

FLAME RETARDANT FINISH – PART II

REF: TT/ MARCH 2018 / WK 2

Types of Flame Retardants

- Brominated flame retardants
- Chlorinated flame retardants
- Phosphorous-containing flame retardants (Phosphate ester such as Triphenyl phosphate)
- Nitrogen-containing flame retardants (i.e. Melamine)
- Inorganic flame retardants.



Flame retardants and its Application Processes

Flame Retardants on fabric can be applied through conventional padding, padding with multiple dips and nips. If followed by 30 to 60 seconds dwell, it gives good results.

The pH of the pad bath is optimally kept at approximately 5.0. The amount of flame retardant required depends primarily on the fabric type, application conditions, and test criteria required to be met with. Screening experiments should be conducted to determine the minimum application level for a fabric.

One of the most common processes for applying Flame Retardants on cotton_fabrics is the "Pre-condensate/NH3 process. Pre-condensates are applied after which the fabric is cured with ammonia and then it is oxidized with hydrogen peroxide.

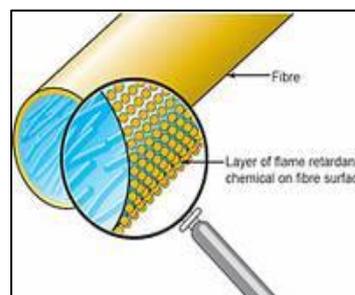


Fig 1.1 Flame retardants on the fibre surface



Pre-condensate is the Tetrakis-hydroxymethyl phosphonium salt pre-reacted with urea or another nitrogenous material. Some pre-condensates are formulated along with the sodium acetate. Softeners are also added along with pre-condensates.

A critical factor in the successful application of pre-condensate/NH₃ flame retardant is the control of fabric moisture before ammoniation. Generally, moisture levels between 10% and 20% give good results.

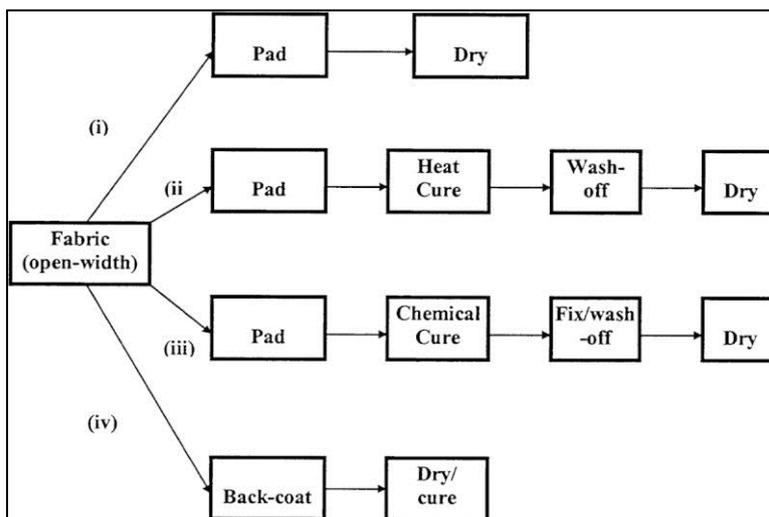


Fig 1.2 Application processes of flame retardants

To be continued...

Wishing you a great week ahead!

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