ENGINEERING MATERIAL SPECIFICATION

Material Name | Specification Number

POLYPROPYLENE (PP) AND THERMOPLASTIC POLYOLEFIN ELASTOMER (TEO) BLEND, RECOMPOUNDED MOLDING COMPOUND

WSK-M4D670-A3

1. SCOPE

The materials defined by this specification are recompounded thermoplastic injection molding compounds based on a physical blend of unpainted, painted, and unpainted recycled unfilled polypropylene and/or thermoplastic polyolefin elastomers from post consumer parts like bumpers, fender liners, etc.

2. APPLICATION

This specification was released originally for recompounded materials used for front fender liners which are unexposed to sunlight.

3. REQUIREMENTS

3.1 QUALITY SYSTEM REQUIREMENTS

Material suppliers and part producers must conform to Quality System Requirements, QS-9000. Material specification requirements are to be used for initial qualification of materials. A Control Plan for ongoing production verification is required. This plan must be reviewed and approved by the relevant Ford Materials activity and/or Ford Supplier Technical Assistance (STA) prior to production parts submission. Appropriate statistical tools must be used to analyze process/product data and assure consistent processing of the materials.

Part producers using this material in their products, must use Ford approved materials and must conform to a process control plan which has been approved by STA and/or the relevant Materials Activity.

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

3.2 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 48 h prior to testing and tested under the same conditions unless otherwise specified.

Date	Action	Changes	
1995 06 01	EP00E10460385000	Completely revised	L. Rodigas
1992 03 02	EP00E10176262000	Revised para 3.3.1, 3.4.4 & 3.4.7.1	L. Rodigas
1991 11 04	EP00E01089490000	Released	L. Rodigas

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3.3 MOLDING COMPOUND

(s)	3.3.1	Melt Flow Rate (ISO 1133, 230 C, 2.16 kg)	6 - 18 g/10 minutes
(s)	3.3.2	Ash Content, max (ISO 3451/1, Method A 3 h at 850 +/- 50 C, test portion 5 to 10 g)	9 %

3.4 MOLDED TEST SPECIMEN

3.4.1 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.

	3.4.2	Density (ISO 1183, Method A)	0.88 - 0.98 g/cm3
(s)	3.4.3	Tensile Strength at Yield, min (ISO R 527, 150 x 10 x 4.0 +/- 0.2 mm specimen, 50 mm/min test speed)	20 MPa
	3.4.3.1	Elongation at Yield, min (Test according to para 3.4.3)	4 %
(s)	3.4.4	Flexural Modulus, min (ISO 178, 80 x 10 x 4.0 +/- 0.2 mm specimen, 2 mm/min test speed, 64 mm support span)	0.6 GPa
	3.4.5	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)	430 - 720 MPa

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