

Technical Tuesdays

REF:TT/April 2011/ WK 1

An easier approach to make “Down Proof Fabric For Home Textile applications”

Down proof Fabric

An Overview of Downproof fabric, its properties **and requirements to make the down proof marked in Bold:**

Down proof fabric is a woven cotton fabric made from very fine yarns and extremely tightly woven so as to reduce the permeability to fillers. It is used for pillows, quilts, etc. .

- Downproof fabric is very prone to creasing and the crease marks are highly visible so **WFR finish is mandatory;**
- it is also difficult to wash off because of the tightly woven construction so **Stain Release finish may also contribute to the aesthetic appearance.**

Factors influencing Down proof properties:

- **Fabric Construction** factors can have an appreciable effect upon air permeability by causing a change in the length of airflow paths through a fabric.
- **Yarn twist** also is important. As twist increases, the circularity and density of the yarn increases, thus reducing the yarn diameter and the cover factor allowing the more circular, yarns to be packed closely together in a tightly woven structure with reduced air permeability.
- **Yarn crimp** and **weave** influence the shape and area of the interstices between yarns and may permit yarns to extend easily. Such yarn extension would open up the fabric, increase the free area, and increase the air permeability.
- **Hot calendaring** can be used to flatten fabric components, thus reducing air permeability.

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Down proof fabric by finishing:

Possiblitiy:

By reducing the size of the interstices between the yarns by,

A curable finishing formulation containing silicone compounds and filler in matrix of silicone can be applied to the fabric, dried and cured and the fabric may thereafter be calendered.

Conventional process and problems associated with it:

Down proof finishes have traditionally depended upon calendering fabrics that have been finished with conventional durable-press resin formulations, such as an n-methylol resin, catalyst, wetting agent, and softener.

It is also known that starch will act as a filling agent when added to the above-noted type of durable-press finishing formulation, and will reduce fabric permeability to a limited degree.

Starch, however, will promote a harsh fabric handle and causes dusting problems in production, in subsequent cut and sew operations, and in use.

a wax finish will also make a non-durable Downproof finish.

Testings:

If a fabric is said to be Down proof it should pass ASTM D737.

“Have a happy week ahead”

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