



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

ELASTOMERIC PARTS, MINIMUM QUALIFICATION
AND ACCEPTANCE TEST REQUIREMENTS

ESA-M9P7-A

1. SCOPE

This specification establishes the minimum qualification and acceptance test requirements for molded and extruded elastomeric parts.

2. APPLICATION

This specification was released originally to establish requirements that are necessary to produce and determine the acceptability of Chassis elastomeric parts. Compliance with all of the requirements in this specification must be demonstrated prior to ISIR approval and at the specified frequency on a continuing basis. Revalidation will be required if any change is made that may affect part function and/or performance.

3. REQUIREMENTS

3.1 QUALIFICATION TESTS

3.1.1 Raw Material

Oscillating Disk Rheometer or Shearing Disk Viscometer
(ASTM D 2084 or ASTM D 1646, respectively)

Each batch must have a curve or viscosity and scorch data that corresponds to the original compound approved for use by Materials Engineering. This correspondence shall be established by the compounder through consecutive analysis of the initial batches used to mold acceptable parts utilizing established operating parameters.

3.1.2 Slab Stock

Each batch must be tested by approved methods to the original (unaged) requirements for tensile strength, elongation, hardness, and modulus as shown in the material specification, prior to release to production. All other slab stock requirements including aging tests must be performed prior to initial sample approval and a minimum of once every six months.

Date	Release No.	Release/Revision
911021	NC00E 10079779 012	Revised & Updated A. Yuhas <i>[Signature]</i>
1984 05 03	CEN2-897050-C8	Revised 3.1.1 K. Gribble
1980 11 05	CAK2-878234-C	Released E.P. Francis

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3.2 ACCEPTANCE TESTS - MOLDED OR EXTRUDED PARTS

3.2.1 Specific Gravity +/- 0.03
(ASTM D 792)

Hardness - Micro +/- 5
(ASTM D 1415)

Each supplier must establish values for their compound prior to initial approval and be able to maintain these values within the given tolerance. A minimum of 3 samples per lot (8 h production maximum) must be tested after vulcanization prior to secondary operations. A sampling pattern shall be established so that samples tested will vary and represent each part in a multicavity system.

3.2.2 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 ADJUSTMENTS TO TEST PLAN

Alternate tests and/or frequencies must be authorized in writing by the Ford Supplier Quality Assurance, Product Engineering and Materials Engineering Office representatives.

3.4 ADDITIONAL REQUIREMENTS

Specific requirements for material and/or manufactured parts shall be specified on the Engineering drawing, Engineering parts specification and/or performance specifications. All critical areas with respect to these properties shall be clearly designated on the engineering drawing.

3.5 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.

3.6 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.