

Saraqvest

Exclusive Insight



**Chemistry Behind
Good Feelings**

Contents

Low temperature washing-off agent

- Itawash-LT



Premium silicone softener

- Ultimosoft-ZN (Conc)



Corrosive and passive inhibitor for metal

- Heflor-CI (Conc)



Optical brightening agents for Polyamide and Acrylic



Low temperature washing-off agent

Itawash-LT



Most cotton fabrics are dyed with reactive dyes as they produce a full range of bright colours with a high degree of overall fastness. Dyeing of cellulosic substrates is done with reactive dyes under alkaline conditions. These conditions facilitates reaction of reactive group with the dye liquor, resulting in hydrolysis of the reactive dye. The hydrolyzed dye adhere onto the substrate causing poor wash fastness. The hydrolyzed dye must be removed using an appropriate washing-off agent in order to retain the fastness properties.

The washing-off efficiency of dyes would depend upon the ease of removal of unfixed and hydrolyzed dyes. The washing-off agent should facilitate the removal of unfixed dye molecules from the fiber into the water.

Normally, washing-off process includes a first rinsing, a washing, a second rinsing, and a drying step. Typically, soaps, such as phosphate based detergents, are added during the washing step to assist in removal of unfixed and hydrolyzed reactive dyes. However, the liquid alkalis used during fixing have not been considered for use during washing since they would not be expected to assist in excess dye removal.

In addition, if the reaction mixture is too "hot" or alkaline, such as is seen with pure sodium hydroxide, the sensitive type reactive dyes will hydrolyze with the water in the rinse bath and form a nonreactive dye that has no effect on the fabric colour. Furthermore, phosphate & silicate based washing agents are not accepted by European countries due to their poor biodegradability.

Immense water is utilized in washing-off unfixed and hydrolyzed reactive dyes. Moreover, longer the washing sequence, the higher will be the quantity of water required. In the process of reactive dyeing of cellulosic fibres, there is a huge potential for energy saving, shortening and reduction of steps and reduction in waste water load in the washing-off process. A typical washing-off process of reactive dyeing need approximately 5-6 rinsing and washing baths and for darker shades, even more baths are necessary to reach the required fastness level.

Washing-off of reactive dyed fabrics is more complex. It is very difficult to remove the unfixed/unreacted dye from the fabric due to the presence of electrolytes. Thus it is advisable to give a cold rinse before treating with washing-off agents.

It is advisable to use such washing-off agents which works in the pH range 5.0-7.0 as fabric is further generally finished in acidic medium.

Solution from SAREX:

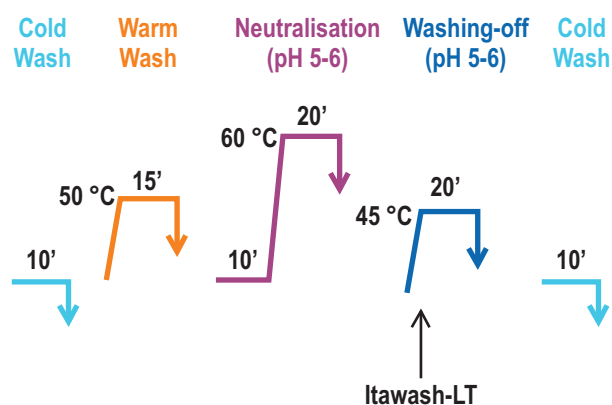
Sarex has developed a novel washing-off agent **Itawash-LT** with a high added value to shorten and reduce the washing-off process of reactive dyed fabric to achieve good fastness. **Itawash-LT** is a low temperature washing-off agent which reduces time, energy and water against conventionally used washing-off agent.

Unique features of Itawash-LT:

- Works at low temperature (35-60°C).
- Works in acidic medium.
- Single bath washing is recommended for dark shades.
- Double bath washing is recommended for shades from orange, turquoise blue and royal blue dyes.
- Effectively removes unfixed and hydrolyzed dyes.
- Excellent dispersibility which prevents re-deposition.
- Washing fastness is good and comparable to conventional washing-off agents.
- Saves time, energy and water thereby improves productivity.
- APEO / NPEO free.

Application:

Itawash-LT : 1.5-2 %
 Bath pH : 5-6
 Temperature : 35-60 °C
 Time : 20-30 min

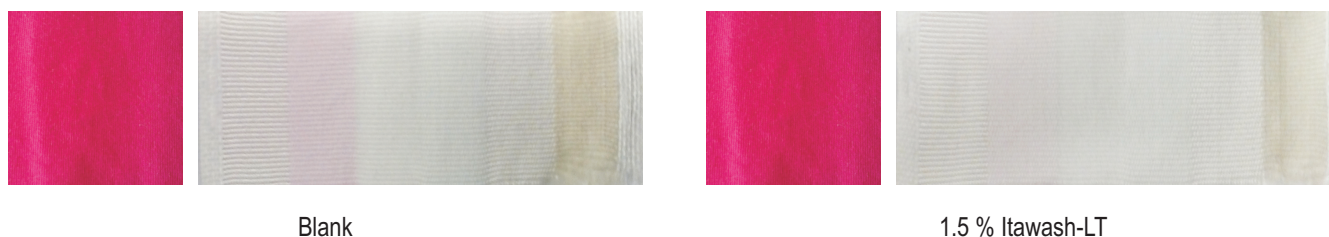


RESULTS:

Washing carried out in presence of hard water

Reactive Red HE 7B (8 % shade)	Washing at 150 ppm at 45°C	
		Blank
		1.5 % Itawash-LT
		2 % Itawash-LT

Washing fastness by ISO 105 C10 test method



Premium silicone softener



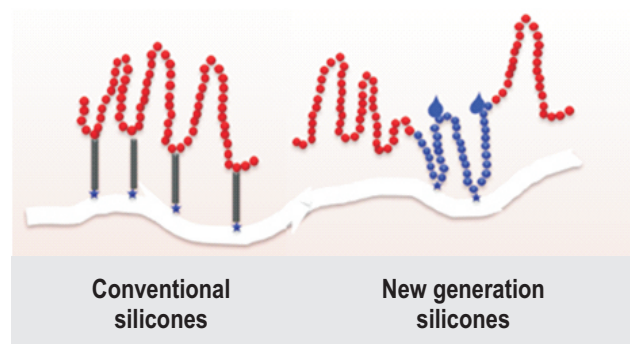
Ultimosoft-ZN (Conc)

Textile finishing is the art and science of making textile and apparel presentable to the consumer. It enhances the appeal, aesthetics and commercial acceptance of the fabric by the retailer and consumer. A nice, soft handle is often the decisive criteria for buying a textile. An outstanding soft and supple handle is particularly important for achieving high end textile, no matter whether the fabric is cotton, polyester or blend. The softness depends on the frictional forces between the individual yarns and fibres. Lower is the interfibre friction, more softer is the feel of the fabric.

A softener imparts soft and pleasant touch to the fabric, giving it a high degree of wearing comfort. Other properties such as antistatic and hydrophilic properties, elasticity, sewability, abrasion resistance properties, are also improved by application of softeners. The silicone based softeners forms an ultra thin layer/film on the fibre surface which makes fabric softer with outstanding comfort to wearer.

New generation softeners are expected to show maximum efficiency and properties with durability. These qualities are becoming more important in order to satisfy the demands of a globalized textile market.

Particularly suitable softeners are emulsions of modified amino-functional silicones and are most suitable to meet the requirements of customers.



The amino-functional silicones are best delivered to the textile surface under the form of a micro/nano emulsion. These emulsions can penetrate into the fiber and imparts inner softness and fullness. Amino-functional silicones can lead to yellowing of fabric due to amino groups. Modifying these amino groups with blocking groups help to overcome yellowing problem.

The trend in modern textile finishing is toward softness and hydrophilicity but, softness and hydrophilicity are at two extreme ends.

If we increase the softness, hydrophilicity decreases. Addition of polyglycol chains, pyrrolidone groups imparts hydrophilic character to the softener. Today's textile finisher require softeners which are versatile, universal and trouble-free - with excellent bath compatibility, stability to high shear forces, salt and temperature.

Keeping in view of modern demand **Sarex** has formulated a new generation silicone softener **Ultimosoft-ZN (Conc)** which is highly suitable for cellulosics and its blends. It imparts silky, very soft feel with very good body break to the finished fabrics for high value premium market.

Unique features of Ultimosoft-ZN (Conc):

- Imparts very good surface smoothness and body break on the treated fabric.
- Non yellowing and hence suitable for light and pastel shades.

- Shear stable therefore suitable for jet dyeing and soft flow machines.
- Suitable for pad as well as exhaust application.

Application:

Pad application

Ultimosoft-ZN (Conc)	: 5-8 g/l
Pick up	: 65-70%
Bath pH	: 5.0-6.0
Drying	: 130-160°C

Exhaust application

Ultimosoft-ZN (Conc)	: 0.5-0.8%
Bath pH	: 5.0-6.0
Temperature	: 40°C
Time	: 20-30 min



Corrosive and passive inhibitor for metal



Heflor-Cl (Conc)

Fashion demands are the driving force behind garment manufacturing units. Garment processing is an emerging technology, which involves first making garments and then imparting aesthetic qualities. Value addition has gained overwhelming popularity due to the fashion world's taste for a distressed and worn-out look. It is governed by the latest 'trends' and provides higher earnings.

Aesthetic value addition by the application of a fashion treatment attracts the immediate attention of consumers, making a garment more appealing. These include fading of particular portions of a garment, distressed or worn-out looks, stone-washed, soft handle, creasing, etc.

Fashion industry requires metal trims such as buckles, zippers, eyelets, rivets, buttons, or snaps. The appearance change due to the corrosion on metal is the main concern of the consumer. Corrosion will affect the aesthetic properties of a garment may cause staining on the adjacent fabric or material, and may affect the function and appearance of the metal trim, e.g. buckle, metal hook. It is unacceptable for a metal trim to become corroded in a short period of time.

Corrosion is the destruction of metal materials resulting from chemical or electrochemical reactions during processing or with the environment. The surface nature of a material is the factor having the greatest influence on its susceptibility to corrosion. Since it is on the surface that the protective inactive film is formed; a non porous oxidised coating, cracks and roughness inhibit the formation of a continuous inactive film. Environmental factors may also change the porosity and/or the continuous nature of the film.

Why corrosion is concerned in textile & garment industry?

- Reduction of metal thickness.
- Deterioration of appearance of garments and thereby reduces its value.
- Loss of surface properties.

Test methods:

The corrosion resistance properties of the metal trim can be assessed by below testing methods used for apparel and footwear industry:

- ISO 22775:2004 - Footwear test methods for accessories: Metallic accessories-Corrosion resistance.
- ISO 9227:2006 - Corrosion test in artificial atmospheres: Salt spray tests.
- ASTM B117:2009 - Standard practice for operating Salt spray (Fog) apparatus.

Unique features of Heflor-CI(Conc):

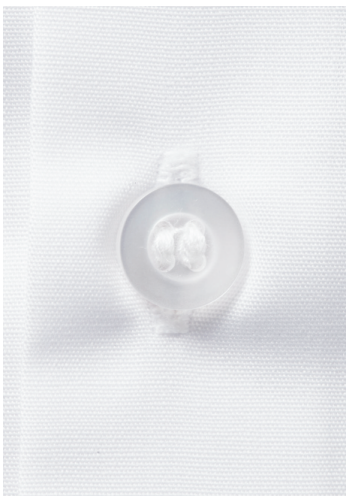
- Prevents stain formation on garments due to metal accessories such as zips/buttons.
- Does not affect shade of dyed garments.
- It is easily dosable.
- Stable to wide pH (3 to 13).

Application:

0.5-1.0 g/l Heflor-CI (Conc) to be added at room temperature before addition of dye.

Solution from SAREX:

Sarex has developed **Heflor-CI (Conc)** which is a corrosive and passive inhibitor for metal when it comes in contact with water. It protects during processing/dyeing of garments with metal buttons/zips, especially made up of copper.



Optical brightening agents for Polyamide and Acrylic



Natural and synthetic textile materials are not completely white and effort have been made since ancient time to free from yellowing. Bleaching in the sun, bluing and chemical bleaching increases the brightness of textile materials.

Optical brightening agents (OBAs) or fluorescent brightening agents (FBAs) are chemical compounds that absorb light in the ultraviolet region (usually 100-380 nm) of the electromagnetic spectrum, and re-emit light in the blue region (440-490 nm). These agents are often used to enhance the appearance of colour of fabric causing a "whitening" effect, making fabrics look less yellow by increasing the overall amount of reflected blue light.

OBA can be classified into two groups according to method of application:

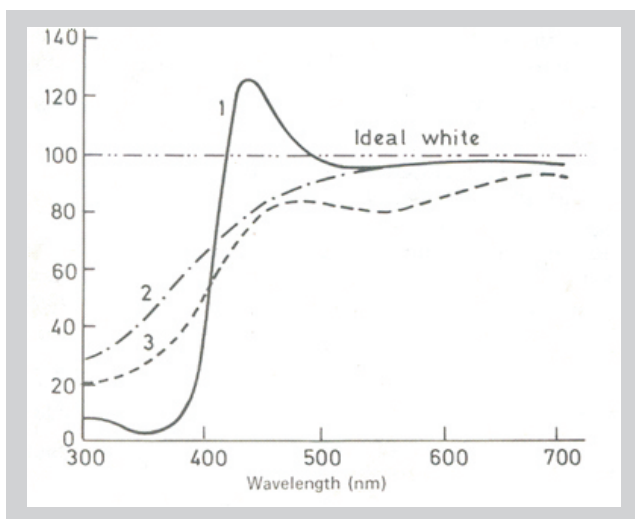
- **Direct (substantive) brightening agent:**

They are predominantly water soluble substance used for the brightening of natural fibres and occasionally for synthetic material such as polyamide.

- **Disperse brightening agent:**

They are mainly water insoluble and can be applied as disperse dyes in aqueous dispersion. They are used for synthetic materials such as polyamide and polyester acetate. The OBA can be classified according to chemical structures as derivatives of stilbene, coumarin, 1,3 diphenyl pyrazoline, naphthalene dicarboxylic acid, heterocyclic dicarboxylic acid and substance belonging to other chemical system.

The bleached white textile material sometimes appears slightly yellower. This slight amount of yellowish colour can give the impression of slight soiling and may detract from their aesthetic appeal. The presence of slight amount of bluish colour gives the impression of textile material "whiter". Before advent of OBAs, improved whiteness was obtained using a laundry blue which is a blue pigment. The development of OBAs had meant that this slight addition of blue can be obtained through the light reflected by the OBAs in presence of ultraviolet radiation. This makes white textile whiter and brighter. Coloured textile materials tend to appear brighter.



1 - Reflectance & fluorescence of chemically bleached fabric treated with OBA.

2 - Reflectance of chemically bleached fabric.

3 - Reflectance of chemically bleached and blue-tinted fabric.

Solution from SAREX:

Sarex has developed various optical brightening agents for polyamide and acrylic. These **OBAs** imparts excellent whiteness to the substrates. They can be applied by both exhaust as well as pad application.

Name of OBA	Key features
Polyamide Carewhite-NW (Conc)	<ul style="list-style-type: none"> • Imparts violetish white tone to treated substrate. • High affinity powder form optical brightener. • Stable to wide pH (pH 2-12). • Stable to reductive bleach. • Very good fastness properties. • Suitable for polyamide, wool and silk fibres.
Carewhite-PAS	<ul style="list-style-type: none"> • Imparts violetish white tone to treated substrate. • Good stability to acid and alkali, hard water. • Good light fastness. • Suitable for polyamide, wool and silk fibres.
Sarawhite-CLE	<ul style="list-style-type: none"> • Imparts violetish white tone to treated substrate. • Good affinity for nylon under high temperature. • Stable to peroxide, reductive and chlorite bleach. • High light fastness. • Good fastness to chlorinated pool water, sea water.
Acrylic Sarawhite-CR	<ul style="list-style-type: none"> • Imparts bluish white tone to treated substrate. • Excellent whiteness in exhaust process. • Stable to peroxide, reductive and chlorite bleach. • Good wash fastness.



Not only customers but even their lovely children find Saraquest appealing and interesting



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