PERFORMANCE FEATURES

• High phosphorus content
• Water-soluble
• High efficiency
• Highly durable to polyester

Product Description

Ulterion® N1000 flame retardant - one of a family of unique cyclic phosphonate products. This high phosphorus containing material is particularly suited for applications in textile finishing and latex coatings. Ulterion® N1000 is widely used in textile finishing and coatings to meet NFPA 701, MVSS 302 and other flammability standards. It can be used in both durable and non-durable textile applications. It has excellent water solubility and can be applied in a typical pad bath. For coatings, it is particularly suited for acrylic-based binders and other oxygen containing polymers. Ulterion® N1000 can be added directly to the binder without the addition of an emulsifier, and it is nonionic.

Typical Properties

Active Concentration 93%
Appearance Clear viscous liquid
Viscosity, cps @ 68°F 6,000 cps
Phosphorus, Wt.% 20
pH 2
Weight per gallon 10.6 lbs

Application Methods

Fabric Finishings:

Ulterion® N1000 flame retardant is an outstanding, durable flame retardant for polyester fabrics. Fixation of as little as 1.0-1.5% on weight of fabric allows polyester to meet the DOC FF 3-71 and NFPA 701 standards. The flame retardancy as measured by these test standards is durable to 50 launderings at 140°F. Because Ulterion® N1000 is completely miscible in water, it eliminates the need for emulsifiers or solvents for bath preparation. A cold-water rinse will remove residual Ulterion® N1000 flame retardant from the surface, restoring the original fabric hand.

Ulterion® N1000 flame retardant is applied to polyester fabric by such conventional textile finishing equipment as a padder and then dried thermosoled and rinsed. It can be applied to woven and knit fabrics during final frame-out or at earlier processing steps if desired. Ulterion® N1000 is ideally suited for application to printed goods either before or after printing or to yarn-dyed goods, because of its minimal effect on color bleeding and subsequent discoloration of white backgrounds. While actual fixation efficiencies vary with fabric type, producer, pre-treatment, oven temperature and dwell time, the topical application of 2-3% owf is usually sufficient for the fixation of 1-1.5% owf. Normal fixation temperatures are 360° - 400°F with a dwell time of 30-45 seconds.
Coatings: **Ulterion® N1000** flame retardant, with its high phosphorus content, is an outstanding candidate for inclusion in coatings. Because it is nonionic and is water miscible it is easily added to water based latex systems without the use of an emulsifier. Although it has a low pH, no premature curing of the latex, short-term, should be expected. Longer shelf life can be obtained by buffering the coating formulation. **Ulterion® N1000** will hydrolyze over time resulting in increased acidity.

**Example Formulation:**

A starting latex formulation, containing **Ulterion® N1000** flame retardant, would be as follows:

<table>
<thead>
<tr>
<th>Components</th>
<th>Parts in System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>39.4</td>
</tr>
<tr>
<td>CaCO₃</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Ulterion® N1000</strong></td>
<td>12.5</td>
</tr>
<tr>
<td>Xanthan Gum</td>
<td>3.3</td>
</tr>
<tr>
<td>Acrylic Latex</td>
<td>44.5</td>
</tr>
<tr>
<td>Total:</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Typical Properties of Latex Formula:**

- Viscosity, cps (Initial): 11,000 cps
- Phosphorus, Wt.%: 6.8
- pH: 4.4
- Solids, %: 36.3

Melamine powder or various bromine compounds may be added to further enhance flame-resistant properties.

**Handling / Storage Stability**

Store in cool, dry area i.e., 70-80°F and away from high heat to retain a six-month shelf life.

**Product Safety**

When considering the use of **Ulterion®** brand products, please refer to the latest Safety Data Sheets (SDS). If a SDS for this product is required, please contact your Jain Chem Representative.

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