



ENGINEERING MATERIAL SPECIFICATION

MARKING COMPOUND, SPRAYABLE TiO₂ (ANATASE) PIGMENTED, NON-ABRASIVE

WSS-M99B111-F

1. SCOPE

The material defined by this specification is a combination of pigment, thickener, and emulsifier, which makes a suitable product for use as marking compound and which can be sprayed onto the gears.

2. APPLICATION

This specification was release originally for material used to indicate tooth contact pattern and other gear set characteristics when a pinion and gear are rolled together in position on a gear test machine. It is normally restricted to areas where the abrasive characteristics of the compound are of primary consideration.

3. REQUIREMENTS

3.1 APPROVED SOURCES

This specification requires the use of approved sources. Only the sources identified on the Ford Approved Source List (ASL) can be used when this specification is listed on the drawing, CAD file, or other documents. The list of approved sources is located within Ford at www.mats.ford.com or available externally through a Ford Materials Engineer.

3.2. CONSISTENCY

The material shall be a homogeneous, milled product, free of sediment. There shall be no hardening, stratification, or separation during normal periods of storage. No oil is to be added to the dilute the grease to the penetration level required.

3.3 COMPOSITION

3.3.1	Titanium Dioxide (Anatase) per ASTM D476, Type I (ASTM D1394)	25 – 27 %
3.3.2	Calcium Base Grease (ASTM D128)	68 – 70 %
3.3.3	Non-Ionic Emulsifier (ASTM D800)	3 - 5 %
3.3.4	Color	White

3.4 PHYSICAL PROPERTIES

3.4.1	Unworked Penetration, tenths of a millimeter (ASTM D 217, ISO 2137)	235 min
3.4.2	Ease of Removal	

The material shall be as easily and completely removed in existing washing equipment.

Date	Action	Revisions	Rev. 0
2017 01 27			



3.4.3 Film Characteristics

The material shall not harden after application or upon standing for normal periods to any degree whereby removal is made difficult. The film shall not be corrosive to steel surfaces.

4. GENERAL INFORMATION

This information given below is provided for clarification and assistance in meeting the requirements of this specification. Contact gmfs@ford.com for questions concerning Engineering Material Specifications.

4.1 APPROVAL OF MATERIALS

Suppliers desiring approval of their materials shall first obtain an expression of interest from Purchasing, Design or Product Development, and Materials Engineering. The supplier shall submit a completed copy of their laboratory test reports, signed by a qualified and authorized representative of the test facility, demonstrating full compliance with all the requirements of the Material Specification. Tested material samples must be available for review upon request and kept for a minimum of one year. Upon request, the supplier will review the associated quality control documents (Process Failure Mode and Effects Analysis, Control Plans, Certification testing) with Ford.

4.2 SUPPLIER'S ONGOING RESPONSIBILITY

All materials must be equivalent in all characteristics to the material upon which approval was originally granted.

Prior to making any changes to the material originally approved, whether or not such changes affect the material's ability to meet the specification requirements, the supplier shall notify the affected Supplier Technical Assistance (STA), Purchasing, and Materials Engineering activities of the proposed changes (with reasons) by submission of a completed Suppliers Request for Engineering Approval, SREA.

For parts and components using Ford Engineering Material Specifications, all samples tested to the specifications for Design Verification (DV), Production Verification (PV) and Production Part Approval Process (PPAP) sign off must be kept until Job 1.

4.3 RESTRICTED SUBSTANCE MANAGEMENT STANDARD

Substance restrictions imposed by regulations or Company direction applies to the materials addressed by this document. The restrictions are identified in the Restricted Substance Management Standard WSS-M99P9999-A1 which is updated yearly. It is the supplier's responsibility to comply with this standard on a continuing basis through IMDS and or GMAP reporting.

5. SUMMARY OF REVISIONS