Cel-Span® FR 680

A highly loaded flame retardant for polyethylene injection molding and extrusion applications.

Cel-Span® FR 680 is a highly loaded 80% concentrate flame retardant tailored for a variety of applications including injection molding and sheet extrusion. Cel-Span® FR 680 was designed to be a cost effective retardant made for polyethylene and polypropylene requirements including the Boston Fire Department Test and the NFPA – 701 small scale test. The use of Cel-Span® FR 680 will result in excellent flame retardancy to pass several flammability requirements. Flame testing has shown that recommended levels between 6% - 30% are intended as guidelines, but optimization is necessary for each application because of the differences between equipment, resin systems, additives and flame retardancy requirements. This product is non-blooming and can be used in colored films. Cel-Span® is ROHS compliant but does not carry a U.S.P/ fda approval for food contact.

**Applications:** Injection Molding – Sheet Extrusion

- Melt Flow: 1.3 (grams/10 min.), at 190°F - ASTM D1388 Condition E w/4560wt.
- Blend Density: 2.30-2.38 g/cc, (Test Method: ASTM D792)
- LOI: 48-53% (Test Method: ASTM D2863)
- Color/Form: Natural Free - Flowing Pellets
- Types of Resins: Polyethylene and Polypropylene
- Amount Required: 6%-30% (depending on thickness and flame requirements)

**Features and Benefits:**

- Low concentration requirements
- Distributes easily
- Does not conflict with other additives

**NFPA 701**

<table>
<thead>
<tr>
<th>Mils</th>
<th>% CS 680</th>
<th>Wt. Loss</th>
<th>Cone Length</th>
<th>Flame Drip</th>
<th>Flame Time</th>
<th>Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>6</td>
<td>0.49%</td>
<td>5.8”</td>
<td>0 sec</td>
<td>0 sec</td>
<td>Pass/Fail</td>
</tr>
<tr>
<td>22</td>
<td>10</td>
<td>1.54%</td>
<td>1.2”</td>
<td>0 sec</td>
<td>0 sec</td>
<td>Pass/Fail</td>
</tr>
</tbody>
</table>

Cel-Span® FR 680 can be processed at temperatures typical of polyethylene and polypropylene using standard equipment. Cel-Span® FR 680 is packaged in 55 lb. plastic bags and 1,500 lb. gaylord boxes. We recommend this product be kept closed and stored in the original container, away from light, heat, and highly humid environments.Cel-Span® FR 680 does not carry a U.S.P. / FDA approval for food contact.

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