808
Lubricating oil	MIL-L-23699
5% aqueous sodium chloride	O-S-1926
Deicing fluid	MIL-A-8243

MILITARY SPECIFICATION SHEET

INSULATING COMPONENTS, MOLDED, ELECTRICAL,
HEAT SHRINKABLE POLYOLEFIN, CROSSLINKED, SEMI-RIGID AND FLEXIBLE

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

The complete requirements for procuring the insulating components described
herein shall consist of this document and the issue in effect of MIL-I-81765.

REQUIREMENTS:

Continuous operating temperature range: -55°C (-67°F) to $+135^{\circ}\text{C}$ (275°F)

Classification: The polyolefin heat shrinkable molded components shall
be of the following types:

Type I Semi-Rigid
Type II Flexible

Color: Unless otherwise specified, the molded components shall be
furnished in black.

Properties: Properties shall be in accordance with Table I.

TABLE I. Physical properties

Property	Requirement		Test Method
	Type I	Type II	
Dimensions, inches As received After shrinkage	Shall be in accordance with the applicable drawing, specification or procure- ment document		4.6.1 Shrinkage- 10 minutes at $175^{\circ}\pm 3^{\circ}\text{C}$ ($347^{\circ}\pm 5^{\circ}\text{F}$)
Elastic memory, %, min Expansion Retraction	275 93	275 93	4.6.2 One minute at $150^{\circ}\pm 2^{\circ}\text{C}$ ($302^{\circ}\pm 4^{\circ}\text{F}$); 4 inch stretch

AMSC N/A

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



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SPECIFICATIONS

FEDERAL

- O-S-1926 - Sodium Chloride, Technical.
- VV-F-800 - Fuel, Oil, Diesel.
- PPP-B-566 - Boxes, Folding, Paperboard.
- PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-Cleated.
- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-B-676 - Boxes, setup.
- PPP-T-45 - Tape, Gummed, Paper, Reinforced and Plain, For Sealing and Securing.
- PPP-T-76 - Tape, Packaging, Paper (For Carton Sealing).

MILITARY

- MIL-P-116 - Preservation, Methods of.
- MIL-H-5606 - Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordnance.
- MIL-T-5624 - Turbine Fuel, Aviation, Grade JP-4.
- MIL-L-7808 - Lubricating Oil, Aircraft Turbine Engine, Synthetic Base.
- MIL-A-8243 - Anti-Icing and Deicing-Defrosting Fluid.
- MIL-L-23699 - Lubricating Oil, Aircraft Turbine Engines, Synthetic Base.
- MIL-B-43666 - Box, Shipping, Consolidation.
- MIL-A-46864 - Adhesive, Epoxy, Modified, Flexible, Two Component.
- MIL-D-50030 - Decontamination Agent, DS-2.

STANDARDS

MILITARY

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

(Copies of specifications, standards, handbooks, drawings, and publications and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity)

2.2 Other 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 shall be those listed in the issue of the DoDISS, specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

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Shelf life (as supplied): The manufacturer shall certify in writing that the molded components, after storage at a temperature of 18° to 35°C (65° to 95°F) for a period of four years, shall conform to the dimensional requirements specified herein and in the contract or purchase order.

Custodians:

Army - MR
Navy - AS
Air Force - 20

Review Activities:

DLA - GS

Preparing Activity:

Navy - AS
(Project No. 5970-0657-1)