

[NOT MEASUREMENT
SENSITIVE]

A-A-52624

February 6, 1997

SUPERSEDING

See 7.3

COMMERCIAL ITEM DESCRIPTION

ANTIFREEZE, MULTI ENGINE TYPE

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 the requirements for automotive engine, ethylene glycol or propylene glycol antifreeze suitable for use in all administrative vehicles, construction vehicles and equipment, and all military ground combat and tactical equipment/vehicles.

2. CLASSIFICATION

2.1 Antifreeze types. The antifreezes will be the following types:

Antifreeze Type	Glycol Base	Glycol Level
I	Ethylene Glycol	Concentrated (100%)
IP	Ethylene Glycol	Prediluted 60%
II	Propylene Glycol	Concentrated (100%)

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000

AMSC N/A

FSC 6850

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

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3. SALIENT CHARACTERISTICS

3.1 Material. The antifreeze shall meet all the requirements specified herein.

3.2 Requirements.

3.2.1 Basic performance requirements. Type I antifreeze shall meet all the requirements of ASTM D3306 and ASTM D4985. Type IP antifreeze shall meet all the requirements of ASTM D4656 and ASTM D5345. Type II antifreeze shall meet all the requirements of ASTM D5216.

3.2.2 Additional chemical requirements. Types I and II antifreezes shall have a minimum nitrite concentration of 2400 parts per million (ppm) (as NO_2^-) when tested in accordance with ASTM D4327 or a combined total of at least 1560 ppm of nitrite (as NO_2^-) plus molybdate (as MoO_4^{2-}) with a minimum of 600 ppm of nitrite or minimum of 600 ppm molybdate, when tested in accordance with ASTM D5827. Type IP antifreeze shall have a minimum nitrite concentration of 1200 ppm (as NO_2^-) when tested in accordance with ASTM D5827 or a combined total of at least 780 ppm nitrite (NO_2^-) plus molybdate (as MO_4^{2-}) with a minimum of 300 ppm of nitrite or 300 ppm of molybdate, when tested in accordance with ASTM D5827. Type IP antifreeze shall have a 60% by volume minimum ethylene glycol concentration and must have a maximum freeze point of -62 degrees Fahrenheit ($^{\circ}\text{F}$) (-52 degrees Celsius ($^{\circ}\text{C}$)) when tested in accordance with ASTM D1177. Types I, IP, and II antifreezes shall have a maximum silicon concentration of 250 ppm when tested in accordance with ASTM D5185, except that aqueous standards and distilled water shall be used as the sample solvent and blank in place of the petroleum solvent prescribed in ASTM D5185.

3.2.3 Compatibility requirements. The antifreeze shall pass the compatibility test specified herein.

3.2.3.1 Compatibility test. The following compatibility test shall be performed: Obtain a sample of Type I or Type II antifreeze and a sample of reference fluid conforming to ASTM D3585. Prepare a 60% by volume solution of each with corrosive water conforming to ASTM D1384. For Type IP antifreeze, do not dilute sample further, use as is. In a suitable glass stoppered, 100 milliliters (mL) graduated cylinder, combine 50 mL of the 60% diluted test antifreeze solution and 50 mL of the diluted 60% reference fluid solution conforming to ASTM D3585. Thoroughly mix the resultant solution. Allow this solution to stand in a lighted area, undisturbed at room temperature, for 24 hours. After 24 hours, observe the solution for any precipitate, phase separation, turbidity, or cloudiness. For an additional 24 hours, place the stoppered solution in an oven at 140 $^{\circ}\text{F}$ (60 $^{\circ}\text{C}$). After 24 hours, remove the solution from the oven and again observe the solution for any precipitate, phase separation, turbidity, or cloudiness. Report observations. The observation of excessive precipitates or large phase separations constitutes failure of this test. Slight turbidity, cloudiness, and minor amounts of precipitates and/or small phase separations due to antifoam agents of less than 0.5% of the total volume of solution are permissible.

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3.2.4 Storage stability requirements. The antifreeze shall pass the storage stability test specified herein.

3.2.4.1 Storage stability test. Types I and IP, and Type II antifreezes shall be tested for storage stability as follows: Place 100 mL of antifreeze in a suitable glass stoppered, 100-mL graduated cylinder. Allow this solution to stand in a lighted area, at room temperature, undisturbed for 24 hours. After 24 hours, observe the solution for any precipitate, phase separation, turbidity, or cloudiness. For an additional 24 hours, place the stoppered solution in an oven at 140°F (60°C). After 24 hours, remove the solution from the oven and again observe the solution for any precipitate, phase separation, turbidity, or cloudiness. Report observations. The observation of excessive precipitates or large phase separations constitutes failure of this test. Slight turbidity, cloudiness, small amounts of precipitates, and/or small phase separations due to antifoam agents of less 0.5% of the total volume of solution are permissible.

3.2.5 Total dissolved solids. The antifreeze shall pass the total dissolved solids test specified herein.

3.2.5.1 Total dissolved solids test. Types I and II antifreezes shall contain no greater than 4% total dissolved solids when tested in accordance with Federal Method 2540C, except that a 0.7 micron glass frit filter shall be used instead of the prescribed 0.45 micron filter. Type IP antifreeze shall contain no greater than 2% total dissolved solids when tested in accordance with modified Federal Method 2540C. Total dissolved solids greater than those specified above constitutes failure of this test.

4. REGULATORY REQUIREMENTS

4.1 Federal Hazardous Substances Act requirements. Under authority of the Federal Hazardous Substances Act, antifreeze containing ethylene glycol shall be labeled in accordance with 16 CFR Part 1500.

5. QUALITY ASSURANCE 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 market. The Government reserves the right to require proof of such conformance. The contractor shall furnish Certificates of Compliance with all the requirements specified herein, and a certificate that shall be supported by actual test reports from independent source(s) for the antifreeze formulation offered.

6. **PACKAGING**. Preservation, packing, and marking shall be as specified in the contract or order (see 7.4).

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7. NOTES

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

7.1 Government documents. Copies of 16 CFR Part 1500 are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Copies of Federal Method 2540C are available from the American Public Health Association, 1015 15th Street, N.W., Washington, D.C. 20005.

7.2 Non-Government documents. The ASTM standards referenced herein are available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.3 Cross-referenced data. Antifreeze meeting this CID's requirements replace and are interchangeable with the following CID, and the two detail specifications for antifreeze used by the federal and military services: CID A-A-870A, MIL-A-46153C, and MIL-A-11755E, dated January 8, 1987, 5 August 1991, and 24 January 1994, respectively.

7.4 Acquisition data. Acquisition documents must specify the following:

- a. Title, number, and date of this CID.
- b. Issue of the Department of Defense Index of Specifications and Standards (DoDISS) to be cited in the solicitation.
- c. Type of antifreeze.
- d. Selection of applicable packaging requirements.

MILITARY INTERESTS:

Custodians:

Army - AT
Navy - SH
Air Force - 68

Review Activities:

Army - EA
DLA - GS

CIVIL AGENCY COORDINATION ACTIVITY:

GSA/FSS

Preparing Activity:

Army - AT

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