



LUBRICANT, SOLID FILM, HIGH TEMPERATURE ANTISEIZE (NICKEL FREE)

WSS-M12A4-A2

1. SCOPE

The material defined by this specification is a metal-free, semi-synthetic lubricating paste containing inorganic lubricants and other additives to provide good adhesion to substrates and high temperature performance without the use of toxic metal powders.

2. APPLICATION

This specification was released originally for materials used to provide high temperature (up to 1200 °C) lubricity and sealing on metal parts used on automotive exhaust systems.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 COMPOSITION

Shall be a homogeneous mixture free from ingredients which are corrosive to ferrous metals.

3.3 HOMOGENEITY

Samples from top, bottom, and intermediate positions of packaged containers shall exhibit no visual difference in appearance or consistency.

3.4 STABILITY

No visual change in homogeneity shall be observed when stored for a period of 6 months in air-tight metal containers.

Date	Action	Revisions
2005 02 10	Revised	Updated format
2002 08 19	Activated	



3.5 GALLING AND ANTISEIZE PROPERTIES

No galling of the threads or block surfaces when the test apparatus is disassembled. The average torque for the removal of the nuts from the stud bolts shall not be more than 210 lb/ft (285 N/m).

Test Method:

A block made of steel, 13 x 4.5 in (330 x 114 mm) by approximately 2 1/8 in (54 mm) thick, shall have 5 equally spaced, smoothly drilled 13/16 in (20.64 mm) diameter holes to allow for the insertion of 3/4 in (19.05 mm) studs. The top and bottom faces of the steel block shall be smooth and parallel. Five unused studs in accordance with grade B16 of MIL-S-1222 or ASTM A193 and 10 unused nuts in accordance with grade 4 of MIL-S-1222 or ASTM A194 shall be used for this test. Each stud shall be approximately 4 in (102 mm) long. The threads of the studs and nuts shall be evenly coated with the compound, the studs inserted into the holes in the block, and the nuts screwed on finger-tight. The overall length of each stud shall be measured with a dial indicator graduated in 0.0001 in (0.0025 mm) divisions. The nuts then shall be tightened until an elongation of 0.00165 in/in (mm/mm) of test length is obtained, which corresponds to a stress of 50,000 psi (345 MPa) root area of stud. The test block assembly shall be placed in an electrically heated oven and subjected to 560 - 571 °C for 6 h.

Then the assembly shall be removed from the oven and allowed to cool to room temperature. The nuts shall be tightened to reestablish the originally calculated stressed stud lengths. The heating, cooling and stud length adjustment shall be repeated. Then for the third time the assembly shall be heated and cooled. Without further stress adjustment, the assembly shall be subjected to a spray of 20% aqueous solution of sodium chloride for 7 days. At the end of the period, the assembly shall be removed and allowed to dry at room temperature for 24 hours. Determine the torque required to loosen the nuts and the conditions of the threads and surfaces of the test block, seizing of the nuts, and shearing of studs shall be noted.