

**ACRYLIC (PMMA), MEDIUM HEAT DEFLECTION TEMPERATURE
MOLDING COMPOUND****ESF-M4D9-A10****1. SCOPE**

The material defined by this specification is a thermoplastic acrylic molding compound based on PMMA, possessing medium heat deflection temperature than standard grade PMMA resins.

2. APPLICATION

This specification was released originally for material used for manufacturing instrument cluster lenses.

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).

3.4 MOLDING COMPOUND

3.4.1 Melt Flow Rate 1.0 - 5.0 g/10 min
(ISO 1133/ASTM D 1238,
230 °C, 3.8 kg)

3.5 MOLDED TEST SPECIMEN**3.5.1 Preparation of Test Specimens**

Unless otherwise specified all tests shall be carried out on injection molded test specimens. The specimens shall be prepared according to ISO 294/ASTM D 1897. No annealing allowed, except where indicated.

3.5.2 Density 1.18 - 1.20 g/cm³
(ISO R 1183, Method A/ASTM D 792,
Method A1)

3.5.3 Tensile Strength at Max Load, min 62 MPa
(ISO R 527/ASTM D 638, 3.2 +/- 0.2 mm
thick specimen, 50 mm/min test speed)

3.5.3.1 Elongation at Break, min 3%
(Test Method according to
para 3.5.3)

3.5.4 Heat Deflection Temperature, min 100 °C
(ISO 75/ASTM D 648, 3.2 +/- 0.2 mm
thick specimen, at 1.82 MPA,
annealed at 100 - 105 °C for 4 h)

Date	Action	Revisions
2005 01 06	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.7, 3.8 & 4
1996 01 10	Revised	Updated and Revised para 1, 3.4, 3.5
1987 05 08	Released	CP4R107002-14





3.5.5	Water Absorption, max (ISO 62, 24 h/ASTM D 570, 24 h, 50 +/- 1 mm diameter, 3.2 +/- 0.2 mm thick specimen)	0.4%
3.5.6	Optical Properties	
3.5.6.1	Luminous Transmittance, min (ASTM D 1003, 3.2 +/- 0.2 mm thick, clear, molded sheet)	90%
3.5.6.2	Haze, max (ASTM D 1003, 3.2 +/- 0.2 mm thick, clear, molded sheet)	3%

3.6 FLAMMABILITY (ISO 3795)

Burn Rate, max	100 mm/minute
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In addition, the test specimen shall not exhibit any flashing or sudden flaming on either surface in excess of the above max value.

5. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification.

5.1	MOLD SHRINKAGE (ASTM D 955)	0.003 - 0.006 mm/mm
5.2	HARDNESS, ROCKWELL M (ASTM D 785)	97
5.3	GLASS TRANSITION (ASTM D 3418)	129 °C
5.4	REFRACTIVE INDEX (ASTM D 542)	1.496
5.5	RECYCLING CODE >PMMA<	