

# TECHNICAL BULLETIN

## QUENCH™ N1000

### FLAME RETARDANT

#### PERFORMANCE FEATURES

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

#### Product Description

*Quench™ 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. *Quench™ 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. *Quench™ 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:**

*Quench™ 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

#### MARKET USES

- Textiles
- Carpet
- Back-coatings
- Non-wovens

at 140F. Because *Quench™ N1000* is completely miscible in water, it eliminates the need for emulsifiers or solvents for bath preparation. A cold-water rinse will remove residual *Quench™ N1000* flame retardant from the surface, restoring the original fabric hand.

*Quench™ N1000* flame retardant is applied to polyester fabric by such conventional textile finishing equipment as a padder and then dried thermosteamed and rinsed. It can be applied to woven and knit fabrics during final frame-out or at earlier processing steps if desired. *Quench™ 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:**

*Quench™ 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. *Quench™ N1000* will hydrolyze

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over time resulting in increased acidity.

#### Example Formulation:

A starting latex formulation, containing **Quench™ N1000** flame retardant, would be as follows:

<u>Components</u>	<u>Parts in System</u>
Water	39.4
CaCO <sub>3</sub>	0.3
<b>Quench™ N1000</b>	12.5
Xanthan Gum	3.3
Acrylic Latex	44.5
Total:	100.0

#### Typical Properties of Latex Formulation:

Viscosity, cps (Intitial)	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 International** products, please refer to the latest Material Safety Data Sheets (MSDS). If you require an MSDS for this product; please call (706) 654-2222 or your **Ulterion International Representative**.

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