

INCH-POUND
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A-A-56023B  
5 November 2010  
SUPERSEDING  
A-A-56023A  
15 February 1994

## COMMERCIAL ITEM DESCRIPTION

### INSULATING COMPOUND, ELECTRICAL, SILICONE RUBBER, ROOM TEMPERATURE VULCANIZING

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE. This commercial item description (CID) covers four types of room temperature vulcanizing, silicone rubber electrical insulating compounds. The insulating compounds are intended for use in potting and encapsulating electrical and electronic components.
2. CLASSIFICATION. The insulating compounds shall be classified by the following types, as specified (see (7.4(b)):

Type I	- Viscosity, 200 to 500 poises
Type II	- Viscosity, 200 to 600 poises
Type III	- Viscosity, 300 to 900 poises
Type IV	- Viscosity, 80 to 250 poises

### 3. SALIENT CHARACTERISTICS

3.1 General Requirements. The insulating compounds shall consist of an organo-polysiloxane polymer which, when mixed with a catalyst, shall cure to a rubbery solid. Cure shall be affected by catalytic action, not solvent evaporation. The insulating compounds shall have a shelf life of not less than six months when stored in the original unopened containers at a temperature not greater than 26.7 °C. The glass transition temperature (tg), or softening point, shall be as specified by the manufacturer when tested in accordance with IPC-TM-650, method 2.4.24, "IPC Test Methods Manual, Glass Transition Temperature and Z-Axis Thermal Expansion by TMA". The insulating compound materials shall be homogeneous and free of foreign materials, and shall be packaged in clean well-sealed containers, in capacities specified by the contract. The physical

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requirements of the uncured insulating compounds are shown in [table I](#). The physical and electrical requirements of the cured insulating compounds are shown in [table II](#). Conditioning requirements and testing conditions are shown in [table III](#). Test methods are shown in [table IV](#).

TABLE I. Physical requirements, uncured insulating compounds.

Requirement	Conditioning procedure <sup>1</sup> (see table III)	Requirement values			
		Type I	Type II	Type III	Type IV
Uncatalyzed, viscosity, average, minimum/maximum, poises	A	200/500	200/600	300/900	80/250
Catalyzed, pot life, minimum, hours	A	0.5	0.5	0.5	0.5

<sup>1</sup> Conditioning procedure A: As received, no special conditioning. Conditioning procedure E: Temperature conditioned (see [table II](#), footnotes 1, 2 and 3).

TABLE II. Physical and electrical requirements, cured insulating compounds.

Requirement	Conditioning procedures <sup>1 2 3</sup> (see table III)	Requirement values, all types
Hardness shore A, average, minimum/maximum	A	35/70
	E-70/232 °C + E-1/-24 °C	35/70
	E-1/-54 °C + E-1/24 °C	35/70
Tensile strength, average, minimum, pounds force per square inch (lbf/in <sup>2</sup> )	A	300
	E-70/232 °C + E-1/24 °C	150
	E-1/-54 °C + E-1/24 °C	300
Tear strength, average, minimum, pounds force per inch of thickness (lbf/in)	A	15
Elongation, average, minimum, percent	A	100
	E-70/232 °C	75
	E-1/-54 °C	100
Dielectric strength, average, minimum, volts per mil, approx. 75 mil sheet	A	350

<sup>1</sup> Proceed with conditioning procedures after curing insulating compounds for not less than 72 hours at 24 °C ±3 °C.

<sup>2</sup> Conditioning procedure A: As received, no special conditioning.

<sup>3</sup> Conditioning procedure E: Temperature conditioned; encoding definition is a capital letter indicating type of conditioning, a number indicating the duration of the conditioning in hours, and a number indicating the temperature in degrees C. A sequence of conditions is denoted by a "+" sign between conditions, see ASTM D618, "Standard Practice for Conditioning Plastics for Testing".

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TABLE III. Conditioning requirements and testing conditions.

Conditioning procedure	Conditioning tolerances <sup>1</sup>		Testing conditions	
	Time	Temp	Temperature and tolerances	Remarks
E (low temperature)	-0, +6 min.	2.8 °C	24° ±5.6 °C or -54° ±2.8 °C as indicated	Start test immediately after the cycling has been completed.
E (high temperature)	-0, +6 min.	5.6 °C	24° ±5.6 °C or 232° ±5.6 °C as indicated	Start test immediately after the cycling has been completed.

<sup>1</sup> Condition A: As received, no special conditioning. Condition E: Temperature conditioned.

TABLE IV. Test methods.

Requirement	Test method
Viscosity	ASTM D1084, method B
Pot life	MIL-PRF-23586
Hardness	ASTM D2240
Tensile strength	ASTM D412
Tear strength	ASTM D624
Elongation	ASTM D412
Dielectric strength	ASTM D149
Glass transition temperature	IPC-TM-650, method 2.4.24

#### 4. REGULATORY REQUIREMENTS

4.1 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

#### 5. PRODUCT CONFORMANCE PROVISIONS

5.1 Product conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance.

5.2 Market acceptability. The products offered must have been previously sold either to the government or on the commercial market.

5.3 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within specified tolerances using conversion tables contained in the latest revision of FED-STD-376, "Preferred Metric Units for General Use by the Government", and all other requirements of this CID are met. If a product is manufactured to metric dimensions and those dimensions exceed the

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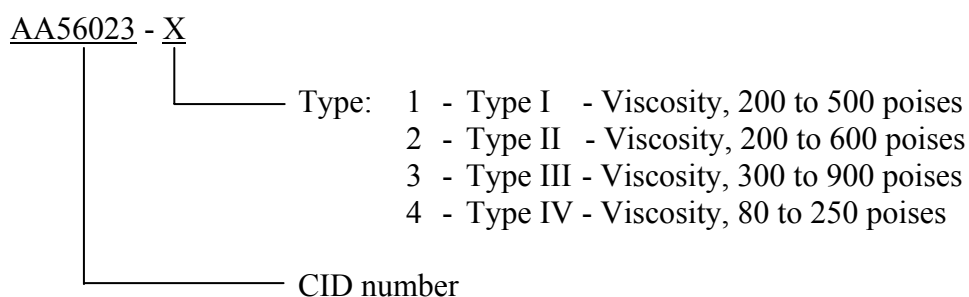
tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable. The contracting officer has the option of accepting or rejecting the product.

## 6. PACKAGING

6.1 Preservation, packing, and marking. Preservation, packing, and marking shall be as specified in the acquisition order (see 7.4(c)).

## 7. NOTES

7.1 Part or identification number (PIN). The following PIN procedure is for government purposes and does not constitute a requirement for the contractor.



Example of reference part number: AA56023-1

7.2 Material safety data sheets. Material safety data sheets shall be prepared for the insulating compounds described herein in accordance with the requirements of FED-STD-313, "Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities". Contracting officers will identify those activities requiring copies of completed material safety data sheets prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in FED-STD-313.

### 7.3 Sources of documents.

7.3.1 FAR. The FAR may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Electronic copies may be obtained from <https://www.acquisition.gov/far/>.

7.3.2 Federal standards. Copies of federal standards may be obtained from General Services Administration, Federal Supply Service, Specification Section, 470 East L'Enfant Plaza SW, Suite 8100, Washington, DC 20407. Electronic copies may be obtained from <https://assist.daps.dla.mil/>.

7.3.3 Military specifications. Copies of military specifications may be obtained from Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. Electronic copies may be obtained from <https://assist.daps.dla.mil/>.

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7.3.4 ASTM standards. Copies of ASTM standards may be obtained from the ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. Electronic copies may be obtained from <http://www.astm.org/>.

7.3.5 IPC standards. Copies of IPC standards may be obtained from the IPC - Association Connecting Electronics Industries, 3000 Lakeside Drive, Suite 309 South, Bannockburn, IL 60015. Electronic copies may be obtained from <http://www.ipc.org/>.

7.4 Ordering data. The acquisition order should specify the following information:

- a. CID document number, revision, and CID PIN.
- b. Type (see 2).
- c. Preservation, packing, and marking (see 6.1).

7.5 Subject term (key word) listing.

Catalytic  
Conditioning  
Cure  
Dielectric  
Electronic  
Encapsulating  
Poise  
Polymer  
Polysiloxane  
Potting  
Viscosity

#### MILITARY INTERESTS:

Custodians:  
Army - MI  
DLA - GS

Review Activities:  
Army - CR4, MD, MR

#### CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FAS

Preparing Activity:  
DLA - GS4

(Project 5970-2010-015)

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 database at <https://assist.daps.dla.mil/>.