Material Name | Specification Number

THERMOPLASTIC POLYOLEFIN ELASTOMER (TEO)
6 % MINERAL FILLED, HIGH IMPACT
PAINTABLE

WSK-M4D713-A

1. SCOPE

The material defined by this specification is a mineral filled, high impact, rigid thermoplastic polyolefin elastomer (TPO) injection molding compound. This material is not UV stabilized and requires painting to achieve acceptable weatherability.

2. APPLICATION

This specification was released originally for material used for bumper shells.

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.

3.1.1 All requirements of this specification, identified by symbol (s), shall be met with data representing 3 sigma values.

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 96 h prior to testing and tested under the same conditions unless otherwise specified.

Date	Release No.	Released	
1994 09 01	EP00E10348605000	Completely Revised	L. Rodigas
1989 11 23	SM/EQ6050 TP	Released	L. Rodigas

WP 3948-a

9009160 0005646 9T8

Copyright by the Ford Motor Company

Sun Aug 28 23:57:14 2016

Documents
Document Sharing Hub

Full document details: FORD WSK-M4D713-A 1994

3.4 *MOLDING COMPOUND*

(s)	3.4.1	Melt Flow Rate (ISO 1133, 230 C, 2.16 kg)	4 - 7 g/10 minutes
(s)	3.4.2	Mineral Content (ISO 3451/1, Method A, talc filler, 3 h at 650 +/- 25 C, test portion 1 to 2 g)	4 - 8 %

3.5 MOLDED TEST SPECIMEN

3.5.1 Preparation of Test Specimens

Unless otherwise specified all tests shall be carried out on injection molded one-end gated test specimens.

The following dimensions are required:

A. 150 min x 10 x 4.0 +/- 0.2 mm (Tensile Bar, ISO 3167)
B. 120 x 10 x 4.0 +/- 0.2 mm

Specimens with shorter dimensions shall be cut from the center portion of the test specimen A and/or B. The specimens shall be prepared according to ISO 294. No annealing allowed.

	3.5.2	Density (ISO 1183, Method A)	0.92 - 0.94 g/cm3
	3.5.3	Hardness, Durometer D (ISO 868, 15 s dwell)	47 - 55
(s)	3.5.4	Tensile Strength at Yield, min (ISO R 527, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen, 50 mm/min test speed)	12 MPa
(s)	3.5.5	Flexural Modulus, min (ISO 178, 80 x 10 x 4.0 +/- 0.2 mm specimen, 2 mm/min test speed, 64 mm support span)	1.0 GPa
	3.5.6	Shear Modulus at 23 C (ASTM D 4065, forced constant amplitude, fixed frequency of 1 Hz +/- 15 %, strain level below 1 %. Specimen approx. 60 x 10 x 4.0 +/- 0.2 mm cut from the center of specimen A. Specimen length between clamps 35-40 mm. Soak time at each temperature interval - 3 minutes minimum)	270 - 460 MPa

9009160 0005647 834

Copyright by the Ford Motor Company

Sun Aug 28 23:57:14 2016

Full document details: FORD WSK-M4D713-A 1994

Documents
Document Sharing Hub