



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

SEALER, LOCKING-ANAEROBIC-MEDIUM STRENGTH, THIXOTROPIC

ESK-M4G247-A1

1. SCOPE

The material defined by this specification is a thixotropic one component, anaerobic dimethacrylate base sealing and locking compound of medium strength.

2. APPLICATION

This material was originally released for sealing and locking of threaded plugs in cylinder block and core plugs in cylinder block and cylinder head.

3. REQUIREMENTS

3.1 STATISTICAL PROCESS

Suppliers must conform to the requirements of Ford Quality System Standard Q-101. A mutually acceptable Control Plan as described therein is required for material/source approval. Appropriate statistical tools must be used to analyze process/product data so that variation in the final product is continuously reduced.

3.2 INFRARED SPECTROPHOTOMETRY AND/OR THERMAL ANALYSIS

Ford Motor Company, at its option, may conduct infrared and/or thermal analysis of material/parts supplied to this specification. The IR spectra and thermograms established for initial approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. All samples shall produce IR spectra and thermograms that correspond to the reference standard when tested under the same conditions.

3.3 CONDITIONING AND TEST CONDITIONS

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

3.4 COLOR

Blue or as specified on Engineering drawing.

3.5 DENSITY at 23 C
(ASTM D 1475)1.06 +/- 0.1 g/cm³

Date	Release No.	Released
1994 12 06		Revised and Retyped was: 10 pages
1984 12 12	B/701897 TP	Spec number revised
1983 06 27	SM/EQ 5371 TP	Released

WP 3948-a

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- 3.6 VISCOSITY, mPa.s Tolerance +/- 20 %
(ASTM D 1084, Brookfield Type RVF alternative
RVT/D, measuring time 1 minute for each record)

Spindle No.

Rotational Frequency	10/min	20/min	50/min
3.6.1 At 20 C	1900	1200	700
3.6.2 At 25 C	1800	1150	660

3.7 OPEN TIME

After coating a degreased steel surface with sealer, the sealer must not set when left exposed to air for minimum 72 h at 23 +/- 2 C.

3.8 SHEAR STRENGTH

For details of assembly see attached sketch.

Test Method: Sleeves and pins are degreased, sealant applied on the pin and the inside of the sleeve, and the two parts fitted together within one minute. The max load necessary to press out the pin is then measured with a feed rate of 25 mm/minute and the shear strength calculated on the contact area of the pin to sleeve.

- 3.8.1 3 h at 23 +/- 2 C after Assembling,
minimum 50 % of final cure strength (3.8.3)
- 3.8.2 24 h at 23 +/- 2 C after Assembling 650 - 2000 N/cm²
- 3.8.3 After Ageing 900 - 2000 N/cm²
(3 h at 23 +/- 2 C, 14 d at 70 +/- 2 C,
1 h at 23 +/- 2 C)
- 3.8.4 24 h at 23 +/- 2 C after assembling 150 N/cm²
and tested at 130 +/- 2 C, min
(Conditioning at 130 +/- 2 C prior to
test: 30 minutes)
- 3.8.5 After Oil Immersion, max - 20 % based on
(24 h at 23 +/- 2 C, 72 h immersion in clause 3.8.4
engine oil according to SS-M2C9011-A at
120 +/- 2 C, 1 h at 23 +/- 2 C)
- 3.8.6 After Antifreeze Immersion, max - 80 % based on
(24 h at 23 +/- 2 C, 72 h immersion in clause 3.8.4
antifreeze according to S-M97B1002-A
diluted 50/50 with water at 100 C, 1 h
at 23 +/- 2 C)