



TUBING, NYLON (TYPE 11 AND TYPE 12)

ESA-M4D374-A

1. SCOPE

The materials defined by this specification are low plasticized nylons Type 11 or 12.

2. APPLICATION

This specification was released originally for fuel system tubing where low moisture absorption, dimensional stability, and low temperature impact resistance is required.

3. REQUIREMENTS

3.0 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 CONSTRUCTION AND MATERIALS

Material supplied to this specification must be smooth and uniform, free from visible defects, foreign matter, kinks or seams, or any other condition that would impair the performance of the tubing. The tubing may be supplied in natural or pigmented form. The color is to be specified on engineering drawing.

3.3 MOLDED TEST SPECIMENS

Test specimens may be injection molded or may be cut from injection molded slabs of suitable thickness.

		Nylon Type 11	Nylon Type 12
3.3.2	Specific Gravity (ASTM D 792 or D 1505)	1.03 - 1.05	1.02 - 1.03
3.3.3	Melting Point, °C min (ASTM D 789)	185	175
3.3.4	Tensile Strength, psi (MPa), min (ASTM D 638)	5,500 (37.9)	5,500 (37.9)
3.3.5	Elongation at Break, % min (ASTM D 638)	200	200
3.3.6	Water Absorption, % max	2	2

Test Method: Precondition samples in a circulating air oven at 110 +/- 2 °C for 24 h.
Expose to 100% relative humidity at 25 +/- 2 °C for 100 h.

Date	Action	Revisions
2005 05 27	Revised	Inserted 3.0; Deleted 3.2, 3.3.1, 3.5 & 4
1979 01 10		Metricated, Renumbered and Retyped CHH2 823385
1976 11 11	Released	BG2-5





3.4	EXTRUDED PARTS	Nylon Type 11	Nylon Type 12
3.4.1	Specific Gravity (ASTM D 792 or D 1505)	1.03 - 1.05	1.02 - 1.03
3.4.2	Melting Point, °C min (ASTM D 789)	185	175
3.4.3	Water Absorption, % max (Test method per para. 3.3.6)	2	2
3.4.4	Resistance to Zinc Chloride (SAE J 844)	No cracks	No cracks
Samples shall show no evidence of cracks when viewed with a 7-power glass.			
Test Method: Sample shall be bent to its minimum bend radius and immersed in a 50% aqueous solution (by weight) of zinc chloride for 200 h at 23 +/- 2 °C.			
3.4.5	High Temperature Shrinkage, max	2%	2%
Shrinkage shall not exceed 2.0% of its original length.			
Test Method: Condition a 12 in (300 mm) length of tubing by exposing to dry heat at 120 +/- 1 °C for 168 h.			
3.4.6	Impact Test at -40 °C (SAE J 844)		No visible cracks in the wall