

**PHENOLIC INJECTION MOLDING COMPOUND
43% GLASS FIBER REINFORCED****ESK-M3D150-A****1. SCOPE**

The material defined by this specification is a thermosetting injection molding compound granulate on basis of phenolic material with 43% glass fiber reinforced, resin content 50%. This material is self-extinguishing without flame retardant additive (SE).

2. APPLICATION

This specification was released originally for material used for thermostat water outlet connector.

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 TEST SPECIMEN**3.4.1 Preparation of Test Specimens**

All tests shall be carried out on single compression molded test specimens. Edges to be cleaned and at right angles. A multipurpose test specimen with dimensions of 110 x 10 x 4.0 +/- 0.1 mm.

Note: The test specimens shall not be cut from pressed sheets.

Specimens with shorter dimensions shall be cut from the center portion of the multipurpose test specimen. Test specimens for water immersion shall be taken from compression molded specimens of 120 x 120 x 4.0 +/- 0.1 mm. Preparation of test specimens according to ISO 295. The optimum molding conditions shall be as recommended by the supplier of the molding compound.

The specimens shall be annealed according to following cycles:

min. 4 h conditioning at 23 +/- 2 °C (after compression)
min. 7 h annealing at 170 +/- 2 °C
min. 24 h conditioning at 23 +/- 2 °C

3.4.2 Filler Content
(ISO 3451/1, Method A,
except 2 h at 800 +/- 20 °C,
Test Portion: ca 10 g)

42 - 47%

Residue of Ash: Glass and inorganic fillers

Date	Action	Revisions
2005 06 20	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.5, 3.6 & 4
1988 01 04	Completely Revised	B/031507 TP
1986 10 24	Released	SM/EQ5650 TP





- 3.4.3 Density (ISO R 1183, Method A) 1.54 - 1.62 g/cm³
- 3.4.4 Flexural Strength (ISO 178, 80 x 10 x 4.0 +/- 0.1 mm specimen, support span 60 mm, sr-factor 0.01) min. 110 MPa
- 3.4.5 Flexural Modulus (ISO 178, 80 x 10 x 4.0 +/- 0.1 mm specimen, support span 60 mm, sr-factor 0.01) min. 880 MPa
- 3.4.6 Impact resistance (CHARPY):
ISO R 179, specimen size: 80 x 10 x 4 mm; notch according to fig. 2
Pendulum: 0.49 J, span length 60 mm
notched: min. 2.0 kJ/m²
unnotched: min. 6.5 kJ/m²
number of specimen: min. 10 for each test
- 3.4.7 Heat Deflection Temperature (ISO 75, 110 x 10 x 4 +/- 0.1 mm)
At 1.82 MPa min. 180 °C
- 3.4.8 Water Absorption (ISO 62, Method 2, after 96 h total immersion at 23 +/- 2° C, except test results in percent) max. 0.18%
- 3.4.9 Heat Ageing (ISO 188, normal oven type at 195 +/- 2° C)
- 3.4.9.1 Flexural Strength, Change
after 1000 h heat ageing max. 50%
Test Method per para 3.4.4

Note:

The Change after heat ageing is to be calculated based on the mean values of each of 10 specimens (original and aged).

3.4.10 Flammability

Note to Flammability (Para. 3.4.10.1)

The flammability shall be determined on 100 x 355 mm specimens with a thickness of 0.9 - 1.1 mm and smooth surface. Test specimens may be either compression molded or injection molded.