Special Finishes
For Textiles
Special Finishes or functional finish are the treatments that are applied to the fabric to make them suited for specific uses.

Paradise/Creacion is offering the auxiliaries for following treatments

- *Easy Care Finish*
- *Flame Retardant Finish*
- *Water Repellent Finish*
- *Soil Release Finish*
- *Hydrophilic Finish*
- *Anti Bacterial Finish*.
It is an acknowledged fact that cotton garments ensure maximum comfort thanks to their suppleness and their capacity to absorb humidity. The weak point of cotton clothing is its tendency to crease easily, which makes care of such garments more difficult.

The tendency to crease is due to the partially amorphous structure of the cellulose, which means that structural alterations can quite easily occur. Many weak molecular bonds such as hydrogen or Van Der Waals forces, which link together long cellulose polymer chains, can alter.

❖ Siltex 30200/Resin

In order to limit creasing, Siltex 30200/Resin can be used which creates stronger (covalent) and more permanent bonds and reduce creasing to a large extent.

This product can be used in conjunction with some other resins, polyethylene emulsions and silicone softeners.

Assessment of crease resistance can be estimated in several ways: by measurement of the crease recovery angles and appearance of fabric after repeated home laundering
Fabric specimens are subjected to standard home laundering practices. Evaluation is performed using a standard lighting and viewing area by rating the appearance of specimens in comparison with appropriate reference standards (Rating 5 being the smoothest and 1 being the most wrinkled in appearance)

**Advantages**

- *Simplified Easy-care or Non-Iron garment care*
- *LOW Formaldehyde*
- *Range of Handles are Possible*
- *Compatibility with water and oil repellent treatment*
- *Very good stability to hydrolysis*
Flame Retardant Finish:

Flame retardants reduce the likelihood of a fire starting by improving the resistance to ignition of potential fire sources. There is no doubt that they play an important role on textiles by providing safety and giving escape time from a potential hazard.

When a fire does start, flame retardants reduce the flame spread and the rate of fire development, providing valuable extra time in the early stages of the conflagration to extinguish the fire or make an escape.

This is demonstrated* by comparing the rate of fire spread in a conventional Non flame Retarded upholstered chair with that of one manufactured using flame retardant to comply with the Upholstered Furniture Fire Regulations (1988) in the UK. Ignition was by a 30 W gas burner.

![Graph comparing heat flux and escape time with and without flame retardant](image-url)
Under the conditions of the test the armchair containing the flame retardant fabric and flame retardant foam gives a significant increase in the escape time available. It is also far less likely to be ignited accidentally in the home.

* Ceryf, Hurd, R., King D.a., EUROPUR studies on methods of test for the burning behavior of upholstered furniture, Cell..

- **Siltex 30261/FRC**  
  *Durable Flame Retardant for cellulosic fibres*

- **Siltex 30170/FRP**  
  *Durable Flame retardant for polyester fibres*

**Product advantages:**

**Siltex 30261/FRC**

- More Environmental acceptable product based on phosphorus and nitrogen chemistry, as opposed to products based on antimony and bromine.

- Provides a flame retardant finish for cellulosic textiles, durable to repeated washing and dry cleaning.

- Meets standard flame retardant test specification and requirements.
- Prevents afterglow.
Can be applied in combination with resins to give easy-care finishes.

- Can be combined with oil and water repellent finishes.
- Can be applied to cellulosic fibres such as cotton, viscose, linen and lyocell.

*Siltex 30170/FRP*

- Used for durable flame retardant finishing of woven and knitted polyester material
- Applied by a pad thermosol process to obtain a durable finish
- Used in combination with binder systems coatings and printing pastes to obtain flame retardant effects
- Does not contain halogens (bromine)
- Can be used in combination with selected fluorochemicals
WATER & OIL REPELLENT FINISH

• The term waterproof refers to the finish that block interstices of fabric by forming a hydrophobic film on its surface thereby making it impermeable to air.

• The water repellent finish is permeable to air but not to water and so garments made from such treated fabric are comfortable to wear.

❖ Siltex 30336/OWR
Typical application fields are:

- Carpet finishing.
- Clothing (e.g. sportswear & rain coat.).
- Umbrella cloth.
- Table linen curtains upholstery fabric.
- Tarpaulins and tents.
- Technical fabrics (e.g. fitter material, fabrics, protective clothing).
Product advantages:

Water - and oil-repellent finishing agent for all fire types.

- Especially durable to washing. Also resistant to dry-cleaning.
- Easy handling and storing because it is not inflammable.
- Low foaming.
- High resistance to yellowing, suitable for colored and white goods.
- No influence on the light fastness and the shade
Soil release Finish

A finish that increases the absorbency of a fabric, this finish allows stains to leave the fabric faster, increase the wicking action for greater comfort in wear, makes the fabric dry-cleanable without significant loss of soil release properties, and maintains brightness after respective repeated laundering.

- **Siltex 30143/Soil Release**

  Siltex 30143/Soil Release is the ultimate in soil release/comfort finishes for polyester, Cotton and polyester/cotton blend fabrics. Not only does Siltex 30143/Soil Release have soil release and moisture transport properties that are unsurpassed in the industry, but the consistency and durability of its performance rank it above other hydrophilic finishes.
Mechanism Of Action:

By increasing surface hydrophilicity, Siltex 30143/Soil Release reduces the interactions between fabrics and greasy soils.
Fabric was treated with Siltex 30143/Soil Release at 30 g/l and stained with lipstick stain then wash with normal detergent. Results are as follows.

It is clear from the figure that stains are removed more effectively on Soil Release treated fabric.
Product advantages:

- Elimination of greasy and particulate soils from the first wash.
- Performance which increase wash after wash
- Fabric protection against the adhesion of greasy or particulate soil between two washing cycles.
- Compatible with most dye bath additives
- Durable soft hand
- Exhaustable
- Antistatic properties.
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 group in its cellulose chain. These –OH group form hydrogen bonds with the –H present in water, to ensure an attraction of the water molecule to the cellulose fiber.

It is known that silicones are inherently hydrophobic (water-repellent). When a fabric is finished with silicone (or any other softener, for that matter), the hydrophilicity of the fabric is decreased. This phenomenon can be altered when the silicone has an organo functional modification that allows the silicone itself to interact with water much in the same way as cellulose does.

The silicones can not confer hydrophilicity to a fabric which is inherently hydrophobic. It can only interact with water to an extent where it does not interfere with the hydrophilicity of the fabric itself. This naturally leads us to the conclusion that the hydrophilicity of the fabric is better at lower dosages, whereas the handle imparted by a silicone softener improves at higher dosage, which reduces the hydrophilicity of the fabric, so that search for the compromise between softness and hydrophilicity continues.

*Siltex 30225/Hydrophilic*
Paradise/creation is now offering another new generation textile softener Siltex 30225/Hydrophilic, which preserves/imparts the HYDROPHILICITY of the fabric and provides FULL SOFT HANDLE whilst remaining NON YELLLOWING.

In the case of amino compounds the yellow discoloration is mainly due to the oxidation of amino radicals in the presence of air and heat and/or light energy.

More specifically the result of this oxidation is the formation of azo and azoxy compounds (2 + 8):

The use of secondary and tertiary amines does reduce this effect,

but with the resultant undesirable side effects of loss of softness.

A mechanism exists to overcome yellowing, without losing softness, as well as gaining the reduced hydrophobicity.
Product advantages:

- Imparts or preserves the textile hydrophilicity of the fabric.
- Full soft handle.
- Total Non-Yellowing even at high temperature.
- Durable to washing.
- Performance improves wash after wash.
- Leaving towel looking and feeling new wash after wash.
Antibacterial Finish

Spores of fungi and bacteria exist everywhere and under hot and humid conditions these rapidly multiply feeding on their hosts. These microorganisms attack the natural fibres as well as the finishes applied to these and cause mildew and rotting damages.

Natural fibers such as cotton are more susceptible than synthetics because their porous hydrophilic structure retains water, oxygen and nutrients, providing a perfect environment for bacterial growth.

The enzymes that degrade cotton are cellulase and cellobiase and these reduce strength and produce colored and foul smelling spots and even holes on the exposed fabric.

*Siltex 30212/ Antibacterial*

*Siltex 30212/ Antibacterial* is effective in killing and preventing the growth of both bacteria and fungi known to degrade textile substrates.

The product is Non Phenolic and Formaldehyde Free.
Product advantages:

- Safe, highly efficient and extensive Anti-microbial properties
- Have a wide spectrum of activity.
- Durable, resistant to washing
- Practically No influence on whiteness and shade
- No influence on strength. Handle and Permeability of fabric
- Soluble in water and easy to use
- Suitable for finishing cotton, linen, silk, wool, polyester/cotton and viscose fabric
- Particularly can be applied to knitting fabric and towels for dipping treatment.
- Non Volatile and heat stable