

NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 1725 DE SALES STREET, N. W., WASHINGTON, D. C. 20036

1. **SCOPE** This specification establishes the requirements for a lubricant suitable for use in highly loaded reduction gearing at minus 65 to plus 350 degrees Fahrenheit (F.) maximum.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the latest issue, form a part of this specification to the extent specified herein:

Specifications

Federal

O-M-232
P-S-661
RR-S-366
TT-N-95

Alcohols, Methanol
Solvent, Dry Cleaning
Sieves, Standard for Test Purposes
Petroleum Aliphatic

Standards

Federal

Federal Test Method
Standard 791

Lubricants, Liquid Fuels, and Related Products;
Methods of Testing

2.2 **OTHER PUBLICATIONS** The following documents form a part of this specification. Unless otherwise indicated, the latest issue shall apply.

Aeronautical Material Specification

AMS 5042) Low Carbon Steel

(Copies of AMS publications may be obtained from the Society of Automotive Engineers, Inc., 485 Lexington Avenue, New York 17, New York.)

American Society for Testing Materials

ASTM D92	Method of Test for Flash and Fire Points by Cleveland Open Cup
ASTM D97	Method of Test for Cloud and Pour Points
ASTM D270	Method of Sampling Petroleum and Petroleum Products
ASTM D445	Method of Test for Kinematic Viscosity
ASTM D892	Method of Test for Foaming Characteristics of Lubricating Oils

(Copies of ASTM publications may be obtained from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pennsylvania.)

3. REQUIREMENTS

3.1 GENERAL

3.1.1 **Workmanship** The finished lubricant shall be free from suspended matter, grit, water, and other impurities. Immediately before final packaging, the lubricant shall be filtered through gauze no coarser than 100 mesh (150 microns).

3.1.2 **Compatibility** The lubricant shall be compatible with each of the other lubricants qualified under this specification (see paragraph 4.2.2).

3.1.3 **Storage Stability** After 12 months of storage in the dark room temperature of 75 plus or minus 5 degrees F., the oil shall show no signs of separation and shall meet all the requirements of this specification. Tentative qualification shall be granted upon the successful completion of all tests in this specification other than storage stability. Final qualification approval shall be awarded upon successful completion of the storage-stability test. Failure to pass this test shall be cause for withdrawal of qualification approval.

3.1.4 **Qualification** The lubricating oil furnished under this specification shall be a product which has been subjected to and has passed the qualification tests specified in paragraph 4.2. Any change in the base stock, additive components, or method of processing of the qualified product will require its requalification. The oil supplied under contract shall be identical within permissible tolerances to the product receiving qualification.

3.2 PHYSICAL AND CHEMICAL REQUIREMENTS

3.2.1 **Physical Requirements** The oil shall conform to the following physical requirements.

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1 EDITORIALY UPDATED

CUSTODIAN: NATIONAL AEROSPACE STANDARDS COMMITTEE

PROCUREMENT SPECIFICATION	TITLE LUBRICANT, HIGH GEAR LOADING, ALL WEATHER	CLASSIFICATION SPECIFICATION
		NAS 1076 Sheet 1 of 1

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3.2.1.1 Kinematic-viscosity requirements are shown in table I.

Table I. Kinematic Viscosity

Temperature (degrees F.)	Centistokes
At 210	2.9 min.
At 100	10.0 min.
At -65	16,000 max.

3.2.1.2 The flash point shall be 375 degrees F. minimum.

3.2.1.3 The pour point shall be minus 75 degrees F. maximum.

3.2.1.4 Load Carrying Ability The oil shall have a load carrying ability of 3,000 pounds per inch. minimum when tested as specified in paragraph 4.6.

3.2.1.5 Foaming Foaming properties, when tested as specified in paragraph 4.4, shall conform to the requirements of table II.

Table II. Foaming Data

Test Temperature (+1 degree F.)	Foaming Tendency Foam Volume (ml.) at End of 5-Minute Blowing Period	Foaming Stability Time (minutes) For Foam to Collapse
75	100 max.	5 max.
200	25 max.	3 max.
75 after 200	100 max.	5 max.

3.2.2 Chemical Requirements The oil shall conform to the following chemical requirements.

3.2.2.1 Corrosion-Oxidation Stability The oil shall exhibit stability when tested according to the procedure of paragraph 4.5.

3.2.2.2 Corrosion Protection The oil shall provide resistance to corrosion as required in paragraph 4.7.

3.2.2.3 Rubber Swell The oil shall not cause excessive swell of synthetic rubber when tested as described in paragraph 4.8.

4. QUALITY ASSURANCE PROVISIONS

4.1 CLASSIFICATION OF TESTS The inspection and testing of lubricant shall be classified as follows:

- (a) Qualification Tests Qualification tests are those tests accomplished on samples submitted for qualification as a satisfactory product, and shall consist of all the tests of this specification;
- (b) Inspection Tests Inspection tests are those which shall be accomplished on material to be supplied under contract or order. Providing the material has been qualified previously by meeting the requirements of the qualification tests, only the inspection tests are needed for subsequent contracts or orders.

4.2 QUALIFICATION TESTS

4.2.1 Sampling Qualification-test samples shall consist of 15 gallons of the oil. Samples shall be forwarded as follows:

- (a) 10 gallons to the vendor's or other designated laboratory;
- (b) 5 gallons to the purchaser or other designated laboratory.

All samples shall be prominently identified with tags or labels bearing the following information:

- (a) Sample for Qualification Test to NAS 1076;
- (b) Lubricant, High-Gear Loading, All Weather;
- (c) Name of manufacturer;
- (d) Purchase order number;
- (e) Date samples are submitted.

4.2.2 Qualification tests may be conducted in any laboratory or plant approved by the purchaser, and unless otherwise specified will be conducted at the vendor's plant. However, this does not apply to the compatibility test (paragraph 3.1.2) or the storageability test (paragraph 3.1.3) which will be conducted at the purchaser's premises and for which the five gallons of lubricant provided for in paragraph 4.2.1 will be used.

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PROCUREMENT
SPECIFICATION

TITLE
LUBRICANT, HIGH GEAR LOADING,
ALL WEATHER

CLASSIFICATION
SPECIFICATION

NAS 1076
Sheet 2

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