



## PHENOLIC INJECTION MOLDING COMPOUND HEAT RESISTANT- MINERAL FILLED

ESB-M3D118-C

### 1. SCOPE

The material defined by this specification is a heat resistant, mineral filled, injection moldable phenolic compound.

### 2. APPLICATION

This specification was originally released for material used for nonmetallic ashtrays.

### 3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

#### 3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIAL

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

#### 3.3 INJECTION MOLDED TEST SPECIMEN MATERIAL PROPERTIES

|       |                                                                                       |                         |
|-------|---------------------------------------------------------------------------------------|-------------------------|
| 3.3.1 | Impact Strength, Izod, min<br>(ASTM D 256, notched, 1/2 in<br>(12.7 mm) sample width) | 0.2 ft lb/in (10.7 J/m) |
| 3.3.2 | Specific Gravity<br>(ASTM D 792, Method "A")                                          | 1.48 - 1.52             |
| 3.3.3 | Flexural strength, min<br>(ASTM D 790)                                                | 10,000 psi (69 MPa)     |
| 3.3.4 | Tensile Strength, min<br>(ASTM D 651)                                                 | 7,000 psi (48.3 MPa)    |
| 3.3.5 | Compressive Strength, min<br>(ASTM D 695)                                             | 24,000 psi (165 MPa)    |
| 3.3.6 | Water Absorption, max<br>(ASTM D 570, 24 h at 23 +/- 2 °C)                            | 0.5%                    |
| 3.3.7 | Hardness - Rockwell "M", min<br>(ASTM D 785A)                                         | 102                     |
| 3.3.8 | Deflection Temperature, min<br>(ASTM D 648, 264 psi (1820 kPa)                        | 166 °C                  |
| 3.3.9 | Ash, min<br>(ASTM D 229)                                                              | 15%                     |

| Date       | Action   | Revisions                                    |
|------------|----------|----------------------------------------------|
| 2004 10 26 | Revised  | Inserted 3.0; Deleted 3.1, 3.2, 3.4, 3.6 & 4 |
| 2000 12 01 | Revised  | Removed ESB-M3D118-D & updated               |
| 1972 03 08 | Released | CP5-971749                                   |





### 3.5 MOLDED PARTS

Specific requirements for physical properties of molded parts, when required, shall be specified on engineering drawings.

3.5.1 Specific Gravity (ASTM D 792, Method "A") 1.48 - 1.52

3.5.2 Heat Stabilization

Heat to 177 +/- 3 °C for 10 min. No blisters or other obvious defects shall be visible.

3.5.3 Parts molded of this material shall be free from visible blisters.

3.5.4 Impact Resistance

There shall be no evidence of cracking on any area when tested as specified on the engineering drawings.

3.5.5 Decorability

Parts fabricated from material conforming to this specification requiring a decorative coating (paint, etc.) must meet the engineering performance specification requirements shown on the drawing. All decorative coating materials must be approved and released for use by the affected product engineering office.

### 5. GENERAL INFORMATION:

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

5.1 MOLD SHRINKAGE 0.006 - 0.009 in/in (mm/mm)

5.2 COEFFICIENT OF LINEAR THERMAL EXPANSION  $1.1 \times 10^{-5}/^{\circ}\text{F}$  ( $2.0 \times 10^{-5}/^{\circ}\text{C}$ )