



ACRYLONITRILE BUTADIENE STYRENE (ABS)
EXTRUSION MOLDING COMPOUND, MEDIUM
HEAT RESISTANT, INTERIOR,
PAINTED APPLICATIONS ONLY

WSS-M4D906-B1

ACRYLONITRILE BUTADIENE STYRENE (ABS)
EXTRUSION MOLDING COMPOUND, MEDIUM
HEAT RESISTANT, EXTERIOR,
PAINTED APPLICATIONS ONLY

WSS-M4D906-B2

1. SCOPE

The material defined by this specification is a vacuum formable or blow moldable medium heat extrusion molding compound based on acrylonitrile/butadiene/styrene (ABS) for painted applications.

2. APPLICATION

WSS-M4D906-B1 This specification was released originally for material used for painted door trim, quarter trim or interior claddings of Transit.

WSS-M4D906-B2 This specification was released originally for material used for painted exterior spoiler.

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

- 3.1.1 Many 4D resin specifications prior to 2011, identified certain requirements with the symbol (s), which indicated that the mean and +/- 3 sigma values were to be reported. The specification minimum, maximum or range was established using 3 sigma data. For 2011 and beyond, refer to Table 1 for number of samples required for each test to establish specification limits.
- 3.1.2 This specification is based on virgin materials. Materials with post-consumer, post-industrial, or repolymerised recycled materials as defined by WRS-M99P42-A1 are preferred and should be used whenever feasible.
- 3.1.3 The use of regrind is permitted for economic and environmental reasons with compliance as indicated in WSS-M99P1111-A.
- 3.1.4 Materials used in interior applications must meet the requirements outlined in WSS-M99P2222-C1/Latest, *Performance, Vehicle Interior Environment Quality Material/Component Requirements*. Data must be included in material submission package. (WSS-M4D906-B1 only)

Date	Action	Revisions	Rev 0
2012 01 26	Activated	WSS-M4D906-B1 replaces WSK-M4D906-A1	A. Pan, APA



3.1.5 Performance Criteria:

Parts using this specification shall meet the appropriate performance specifications:

All painted interior components using WSS-M4D906-B1 material must comply with all the requirements of WSS-M2P188-A1/latest, a primer may be required to reduce appearance defects such as blushing.

All painted exterior components using WSS-M4D906-B2 material must comply with all the requirements of WSS-M2P180-D/latest.

3.2 SAMPLE PREPARATION

Unless otherwise specified all tests shall be carried out on injection molded, one-end gated test specimens. The test specimens A and D shall be molded using molding conditions defined in ISO 2580-2. No annealing is allowed. See Tables 1 and 2 for the number of samples required.

Specimens shall be as follows:

- Specimen A 150 minimum x 10 x 4.0 +/- 0.2 mm (ISO 527-2, Specimen Type 1A)
- Specimen B 355 x 100 x 2.0 +/- 0.1 mm (ISO 3795)
- Specimen C 145 x 60 x 3.2 +/- 0.2 mm
- Specimen D Center of Specimen A. 80 x 10 x 4.0 +/- 0.2 mm
- Specimen E 100 mm diameter x 3.2 mm
- Specimen F 80 mm diameter x 3.2 mm
- Specimen G 90 mm x 200 mm
- Specimen H 50 +/- 1 mm diameter x 3.2 +/- 0.2 mm
- Specimen I 100 mm x 150 mm, min

3.3 MATERIAL PROPERTIES

- 3.3.1 Melt Flow Rate 0.4 - 7 g/10 minutes
(ISO 1133, 220 °C, 10kg)

The material shall be dried for 2 h minimum at 80 - 85 °C in a mechanical convection oven immediately preceding the test.

- 3.3.2 Density 1.02 - 1.09 g/cm³
(ISO 1183, Method A)
- 3.3.3 Tensile Strength at Yield 35 MPa min
(ISO 527-1 & ISO 527-2, Specimen A, 50 mm/minute test speed)
- 3.3.4 Elongation at Yield 1.0 % min
(ISO 527-1 & ISO 527-2, Specimen A, 50 mm/minute test speed)
- 3.3.5 Tensile Modulus 1.9 GPa min
(ISO 527-1 & ISO 527-2, Specimen A, 1 mm/minute test speed)
- 3.3.6 Flexural Modulus 1.9 GPa min
(ISO 178, Specimen D, 64 mm support span, 2 mm/minute test speed)



- 3.3.7 Impact Strength, Notched Charpy
(ISO 179-1/1eA, Specimen D)
 - 3.3.7.1 At 23 +/- 2 °C 12 kJ/m² min
Report Break Type
 - 3.3.7.2 At -40 +/- 2 °C 2.4 kJ/m² min
Report Break Type

The test specimen must be conditioned for minimum of 6 hours at the above specified temperature prior to impact test. Low temperature testing shall be done within the cold chamber, if not possible, test may be conducted outside, but within 5 seconds.

- 3.3.8 Heat Deflection Temperature 81 °C min
(ISO 75-1 & ISO 75-2 Specimen D, flatwise,
0.34 +/- 0.1 mm deflection. At 1.80 MPa)

All specimens dry as molded. If not tested immediately after molding, specimens must be stored in a sealed, moisture-proof container filled with silica gel.

- 3.3.9 Vicat Softening Temperature 102 °C min
(ISO 306, Specimen D, Bath - silicone oil,
temperature raise 50 +/- 5 °C/h.
Dial gage reset to 'O' after addition
of 5 kg weight, at 50 N load)

All specimens dry as molded. If not tested immediately after molding, specimens must be stored in a sealed, moisture-proof container filled with silica gel.

- 3.3.10 Heat Aging Performance
(ISO 188, except 150 +/- 50 air
changes/h, 1000 h at 80 +/- 2 °C.
After heat aging test specimens are
to be conditioned in a desiccator for
3 - 5 h at 23 +/- 2 °C. Unaged property
values shall be determined at the time
of the aged properties determination)

- 3.3.10.1 Tensile Strength at Yield, Change +/- 25% max
(Test method per para 3.3.3)
- 3.3.10.2 Impact Strength, Notched Charpy, Change +/- 25% max
(Test Method per para 3.3.7.1,
specimens to be notched before
heat aging)

- 3.3.11 Odor (WSS-M4D906-B1 only) Rating 3 max
(FLTM BO 131-03, Specimen G)