| | |
|---|---|
| **THERMOPLASTIC ELASTOMER (TPS), STYRENE BLOCK COPOLYMER, 40 DUROMETER, UNDERHOOD** | **WSS-M2D516-A1** |
| **THERMOPLASTIC ELASTOMER (TPS), STYRENE BLOCK COPOLYMER, 50 DUROMETER, UNDERHOOD** | **WSS-M2D516-A2** |
| **THERMOPLASTIC ELASTOMER (TPS), STYRENE BLOCK COPOLYMER, 60 DUROMETER, UNDERHOOD** | **WSS-M2D516-A3** |
| **THERMOPLASTIC ELASTOMER (TPS), STYRENE BLOCK COPOLYMER, 70 DUROMETER, UNDERHOOD** | **WSS-M2D516-A4** |
| **THERMOPLASTIC ELASTOMER (TPS), STYRENE BLOCK COPOLYMER, 80 DUROMETER, UNDERHOOD** | **WSS-M2D516-A5** |
| **THERMOPLASTIC ELASTOMER (TPS), STYRENE BLOCK COPOLYMER, 95 DUROMETER, UNDERHOOD** | **WSS-M2D516-A7** |

## 1. SCOPE

The material defined by this specification is a thermoplastic elastomer based on styrene block copolymer.

## 2. APPLICATION

These specifications were released originally for materials used for air guide underhood applications.

## 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 CONDITIONING AND TEST CONDITIONS

All test values are based on material conditioned for not less than 24 h prior to testing in acontrolled environment of 23 ± 2 °C and 50 ± 5% relative humidity. Testing of the material should occur in the conditioning environment or soon after removal.

### 3.3 SAMPLE PREPARATION

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.

| Date | Action | Revisions | Rev. 1 |
|---|---|---|---|
| | | | |
| 2016 09 09 | Revised | See Summary of Revisions | I. Gruenwald, EU |
| 2016 07 08 | Released | | I.Gruenwald, T.Nover, EU |


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## 3.4 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

3.4.1 This specification is based on virgin materials, however materials with recycled content as defined by WRS-M99P42-A1 (post-consumer and/or postindustrial recyclates and repolymerised recycled materials) should be used whenever technically feasible and following all materials and PV testing required by Ford Materials Engineering.

3.4.2 The use of regrind is permitted, for economic / environmental reasons, with compliance as indicated in Ford Engineering CAD and Drafting Standard E-4.

3.4.3 Performance Criteria:
Parts using this specification shall meet the appropriate performance specifications, WSS-M15P50-B/Latest or as otherwise designated.

## 3.5 INFRARED SPECTROPHOTOMETRY AND/OR THERMAL ANALYSIS

IR spectra and thermograms from initial material approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. The material supplier shall ensure that all future material supplied to the specification shall produce IR spectra and thermograms that correspond to the reference standard when tested under the same conditions.

## 3.6 MATERIAL PROPERTIES

3.6.1 Density 1.0 - 1.2 g/cm$^3$
(ISO 1183-1, Method A)

3.6.2 Hardness, Durometer A
(ISO 868 / ASTM D 2240, instantaneous, 6 mm thick, piled up specimen)

| A1 | A2 | A3 | A4 | A5 | A7 |
|---|---|---|---|---|---|
| 40 ±5 | 50 ±5 | 60 ±5 | 70 ±5 | 80 ±5 | 95 ±5 |

3.6.3 Tensile Strength at Break MPa,min
(ISO 37, Type 2, 500 mm/minute test speed)

| | Direction | A1 | A2 | A3 | A4 | A5 | A7 |
|---|---|---|---|---|---|---|---|
| 3.6.3.1 | Parallel to Flow | 2 | 2 | 2.5 | 4 | 5 | 7.5 |
| 3.6.3.2 | Perpendicular to Flow | 2.5 | 2.5 | 3.5 | 4.5 | 5.5 | 8 |

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