

**INCH-POUND**

A-A-50493C

22 July 2011

SUPERSEDING

A-A-50493B

30 August 2001

## COMMERCIAL ITEM DESCRIPTION

### OIL, PENETRATING (FOR LOOSENING FROZEN METALLIC PARTS)

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

1. SCOPE. This commercial item description (CID) establishes the government acquisition requirements for penetrating oil to be used for freeing of corroded and frozen metallic parts resisting movement, without causing damage to such parts. The penetrating oil is applied to metal surfaces to break down rust and corrosion, reduce friction, and retard corrosion.

2. CLASSIFICATION. The penetrating oil shall be one of the following class and type combinations as specified (see 7.5(b)). The unit of issue (see 7.5(c)) and quantity required (see 7.5(d)) shall be as specified in the acquisition order.

#### 2.1 Class.

Class A – bio-based

Class B – non-bio-based

#### 2.2 Type.

Type I - liquid application (brush, dip, or spray)

Type II- aerosol application

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: [STDZNMGT@dla.mil](mailto:STDZNMGT@dla.mil) or Defense Logistics Agency Aviation VEB, 8000 Jefferson Davis Highway, Richmond, VA 23297-5610. Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at <https://assist.daps.dla.mil>.

## A-A-50493C

## 3. SALIENT CHARACTERISTICS

3.1 Materials.

3.1.1 Class A. The penetrating oil for class 1 shall be formulated with a bio-based oil, with or without additives.

3.1.2 Class B. The penetrating oil for class 2 shall be formulated with a synthetic oil or light mineral oil, or a mixture of these oils, with or without additives.

3.2 Bio-based content. The class A penetrating oil shall have a minimum of 68% by weight of bio-based content in accordance with United States Department of Agriculture (USDA) designated categories of bio-based products in the BioPreferred Program for penetrating lubricants when tested in accordance with ASTM International (ASTM) D6866, "Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis". A bio-based material shall be defined in accordance with the Farm Security and Rural Investment Act (also called FSRJA or the 2002 Farm Bill) of 2002 Section 9002 (Public Law 107-171, dated May 13, 2002) and determined by the US Secretary of Agriculture.

3.3 Performance.

3.3.1 Pour point. The penetrating oil shall have a pour point of not greater than -14 °F (-25 °C) when tested in accordance with ASTM D97, "Standard Test Method for Pour Point of Petroleum Products".

3.3.2 Viscosity. The penetrating oil shall have a viscosity of 1.7 to 10 millimeter<sup>2</sup>/second (mm<sup>2</sup>/s) at 104 °F (40 °C) when tested in accordance with ASTM D445, "Standard Test Methods for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)".

3.3.3 Flash point. Penetrating oil with a kinematic viscosity of 1.7 to 5.5 mm<sup>2</sup>/s at 104 °F (40 °C) shall have a minimum flash point of 125 °F (51.7 °C) when tested in accordance with ASTM D56, "Standard Test Method for Flash Point by Tag Closed Cup Tester". Penetrating oil with a kinematic viscosity of greater than 5.5 mm<sup>2</sup>/s at 104 °F (40 °C) shall have a minimum flash point of 125 °F (51.7 °C) when tested in accordance with ASTM D93, "Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester".

3.3.4 Water. The penetrating oil shall have 0.0 percent water content when tested in accordance with ASTM D95, "Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation", and 40 Code of Federal Regulations (CFR) 60, Appendix A, Method 24, "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings".

3.3.5 Corrosion. The penetrating oil shall cause no corrosion when tested in accordance with method 5306 "Corrosiveness of Emulsifiable Cutting Fluids" of FED-STD-791, "Lubricants,

## A-A-50493C

Liquid Fuels, and Related Products; Methods of Testing". Isopropyl alcohol in accordance with ASTM D770, "Standard Specification for Isopropyl Alcohol", and paragraph 4.4 of this document may be substituted for the 1,1,1-Trichloroethane specified in the test method. The requirements for emulsification of samples and the subsequent addition of distilled water shall be eliminated when not applicable.

3.3.6 Surface tension. The penetrating oil shall have a surface tension of not greater than 44 milliNewtons/meter (mN/m) when tested in accordance with ASTM D3825, "Standard Test Method for Dynamic Surface Tension by the Fast-Bubble Technique".

3.3.7 Interfacial tension. The penetrating oil shall have an interfacial tension of not greater than 33 mN/m when tested in accordance with ASTM D971, "Standard Test Method for Interfacial Tension of Oil Against Water by the Ring Method".

3.4 Workmanship. The penetrating oil shall be free from dirt, sediment, disagreeable odors, or other foreign matter as determined by visual or olfactory examination.

3.5 Propellant. For Type II material, the propellant shall be carbon dioxide, nitrous oxide, or nitrogen. The propellant shall expel the contents of the container and shall be nonflammable in accordance with 49 CFR 173, "Shippers--General Requirements for Shipments and Packagings".

#### 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).

4.2 Hazard communication standard. The contractor shall certify that no carcinogenic or potentially carcinogenic constituents are present in the penetrating oil in accordance with 29 CFR 1910.1200, "Hazard Communication" and 29 CFR 1910, Subpart Z, "Toxic and Hazardous Substances". The contractor shall provide certification to this effect to the contracting officer or the contractor's designated representative (see 7.5(e)).

4.3 Toxicity. The materials used in the oil, unless specific material maximum levels are specified herein, shall have no known carcinogenic materials identified by Occupational Safety and Health Administration (OSHA) regulated carcinogens, as identified by 29 CFR 1990, "Identification, Classification, and Regulation of Carcinogens", or International Agency for Research on Cancer (IARC) latest monographs, or the latest annual report of the National Toxicology Program (NTP), and shall have no extremely hazardous substances (EHS) or toxic chemicals identified in 40 CFR 355, Appendix A, "The List of Extremely Hazardous Substances and Their Threshold Planning Quantities" and 40 CFR 372, Subpart D, "Specific Toxic Chemical Listings", respectively. The manufacturer shall not, unless specific material maximum levels are specified herein, allow the addition of any known or suspected carcinogens, extremely hazardous substances, or toxic chemicals to the formulation. When any of these prohibited materials are or may be present, as a trace or as an impurity in another ingredient(s), the concentration of the prohibited material shall not equal or be

## A-A-50493C

greater than 0.1 percent by weight of the oil. The oil shall have no adverse effect on the health of personnel when used for its intended purpose.

4.4 Ozone-depleting chemicals. The materials used in the oil shall not contain class I or class II ozone depleting chemicals (ODC) as defined in 40 CFR 82, "Protection of Stratospheric Ozone". In addition, no ODC shall be used in the manufacturing or testing of these products.

## 5. PRODUCT CONFORMANCE PROVISIONS

5.1 Product conformance. The products 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 marketplace. The government reserves the right to require proof of such conformance.

5.2 Market acceptability. The following market acceptability criteria are necessary to document the quality of the product to be provided under this CID.

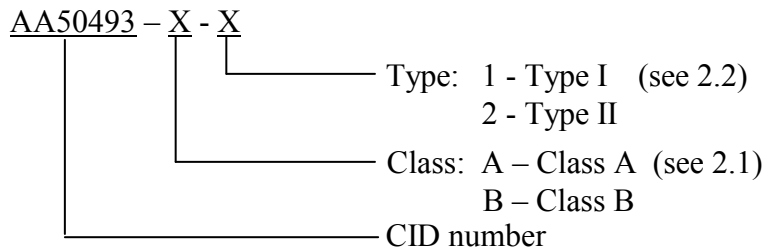
- a. The company must have produced penetrating oil meeting the salient characteristics of this CID for at least 3 years.
- b. The company must be able to show test data or lab results substantiating that the product offered meets the salient characteristics of this CID.
- c. The company must provide a warranty for the replacement of defective material.

## 6. PACKAGING

6.1 Preservation, packing, and marking. For acquisition purposes, the penetrating oil shall be preserved, packed, and marked as specified in the acquisition order (see 7.5(f)).

## 7. NOTES

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



## A-A-50493C

7.2 Sources of documents.

7.2.1 Government documents. Copies of CFR FAR, and Public Law may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Electronic copies of CFR documents may be obtained from <http://www.access.gpo.gov/>. Electronic copies of FAR documents may be obtained from <http://www.arnet.gov/far/>. Electronic copies of the Public Law document may be obtained from <http://www.gpo.gov>.

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

7.2.3 ASTM standards. Copies of ASTM standards are available online at <http://www.astm.org> or from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.2.4 IARC monographs. International Agency for Research on Cancer (IARC) monographs may be obtained at <http://monographs.iarc.fr/> or from the World Health Organization (WHO) Publication Center, 49 Sheridan Avenue, Albany, NY 12210.

7.2.5 NTP reports. Copies of the latest Annual Report on Carcinogens, Summary, National Toxicity Program (NTP), is available at <http://ntp.niehs.nih.gov/> or from the U.S. Department of Health and Human Services, National Institute of Environmental Health Services, Public Information Office, P.O. Box 12233, MD B2-04, Research Triangle Park, NC 27709.

7.3 Material safety data sheets. Contracting officers will identify those activities requiring copies of the completed material safety data sheets (MSDS) prepared in accordance with FED-STD-313. The pertinent government mailing addresses for submission of data are listed in FED-STD-313, and 29 CFR 1910.1200 requires that the MSDS for each hazardous chemical used in an operation must identify the activities requiring copies of the MSDS (see 7.5 (g)).

7.4 National stock numbers (NSN). The NSNs listed in table I are assigned to the listed products. Other NSNs may also correspond with this document.

## A-A-50493C

TABLE I. National stock numbers (NSNs) for bio-based and non-bio-based penetrating oils.

Material	NSN	Type	Container Size
Class A Bio-based	9150-01-591-4213	I	1 pint can
	9150-01-591-4247	I	1 gallon can
	9150-01-591-4281	I	55 gallon drum
	9150-01-591-4274	II	11 ounce aerosol
Class B Non-bio-based	9150-00-261-7899	I	1 pint can
	9150-00-262-8990	I	1 quart can
	9150-00-223-4119	I	1 gallon can
	9150-00-852-4659	I	55 gallon drum
	9150-00-529-7518	II	16 ounce aerosol

7.5 Ordering data. The contract or order should specify the following:

- a. CID document number, revision, and CID PIN
- b. Class and type (see 2)
- c. Unit of issue (see 2)
- d. Quantity (see 2)
- e. Certification clause (see 4.2)
- f. Preservation, packing, and marking requirements (see 6.1)
- g. Hazardous material identification and material safety data sheets (see 7.3)

7.6 Subject term (key word) listing.

bio-based  
 bio-based content  
 corrosion  
 friction  
 mineral  
 rust  
 synthetic

A-A-50493C

MILITARY INTERESTS:

Custodians:

Army – AT

Navy – SH

Air Force – 68

DLA – GS

CIVIL AGENCY  
COORDINATING ACTIVITY:

GSA - FSA

Preparing activity:

DLA - GS3

(Project 9150-2011-008)

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