

**POLYPROPYLENE (PP) COPOLYMER, 20% TALC FILLED,
COLOR PIGMENTED, UV STABILIZED, BLOW MOLDING
COMPOUND, EXTERIOR****WSS-M4D996-A1****1. SCOPE**

The material defined by this specification is a thermoplastic talc filled blow-molding compound based on polypropylene copolymer UV stabilized and color matched for exterior applications.

2. APPLICATION

This specification was released originally for material used for foldable bed extender components for pick up boxes.

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 All requirements of this specification, identified by symbol (s), shall be met with data representing 3 sigma values using latest ISO test methods.

3.1.2 This specification is based on virgin material only. The use of in-house regrind is not allowed unless the part is validated during PV testing with the documented level of regrind noted on the part drawing.

3.2 MOLDING COMPOUND

(s) 3.2.1 Melt Flow Rate 0.8 – 2.2 g/10 minutes
(ISO 1133, 230 °C, 2.16 kg)

(s) 3.2.2 Mineral (Talc) Filler Content 18 - 23%
(ISO 3451-1, Method A,
30 minutes at 600 +/- 25 °C)

3.3 MOLDED TEST SPECIMEN**3.3.1 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 minimum x 10 x 4.0 +/- 0.2 mm (ISO 3167, Type 1A)
- B. 60 x 60 x 2.0 +/- 0.1 mm (ISO/DIS 294-3)
- C. 355 x 100 x 1.0 +/- 0.1 mm (ISO 3795)

Test specimen A shall be molded using molding conditions defined in ISO 294. Specimens with shorter dimensions shall be cut from the center of the specimen A. No annealing allowed.

Date	Action	Revisions	Rev 01
2011 03 01	Revised	Revised – See Summary of Revisions	C. Herbert, SA
2005 10 27	Activated		M. Myers



ENGINEERING MATERIAL SPECIFICATION

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3.3.2	Density (ISO 1183, Method A)	1.01 – 1.07 g/cm ³
(s)	3.3.3 Yield (ISO 527-1 & ISO 527-2, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen A, test speed: 50 mm/minute)	Tensile Strength at 18 MPa min
3.3.4	Tensile Stress/Strain Curves (ISO 527-1, 527-2, ISO 11403-1; 150 x 10 x 4 mm specimen A). Test speed shall be 5 mm/minute for all materials. Provide a curve of tensile stress versus strain using one specimen per lot at each of the following temperatures: - 40 °C, 23 °C and 85 °C. For ductile materials, the curve shall cover strain through yield point. The curve is shown on page 5.	
3.3.5	Impact Strength, Izod, notched (Initial Qualification) (ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm specimen [use center section of specimen A], 10 specimens for each test)	
3.3.5.1	At 23 +/- 2 °C	20 kJ/m ² min
3.3.5.2	At -40 +/- 2 °C	3.0 kJ/m ² min
3.3.5.3	At 0 +/- 2 °C	5.4 kJ/m ² min
	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.	
(s)	3.3.6 Tensile Modulus (ISO 527-1 & ISO 527-2, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen A test speed: 1mm/minute)	1.70 Gpa min
(s)	3.3.7 Charpy, notched (ISO 179/1eA, 80 x 10 x 4.0 +/- 0.2 mm specimen [use center section section of specimen A], 10 specimens	
3.3.7.1	At 23 +/- 2 °C	23 kJ/m ² min
3.3.7.2	At -40 +/- 2 °C	1.7 kJ/m ² min
3.3.7.3	At 0 +/- 2 °C	4.5 kJ/m ² min
	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 (ISO 75-1 & ISO 75-2, 80 x 10 x 4.0 +/- 0.2 mm specimen [use center section of specimen A], flatwise, 0.34 +/- 0.1 mm deflection. At 1.80 MPa)	51 °C min