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HYDROPHILICITY AND SILICONES

The term Hydrophilicity is obtained from Hydro (water) and philic (loving), which literally means the tendency of a substance to attract water.

Cotton is naturally hydrophilic due to the presence of -OH groups in its cellulose chain. The -OH groups form hydrogen bonds with the -H present in water, to ensure the attraction of the water molecule to the cellulose fibre.

How do silicones impart hydrophilicity? -

Silicones are inherently hydrophobic (water repellent). When a fabric is finished with silicone (or any other softener, for that matter), the natural tendency is to decrease the hydrophilicity of the fabric. This phenomenon can be altered if the silicone has an organo-functional modification which allows the silicone itself to interact with water, much in the same way as the cellulose does. Obviously, this interaction is limited in its nature but is usually more than sufficient to qualify a fabric finish as hydrophilic.

Durability of a hydrophilic finish

Softeners for terry towels available in the market can be classified into three types:

1. **Permanent Hydrophilic:** These softeners are usually organo modified silicones. They constitute the premium segment of hydrophilic softeners. These products offer an excellent handle along with superlative hydrophilicity, which can last the lifetime of the fabric (15-20 washes)
2. **Semi durable hydrophilic:** Softeners classified under this category are normally a combination of silicone and cationic components. These products are positioned in the medium price segment. Towels finished with such softeners sometimes specify that it will show improved hydrophilicity after one wash. These softeners offer an adequate-to-excellent handle and low hydrophilicity.
3. **“One wash” wonder:** This third category of softeners consists of products that are cationic in nature. Fabrics finished with such softeners normally do not conform to any standard of hydrophilicity. They are used on fabrics that are classified as inherently hydrophilic and the label usually advises customers to wash the towel prior to use. These softeners are low cost and are used primarily for the excellent handle they confer.

Technical Tuesdays

Hydrophilic products for terry towels

From the consumer point of view, the main criterion while selecting a terry towel, irrespective of the manufacturing process, are:

- Uniformity of pile height
- Stability of piles
- Minimum shrinkage
- Good water absorbency
- Color fastness to washing and light

These properties have to be factored in the development of a hydrophilic softener for terry towels.

RESIL RANGE -

- Hydrophilic and moisture management

Innocelle SiIQ: Provides a balanced effect of a silky finish with good hydrophilicity with no yellowing: shear stable

- Sheer stable, pH stable, redyeable silicone

Innocelle SH₂O: Provides a super hydrophilic finish, with excellent wicking properties and shear stability. Especially recommended for whites to achieve and sustain a very high degree of whiteness. It is redyeable.

- Unique Concentrated Silicone Fluid

Innocelle UNIQ-. Instant Hydrophilicity with no yellowing or shade change. Rich Softness on all Substrates

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