



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

POLYVINYL CHLORIDE (PVC) PLASTISOL

ESA-M4D614-A

1. SCOPE

The material defined by this specification is a heat cured, color matchable polyvinyl chloride plastisol material.

2. APPLICATION

This specification was released originally for material used for the steering column shift lever seal where excellent low temperature properties are required.

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 APPEARANCE (FLTM BI 109-01)

The color and finish shall match the approved Design Center master sample as specified on the engineering drawing.

Date	Release No.	Release/Revision
93-03-22	nc00-e-10244447-007	Revised <i>L. Mastrofrancesco</i> 430319
1989 01 16	NC00E10010015000	Released Incomplete RFW L.Mastrofrancesco

WP 3948-a

Page 1 of 3

9009160 0004842 127



3.5 MATERIAL TESTING

3.5.1 Preparation of Test Specimens

Whenever possible, all test specimens shall be die-cut from the finished parts. When not feasible, specimens cut from molded test sheets manufactured from the same material and with equivalent cure to molded parts are recommended. The molding conditions must be submitted at the time of qualification testing. The test sheets shall have the following dimensions:

150 x 150 mm, min x 2.0 +/- 0.2 mm

3.6 ORIGINAL PROPERTIES

3.6.1	Hardness, Durometer A (ISO 868/ASTM D 2240, 15 s delay)	45 +/- 5
3.6.2	Tensile Strength, min (ISO R 527, type 2/ASTM D 412, Die C, 500 mm/min test speed)	6.9 MPa
3.6.3	Elongation at Break, min (Test Method according to para 3.6.2)	350 %
3.6.4	Tear Strength, min (ISO 34, Method B, Procedure a/ ASTM D 624, Die C)	13 kN/m
3.6.5	Low Temperature Retraction, min (ASTM D 1329, TR10)	- 35 C
3.6.6	Brittleness Point, max (ASTM D 2137, Method A)	- 60 C

3.7 HEAT AGED (ASTM D 865, 70 h at 100 +/- 2 C)

Hardness Change, max	+/- 5
Tensile Strength Change, max	+/- 20 %
Elongation Change, max	+/- 15 %

3.8 RESISTANCE PROPERTIES

3.8.1	H2S Staining (FLTM AN 102-01)	Rating 5
3.8.2	Weathering, Xenon Arc (SAE J1885, 488 kJ/m2 exposure minimum)	Rating 3