

INCH - POUND

A-A-56031

2 October 1996

SUPERSEDING

MIL-A-46864B (MI)

28 March 1991

COMMERCIAL ITEM DESCRIPTION

ADHESIVE, EPOXY, MODIFIED, FLEXIBLE, TWO COMPONENT

The General Services Administration has authorized the use of this commercial item description (CID) as a replacement for MIL-A-46864B (MI) for all federal agencies.

1. **SCOPE.** This commercial item description establishes the requirements for a two component modified epoxy adhesive for use as a room temperature curing, flexible adhesive and sealant system for heat shrinkable sleeving and molded components. This system can also be employed where bonding to rubber, metals, and plastic or combinations thereof is required. Each potential application shall be properly investigated before using the adhesive.

2. SALIENT CHARACTERISTICS.

2.1 Materials. The adhesive system shall consist of a modified epoxy base and a curing agent.

2.2 Characteristics and performance.

2.2.1 Properties before curing.

2.2.1.1 Flow. The measured flow of the mixed compound shall not be greater than 0.5 inch when tested using a flow test jig, as depicted in figure 1 of MIL-S-8516. The jig should be placed on a horizontal surface with the front facing upward and the plunger depressed to its travel limit while the adhesive and curing agent are thoroughly mixed for 5 minutes. Then the mixture shall be placed into the cavity of the flow test jig, and any excess adhesive should be removed by

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent to: Commander, U.S. Army Missile Command, ATTN: AMSMI-RD-SE-TD-ST, Redstone Arsenal, AL 35898-5270.

AMSC N/A

FSC 8040

DISTRIBUTION STATEMENT A.

Approved for public release; distribution is unlimited.

leveling with a straight edge. Within 10 seconds of that removal, the jig shall be placed on end and the plunger advanced to its travel limit. The flow shall be no greater than 0.5 inch, as stated previously.

2.2.1.2 Application time. The application time (1200 Pascal seconds [Pa.s]) of the mixed adhesive, when measured using a Brookfield RVF Viscometer equipped with a #6 spindle, or equivalent, operated at 10 revolutions per minute (rpm), shall be not less than 1 hour.

2.2.2 Properties after cure. Properties after cure shall be as specified in table 1. The peel strength as cured, after heat stability, and after thermal cycle, shall be 14 pounds (lb) per inch width, and after fluid resistance, 10 pounds per inch width, in accordance with ASTM D 903. The tensile shear pounds per square inch shall be no less than 1500, in accordance with ASTM D 1002.

TABLE 1. Properties after cure.

Property	Requirement	Test Method
Peel Strength (lbs per inch width, min)		
As cured	14	ASTM D 903
After heat stability	14	
After thermal cycle	14	
After fluid resistance	10	
Tensile shear (psi, min)	1500	ASTM D 1002
Dielectric constant (max)	5.5	ASTM D 150
Dielectric strength (volts per mil, min)	500	ASTM D 149
Corrosion	No pitting or blackening of test wire	Visual inspection

The dielectric constant shall be 5.5 maximum, in accordance with ASTM D 150. The dielectric strength shall be 500 volts per mil, minimum, in accordance with ASTM D 149. The cured adhesive shall maintain functional integrity from -55° Celsius (C) to 177°C, and no corrosion shall be evident on the test wire.

2.2.3 Storage properties.

2.2.3.1 Accelerated storage. After storage in an unopened container for seven days at $49 \pm 2^\circ\text{C}$ and cooled to standard conditions for 24 ± 1 hours, the measured flow of the adhesive system shall be no greater than 0.5 inch, and the "as cured" peel strength shall conform to table 1.

2.2.3.2 Shelf life. The manufacturer shall certify that the adhesive system, after storage at 18 to 35°C for a period of not less than 8 months, conforms to all the requirements of this CID.

2.3 Workmanship. The adhesive and curing agent shall be free of dirt, foreign material, or other contaminants.

3. REGULATORY REQUIREMENTS.

3.1 Recycled 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).

3.2 Carcinogens and toxins. The adhesive system described in this CID shall be non-carcinogenic and non-toxic. Certain chemicals have been identified in the Occupational Safety and Health Act (OSHA) as cancer producing substances (carcinogens). Before using any materials which might contain carcinogens, they should be evaluated in accordance with 29 CFR 1910.1200. Any special handling instructions should be fully documented and must accompany the product.

4. QUALITY ASSURANCE PROVISIONS.

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

4.2 Market Acceptability (MA). The following market acceptability criteria are necessary to document the quality of the product to be provided under this CID.

4.2.1 The company producing the item must have been producing a product meeting the requirements of this CID for at least two years.

4.2.2 The company must have sold 1000 units meeting the requirements of this CID in the commercial marketplace over the past two years.

5. PACKAGING.

Preservation, packing, and marking shall be as specified in the contract or order.

6. NOTES.

6.1.1 Curing conditions. The recommended curing cycle for field use is:

<u>Curing Temp °C</u>	<u>Time to Cure (hours)</u>
25	96
82	3
93	1
121	45 minutes

6.1.2 Shrinkdown. Recovery for heat shrinkable sleeving can be accomplished by heating the sleeving to temperatures in excess of 175°C. The heat shall be continued until shrinkdown occurs. The sleeving may be heated by a suitable hot air thermal gun or in a circulating air oven.

6.2 Source of documents.

6.2.1 Federal and military specifications, standards, and handbooks. Federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

6.2.2 ASTM Standards are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

6.2.3 The Code of Federal Regulations (CFR) and Federal Acquisition Regulations (FAR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

6.3 Product names. This adhesive system is available commercially as SpectraCoat 935 and Thermofit S-1006, Parts A&B. SpectraCoat 935 is manufactured by American Mil Spec Supply, 125 Mac Oasten Parkway South, Box 2500, Mt. Vernon, NY 10550. Thermofit S-1006 is manufactured by Raychem Corporation, 300 Constitution Drive, Menlo Park, CA 94025.

6.5 Concluding material.

Custodian:
Army-MI

Preparing Activity:
Army-MI

Civilian Coordinating Activity:
GSA-FSS

Project Number: 8040-A159