ECCOSHiELD® PPE-4X

CLASSIFICATION
A non-durable flame retardant for cellulosics, polyester, polypropylene, and other synthetic fabrics.

PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless to straw-colored, viscous liquid</td>
</tr>
<tr>
<td>Active Content</td>
<td>100%</td>
</tr>
<tr>
<td>Solubility</td>
<td>Clearly soluble in water</td>
</tr>
<tr>
<td>Density</td>
<td>10.5 lbs/gallon</td>
</tr>
<tr>
<td>pH</td>
<td>4.2 typical</td>
</tr>
</tbody>
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GENERAL COMMENTS

ECCOSHiELD® PPE-4X is a flame retardant for application to polypropylene, polyester, other synthetic fabrics and cellulosic. When applied from an aqueous system, properly cured, ECCOSHiELD® PPE-4X will supply a most acceptable fabric from the standpoint of hand and flame retardancy. ECCOSHiELD® PPE-4X is designed for automotive, industrial and commercial fabrics, as well as upholstery, wall covering and drapery fabrics.

The application of ECCOSHiELD® PPE-4X will cause little to no effect on a dyed shade or pigment printed material. The application of this product followed by subsequent curing will produce a desirable feel to the fabric. Should napping be desired, this residual material may very well serve to aid any napping operation.

Recommended applications will provide flame retardancy, which will give satisfactory results to NFPA 701 and MVSS #302 Flame Testing conditions.

ECCOSHiELD® PPE-4X can be used in screen print inks to provide a print paste for flame retarded print.
APPLICATIONS

In the preparation of an application bath, it is simply prepared by adding **ECCOSHIELD® PPE-4X** to warm water (60°F) followed by a padding application.

We suggest the preparation of 2.5%-4.0% solution followed by padding which will provide a wet pick-up of 80%-100%. Follow padding by adequate drying and curing. A curing temperature of 365-400°F with a dwell time of 1 - 2 minutes allows polyester fabric to meet NFPA 701 Standards.

For polypropylene, dry at 215 – 240°F.

Typical Print Paste Formula:

- **E.B. LOW CROCK 5990** - 25.0%
- Pigment Dispersion - 2.0%
- **ECCOSHIELD® PPE-4X** - 5.0%
- **E.B. CLEAR CONC OLH-M 7742** - 2.5%
- Water - 65.5%
- Total 100.0%

Flame Test Results on FR Fabric by NFPA 701:

<table>
<thead>
<tr>
<th></th>
<th>After Glow</th>
<th>After Glow</th>
<th>Char-Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Paste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without FR</td>
<td>0</td>
<td>0</td>
<td>BEL*</td>
</tr>
<tr>
<td>with PPE-4X</td>
<td>0</td>
<td>0</td>
<td>4”</td>
</tr>
</tbody>
</table>

* BEL - Burned Entire Length
ECCO LOW CROCK 5990 15 – 20%*
Pigment Dispersion 2 – 6%**
Mix

Premix the previous items then add:

Water 20%
ECCOSHIELD® PPE-4X 4–5%***
Ammonia to a pH 8.0–9.0 ~0.5%
Mix Well
Water 45 – 55%
ECCOBRITE™ CLEAR CONC OLH-M 7742 2 – 3%

Notes
* Amount depends upon desired crock properties
** Amount depends upon desired shade
*** Amount depends upon binder type and amount