With an advanced range of thermoforming plug assist materials designed to increase your productivity, reduce downtime and maintain high product quality, Trelleborg Applied Technologies strives to perform at every level.

Eccolite® Ultra is a thermoplastic syntactic foam plug assist material with a higher ductility compared to typical epoxy based plug materials. The higher ductility ensures super fine detailing in plug design with a reduced risk of breakage. Eccolite® Ultra is manufactured with specially formulated thermoplastic resin and hollow glass microspheres. Unlike nylon-based materials, Eccolite® Ultra boasts an exceptionally high temperature characteristic, maintaining its profile over extended operating cycles in service temperatures up to 392 °F / 200 °C.

**Features and Benefits:**
- Dust free
- Robust and tough
- Dimensionally stable
- Improved clarity - elimination of swirl and chill marks
- Suitable for medical and pharmaceutical packaging
- FDA compliant CFR 177.1630 for packaging which contacts:
  - Food packaging < 250 °F / 121 °C
  - Alcoholic beverages
  - Dry food packaging
- Available in a wide range of block, rods and sheets

**Machining:**
There are no special tools required to machine this material, however we do recommend the use of carbide tools.
- Speeds: 3,000 - 3,500 rpm
- Cut Size: 0.25 inches / 6 mm maximum
- Feed: 30 - 35 inches / 762 - 889 mm per min
- Tooling: Carbide or high speed steel, maintain sharp edge with slight chip breaker
- Flutes: 2 - 3 for optimum performance
**Polishing:**

Eccolite® Ultra materials can be polished to achieve an extremely smooth surface finish. Please follow the tips below to achieve the desired surface quality of the finished plug and to guarantee the consistency in the plug performance.

- **Tooling:** Nylon mesh silicon carbide pads and silicon carbide sandpaper
- **Speeds:** Sand dry starting with nylon mesh silicon carbide pads then silicon carbide sandpaper and finish with any plastic cleaner
- **Grits:** Starting with 400-600 grit and then progressively go to finer grits till you reach the desired finish

**Contact Us**

Trelleborg’s Applied Technologies division is an industry expert in delivering innovative and reliable solutions that maximize performance for our customers. Our vast range of specialized, customizable materials ensure peace of mind at every stage of your project. With reliable and efficient project management and manufacturing we endeavor to take performance to new levels by achieving your goals safely, on time and within scope.

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**TYPICAL PROPERTIES**

<table>
<thead>
<tr>
<th></th>
<th>Imperial</th>
<th>Metric</th>
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<tbody>
<tr>
<td>Colour</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>Density</td>
<td>43 lb/ft³</td>
<td>689 kg/m³</td>
</tr>
<tr>
<td>Service Temperature</td>
<td>392 °F</td>
<td>200 °C</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>0.09 BTU/hr-ft-°F</td>
<td>0.15 W/m°K</td>
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<tr>
<td>Specific Heat</td>
<td>0.35 BTU/lb-°F</td>
<td>1480 J/kg°K</td>
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<tr>
<td>Coefficient of thermal expansion</td>
<td>17x10⁻⁶ in/in/°F</td>
<td>31x10⁻⁶ cm/cm/°C</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>10,000 psi</td>
<td>69 MPa</td>
</tr>
<tr>
<td>Compressive Modulus</td>
<td>343,000 psi</td>
<td>2365 MPa</td>
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<tr>
<td>Shore D Hardness</td>
<td>74 °D @ 428 °F</td>
<td>74 °D @ 220 °C</td>
</tr>
<tr>
<td>Izod Impact (unnotched)</td>
<td>1.35 ft-lb/in</td>
<td>72 J/m</td>
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