

Public  
Clariant  
FUN Division  
Industrial and Home Care

# *TexCare<sup>®</sup> SRN Grades*

Let them do the Laundry for You



Exactly your chemistry.

# TexCare<sup>®</sup> SRN Benefits



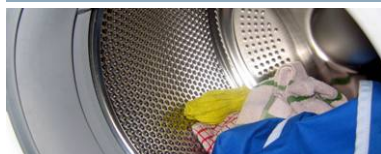
Exactly your chemistry.

## TexCare<sup>®</sup> SRN

Soil Release



Stain  
Removal



Soil  
Antiredeposition



Environmentally  
Friendly



Surface  
Modification



Soap Scum  
Dispersion



Skin Mildness



# TexCare® SRN Grades

## What They Can Do For You



Exactly your chemistry.



### Easily removing the tough stains

- Protect the clothes by preventing the soil from penetrating deeply into the fabric
- Improve the performance of the detergent facilitating the surfactant action



### Keep the white... white

- Prevent the removed soil from redepositing on the cloth during the wash



### A green alternative

- Efficient at low temperature wash (30°C)
- High performance at low dosages, useful in compact products
- Phosphate-free products

### Effects on synthetic fabrics

- Improve the affinity of synthetic fabrics (polyester, polyamide, poly-viscose, poly-cotton, poly-elastane) with water giving them a comfortable feeling.

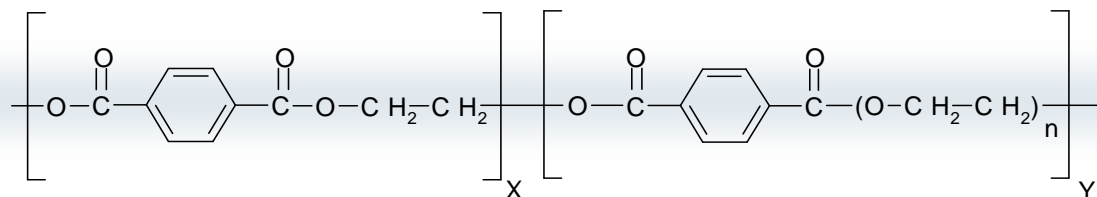


# TexCare<sup>®</sup> SRN

## Structure & Product Range



Exactly your chemistry.



Tailored for Liquid Formulations

Product Name	Active Matter	Aspect
TexCare SRN 100	100%	Light beige solid wax
TexCare SRN 170	70%	Clear yellow aqueous solution of TexCare SRN 100
TexCare SRN 240	40%	White milky dispersion.
TexCare SRN 300	100%	Light beige solid wax
TexCare SRN 325	25%	Aqueous white milky dispersion of TexCare SRN 300

Product Name	Active Matter	Aspect
TexCare SRN 400*	100%	Light beige solid wax

Tailored for Powder Formulations



### Limitations:

- On HDL formulations: Indicated only for pH between 4 and 8
- Not tailored for cotton fabric

*Easy to Clean*

*Soil Release Effect*

# TexCare<sup>®</sup> SRN Benefits

## Soil Release Effect



Exactly your chemistry.

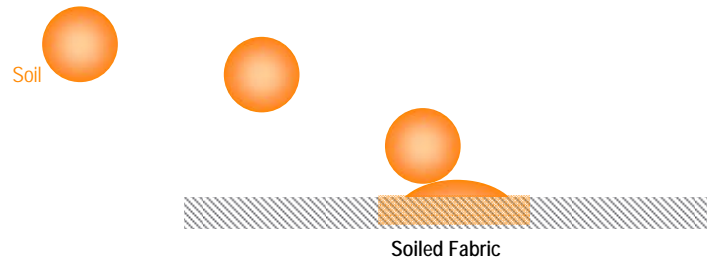


### Easily removing the tough stains

- TexCare SRN protects the clothes by preventing the soil from penetrating deeply into the fabric and makes it easier to remove the tough stains

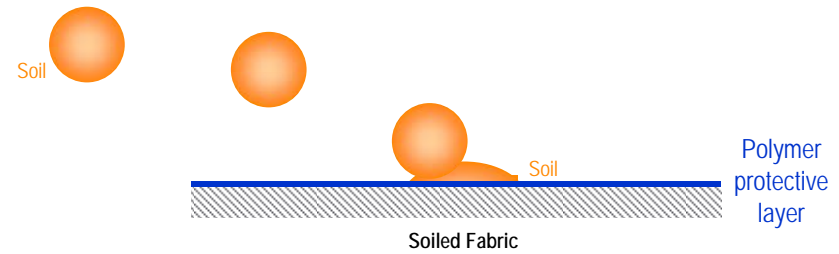
#### Soiling of Untreated Fabric

- Without the protection of TexCare SRN, the soil becomes more deeply attached to the fabric and thus, more difficult to remove on subsequent washings.



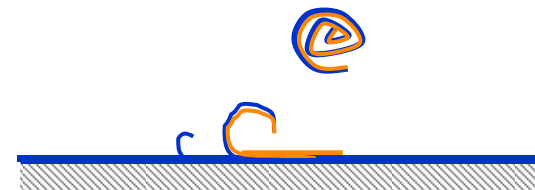
#### Soiling of Fabric Treated with TexCare SRN

- TexCare SRN forms a protective film on the fabric, minimizing the soiling.



#### Washing Step

- During subsequent washes with TexCare SRN, the soil removal is facilitated and the polymer film renewed.



# TexCare® SRN – Experimental Results

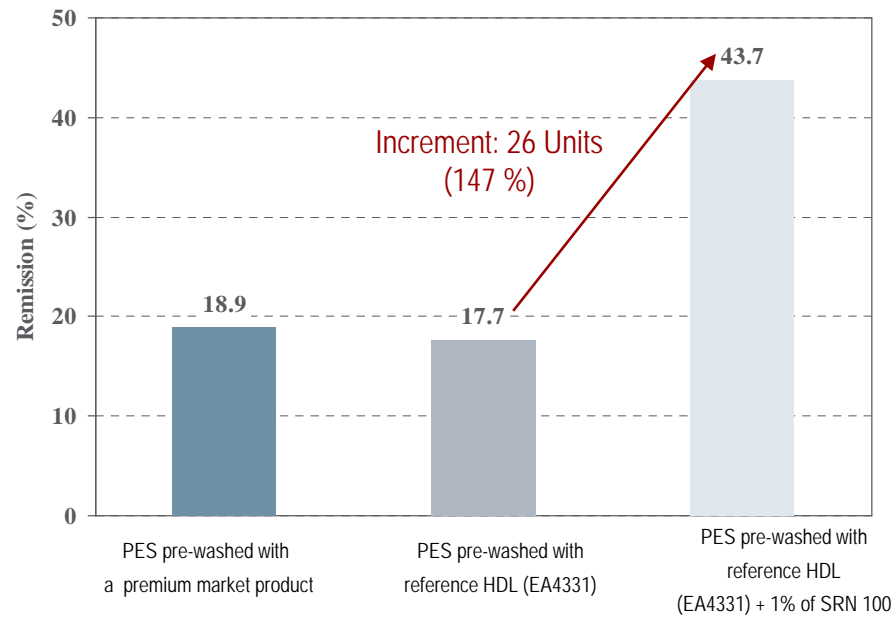
## Soil Release Effect



Exactly your chemistry.



### ■ Dirty Motor Oil on PES



PES pre-washed with a premium market product

PES pre-washed with reference HDL (EA4331) + 1% of SRN 100

PES pre-washed with reference HDL (EA4331)

Test conditions: PES (Trevira 2000), dirty motor oil, Linitest, 10 g/L of detergent, 1% of polymer, 60°C, 25 µL of soil per swatch, 1 pre-wash

# TexCare® SRN Benefits

## Soil Release Effect

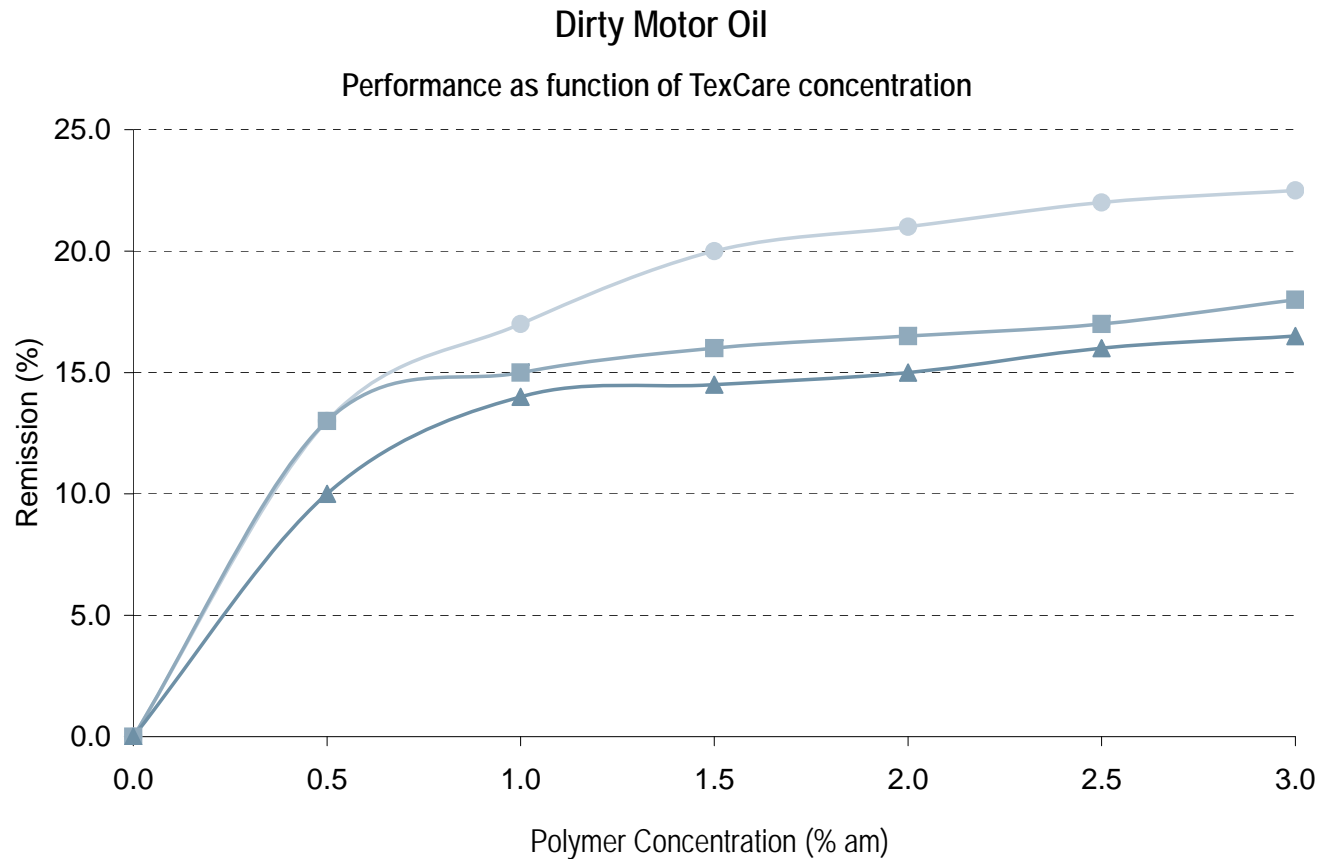


Exactly your chemistry.

WFK 30A

Polyester

- TexCare SRN 300
- TexCare SRN 240
- ▲ TexCare SRN 100



Conditions: Linitest, 40°C, 30 min., 6g/l detergent



Exactly your chemistry.

# *Stain Removal*

# TexCare<sup>®</sup> SRN Benefits

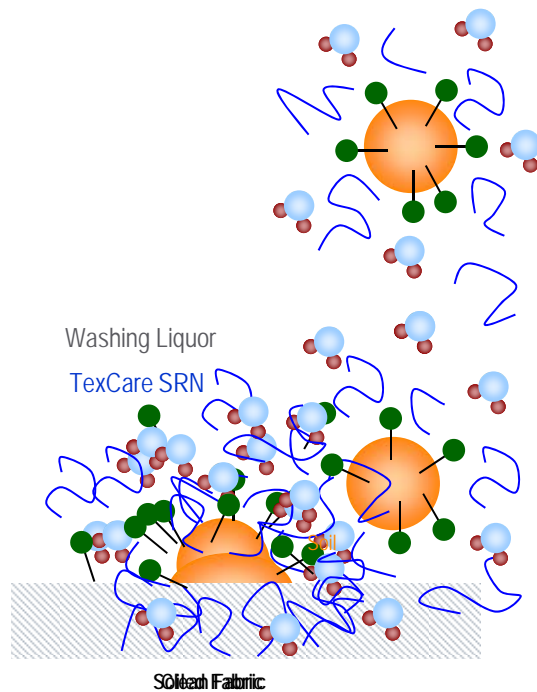
## Stain Removal



Exactly your chemistry.



### ■ Easily removing the tough stains



1. Deposition of SRP-molecules onto hydrophobic fiber surface
2. "Wetting" of the hydrophobic fiber
3. Oily soil starts separating from the fiber surface ("roll-up")
4. Desorption of soil from fiber surface

# TexCare<sup>®</sup> SRN Benefits

## Stain Removal

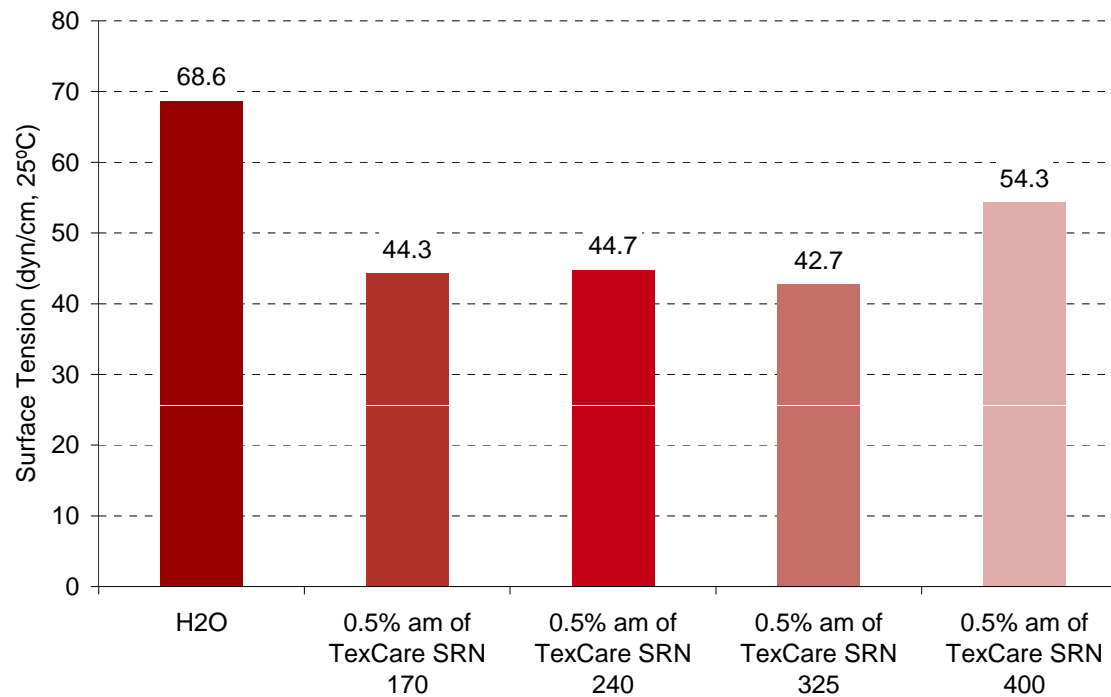


Exactly your chemistry.



### Going Hard on Stains

- By reducing the surface tension of water, TexCare SRN types help the removal of tough stains, boosting the detergent performance.



# TexCare® SRN Benefits

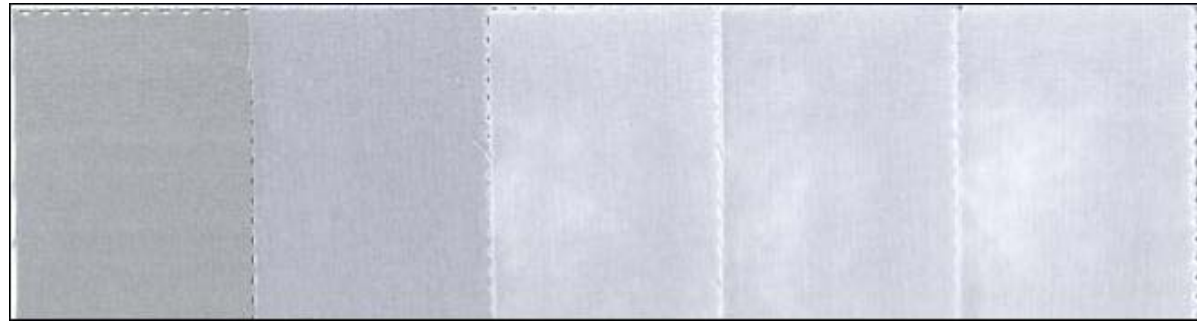
## Experimental Results 1- Stain Removal



Exactly your chemistry.

WFK 20C

PES:CO soiled with  
Pigment / Lanolin



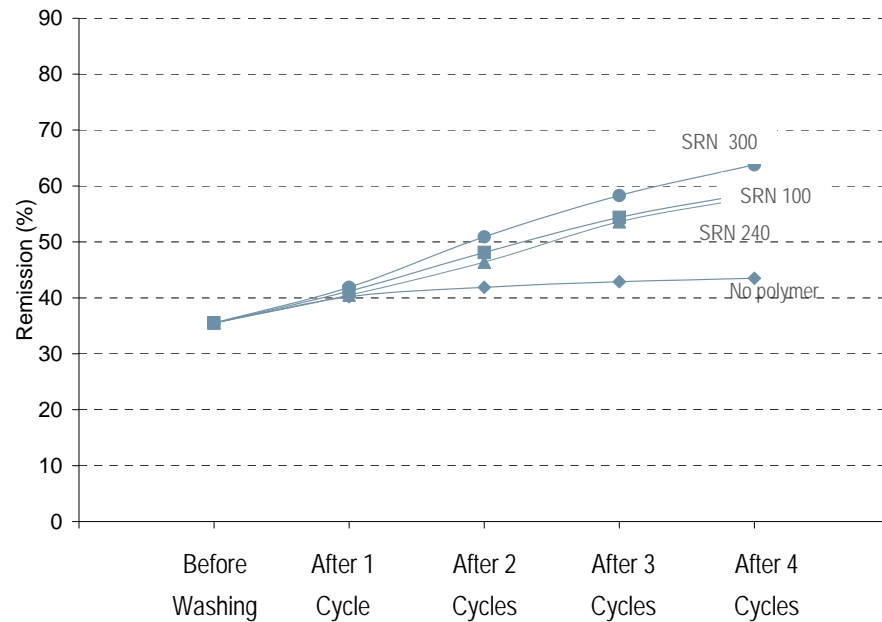
Unwashed

HDL

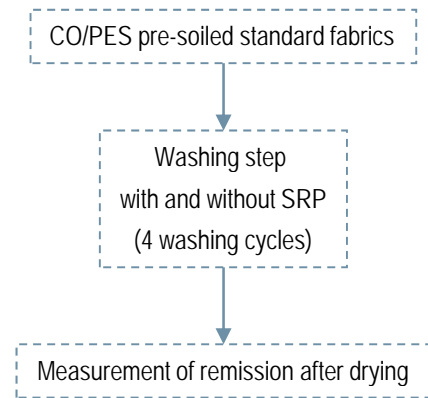
HDL + 1% am  
of SRN 100

HDL + 1% am  
of SRN® 240

HDL + 1% am  
of SRN 300



### Procedure



Conditions: Linitest, 4 washing cycles, 6 g/L of detergent, 40°C, 30 minutes wash

# TexCare® SRN Benefits

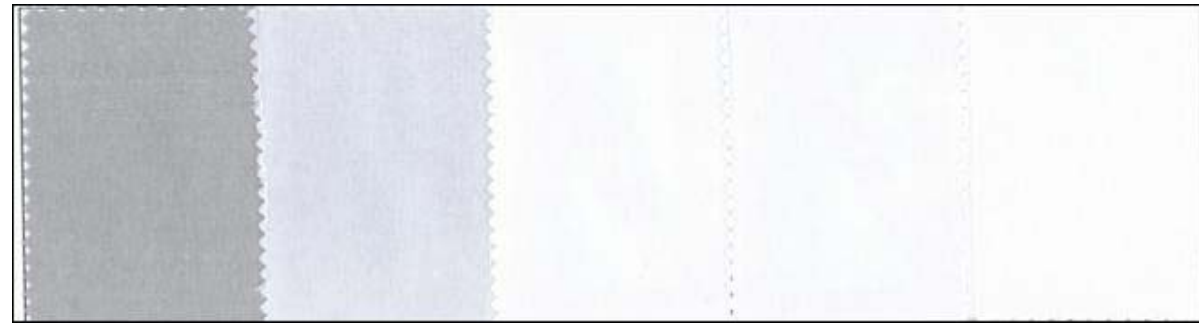
## Experimental Results 2- Stain Removal



Exactly your chemistry.

WFK 20D

PES:CO soiled with Pigment / Sebum



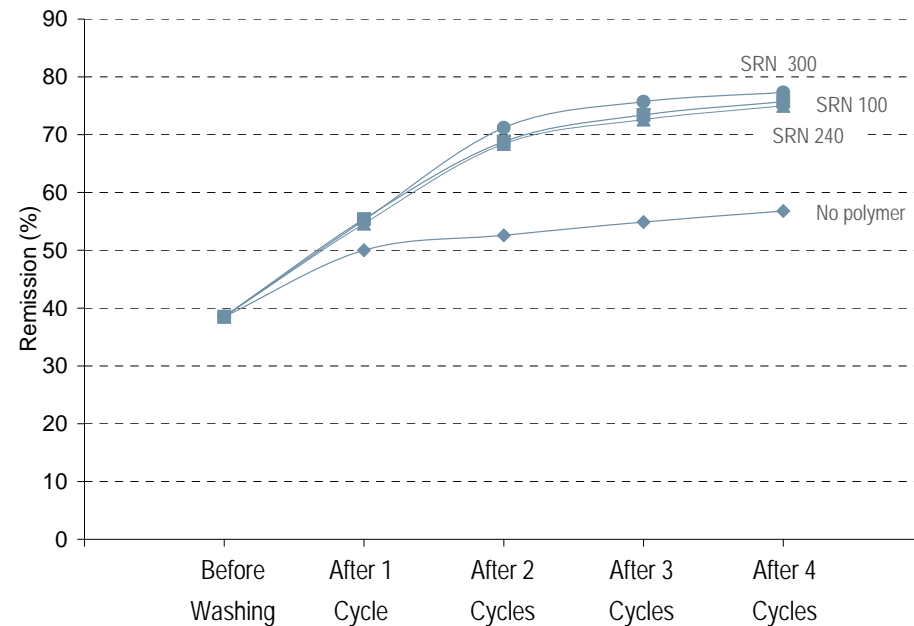
Unwashed

HDL

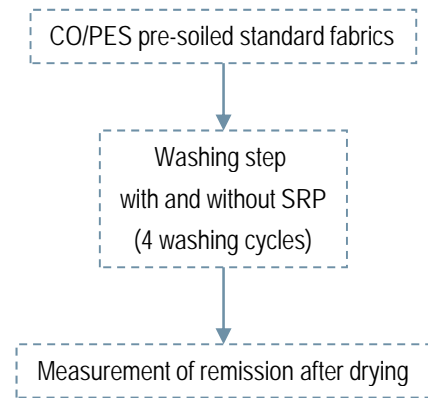
HDL + 1% am  
of SRN 100

HDL + 1% am  
of SRN 240

HDL + 1% am  
of SRN 300



### Procedure



Conditions: Linitest, 4 washing cycles, 6 g/L of detergent, 40°C, 30 minutes wash



Exactly your chemistry.

*Keep the White... White*

# TexCare<sup>®</sup> SRN Benefits

## Soil Antiredeposition

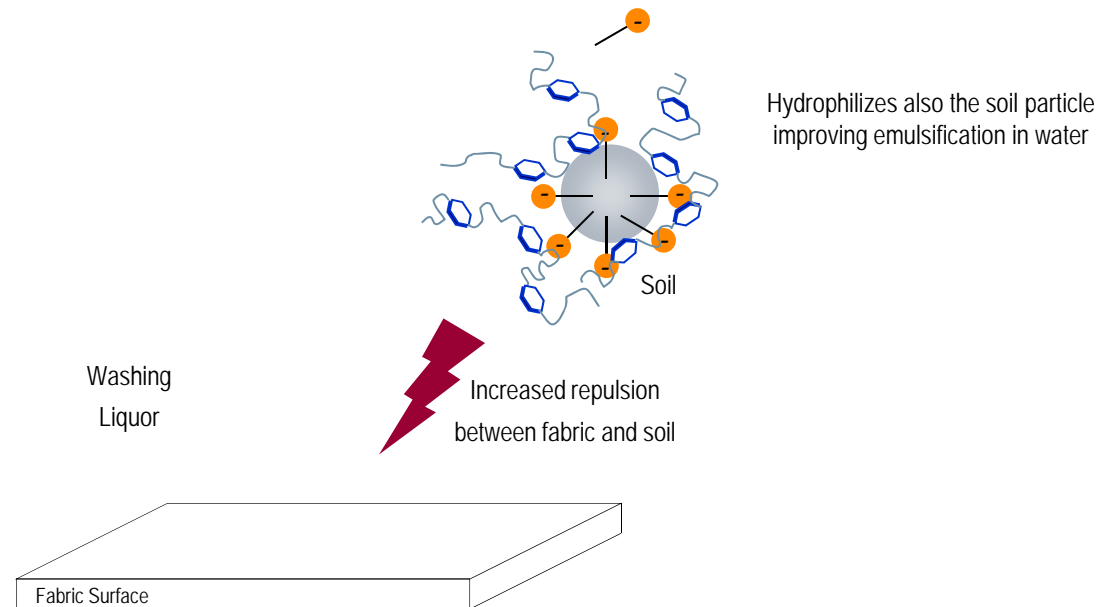


Exactly your chemistry.



### ■ Keeping the White White

- TexCare SRN interacts with both the soil and the fabric preventing the soil redeposition during washing



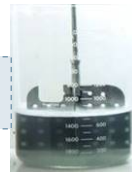
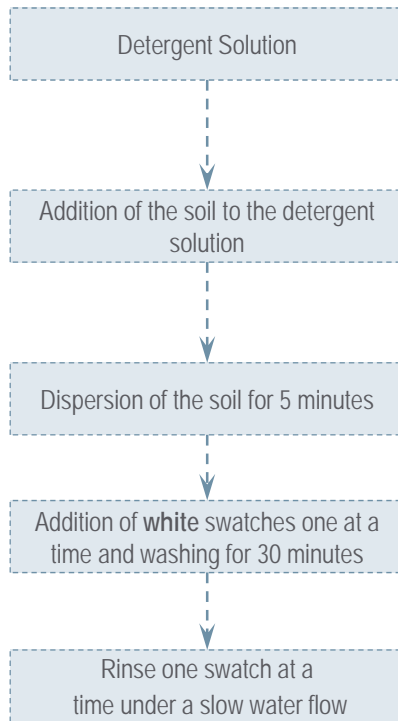
# TexCare<sup>®</sup> SRN Benefits Soil Antiredeposition



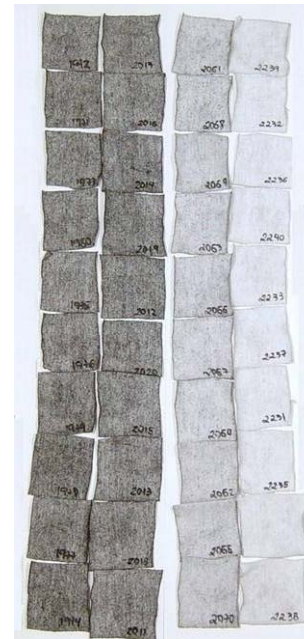
Exactly your chemistry.



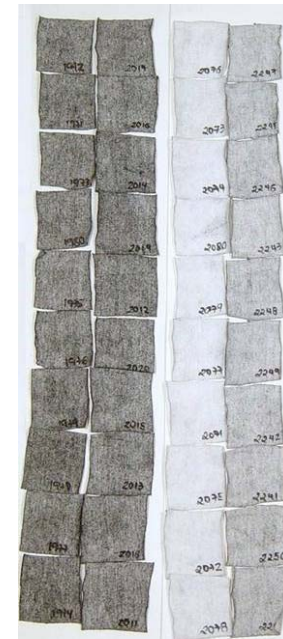
## Evaluation



## TexCare<sup>®</sup> SRN 100      TexCare<sup>®</sup> SRN 170



HDP      HDP + 2% am  
SRN100



HDP      HDP + 2% am  
SRN 170

Washing Conditions: carbon black-olive oil, knit 50% CO/50% PES, 1 g/L of HDP, 0.8 g/L of soil, 2% am of SRN, 25°C, 30 minutes washing, 70 ppm of CaCO<sub>3</sub>, modified jar test

# TexCare<sup>®</sup> SRN Benefits

## Soil Antiredeposition

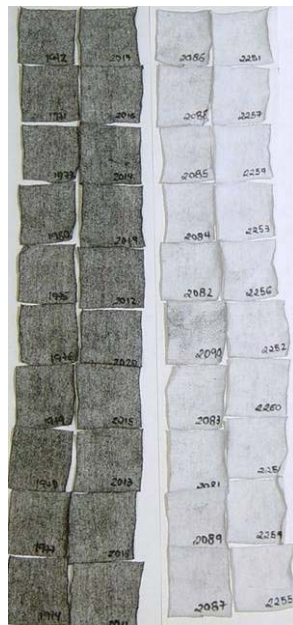


Exactly your chemistry.

TexCare<sup>®</sup> SRN 240

TexCare<sup>®</sup> SRN 300

TexCare<sup>®</sup> SRN 325



HDP      HDP + 2% am  
SRN 240



HDP      HDP + 2% am  
SRN300



HDP      HDP + 2% am  
SRN 325

Washing Conditions: knit 50% CO/50% PES, 1 g/L of HDP, 2% am of SRN, 25°C, 30 minutes washing, 70 ppm of CaCO<sub>3</sub>, modified jar test

# TexCare® SRN Benefits Soil Antiredeposition

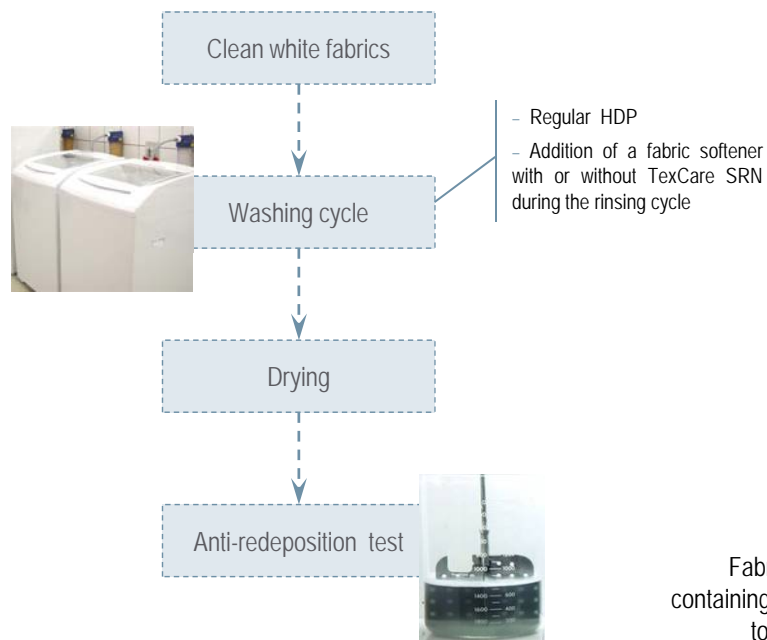


Exactly your chemistry.



## ■ A New Claim for Your Fabric Softener

-The antiredeposition effect can also be observed when TexCare SRN is used in the fabric softener



Knit 50% CO – 50% PES



Fabric washed with softener containing NO polymer submitted to the antiredeposition test

Fabric washed with softener containing **0.2% am of TexCare SRN 240** submitted to the antiredeposition test

- Washing Cycle (polymer application on the fabric): 1.8 g/L of detergent, 1.5 g/L of softener (3.8% am of Praepagen WB - DSDMAC), 70 ppm of CaCO<sub>3</sub>, 25°C, 30 minutes soak, 30 minutes wash, washing ratio 30:1
- Antiredeposition:: 1.0 g/L of detergent, 25°C, 0.8 g/L of carbon black/olive oil, 70 ppm of CaCO<sub>3</sub>



Exactly your chemistry.

# *Soap Scum Dispersion*

# TexCare® SRN Benefits

## Soap Scum Dispersion



Exactly your chemistry.

- Soap scum is the salt formed between soap/detergents and divalent ions naturally present in hard tap water.

- It continuously builds up during every wash and can sometimes combine with mold or mildew and have other discolorations and odors.

- The soap scum can accumulate in the washing machines parts, forming layers on the surfaces, clogging pipes, redepositing on clothes and causing skin irritation. Heating parts covered with soap scum also become less energy-efficient



TexCare SRN types help keeping the soap scum suspended, preventing thus its deposition on clothes and other surfaces

# TexCare® SRN Benefits Soap Scum Dispersion



Exactly your chemistry.

■ Aspect after 10 minutes

■ Aspect after 24 hs



No SRN 170      0.05 g/L of SRN 170      0.10 g/L of SRN 170      0.15 g/L of SRN 170      0.3 g/L of SRN 170



No SRN 170      0.05 g/L of SRN 170      0.10 g/L of SRN 170      0.15 g/L of SRN 170      0.3 g/L of SRN 170



No SRN 170      0.05 g/L of SRN 170      0.10 g/L of SRN 170      0.15 g/L of SRN 170      0.3 g/L of SRN 170

Test Conditions: 1 g/L of coconut based soap, approx. 544 ppm of CaCO<sub>3</sub>, evaluation: 10 minutes and 24 hrs

# TexCare<sup>®</sup> SRN Benefits

## Soil Dispersion

- TexCare SRN types also helps the emulsification of oily soils in water

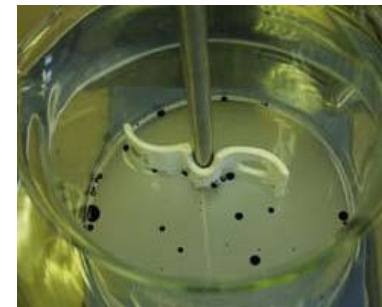
Aqueous dispersion of 1.0% w/w of WFK test soil  
(20°C, after 1 hour without applying shear stress)



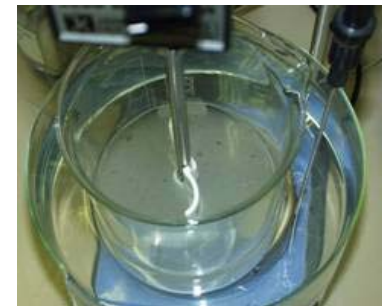
No SRP

1% w/w aqueous solution of  
TexCare<sup>®</sup> SRN-100

Without SRP



With SRP





Exactly your chemistry.

# *Environmentally Friendly*

# *TexCare<sup>®</sup> SRN Benefits*

## *Phosphate-Free Laundry Detergents*



Exactly your chemistry.

■ Although sodium tripolyphosphate (STPP) helps building a good cleaning performance due to its capacity of sequestering divalent ions, dispersing and alkalizing properties, it causes adverse effects to the environment due to water eutrophication.



■ Phosphate based HDPs, however, are still commonly found in Central and South America, Africa, Asia and Eastern Europe.

**The association of TexCare SRN 400 and Praepagen HY (hydroxyethyl quat) compensates the negative impact of the STPP reduction or elimination, resulting in a more environmentally friendly HDP**

# TexCare® SRN Benefits

## Phosphate-Free Laundry Detergents

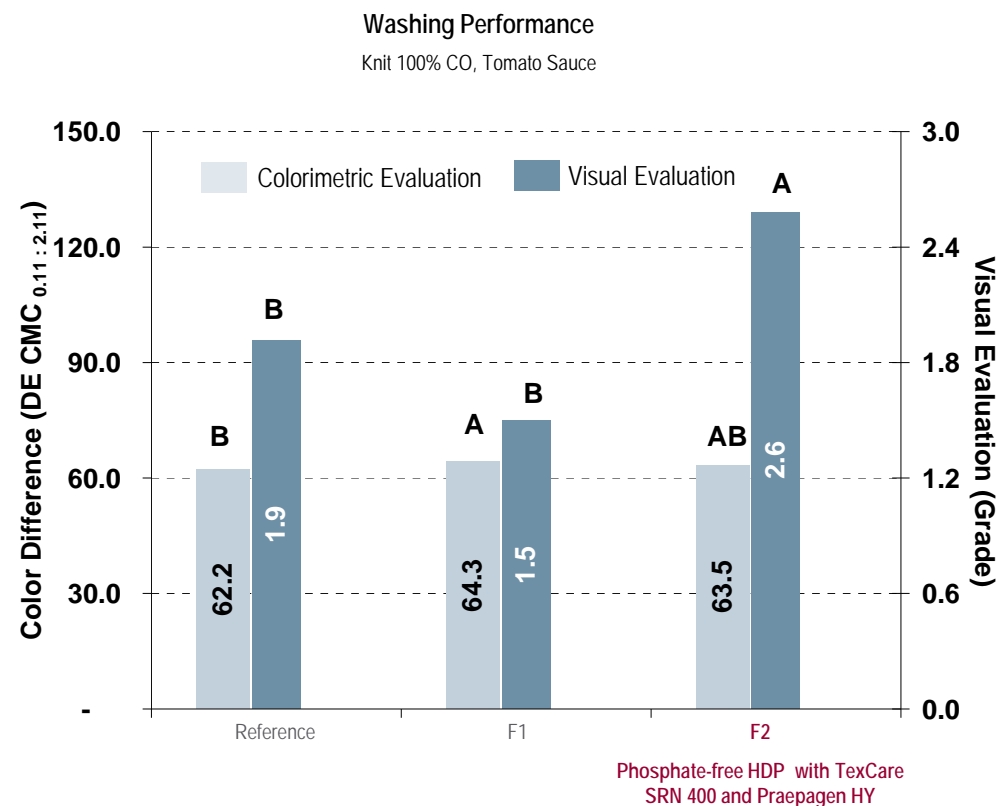


Exactly your chemistry.

The performance improvement brought by TexCare SRN 400 and Praepagen HY overcome the decrease of performance caused by the removal of STPP of a typical Latin American HDP.

% am	Reference*	F1	F2
LASS	14.5	14.5	14.5
Sodium Silicate	6.5	6.5	6.5
Sodium Carbonate	12.0	12.0	12.0
<b>Sodium Tripolyphosphate</b>	<b>7.3</b>	-	-
<b>TexCare SRN 400</b>	-	-	<b>0.5</b>
<b>Praepagen HY (hydroxyethyl quat)</b>	-	<b>0.2</b>	<b>0.2</b>
Optical Brightener	0.05	0.05	0.05
CMC	0.4	0.4	0.4
Sodium Sulphate	qsp 100	qsp 100	qsp 100

\* based on market product analysis



# TexCare<sup>®</sup> SRN Benefits

## Phosphate-Free Laundry Detergents



Exactly your chemistry.

The replacement of STPP by TexCare SRN 400 and Praepagen HY improved the antiredeposition of a typical Latin American HDP, reducing the graying effect.

% am	Reference*	F1	F2
LASS	14.5	14.5	14.5
Sodium Silicate	6.5	6.5	6.5
Sodium Carbonate	12.0	12.0	12.0
<b>Sodium Tripolyphosphate</b>	<b>7.3</b>	-	-
<b>TexCare SRN 400</b>	-	-	<b>0.5</b>
<b>Praepagen HY (hydroxyethyl quat)</b>	-	<b>0.2</b>	<b>0.2</b>
Optical Brightener	0.05	0.05	0.05
CMC	0.4	0.4	0.4
Sodium Sulphate	qsp 100	qsp 100	qsp 100

\* based on market product analysis

### Secondary Detergency

Knit 50% CO – 50% PES



Reference

F1

F2

Phosphate-free HDP with TexCare  
SRN 400 and Praepagen HY

# TexCare® SRN Benefits Concentrated Liquids



Exactly your chemistry.

## ■ Concentrated Liquids

– Motivation: Same benefit with lower environmental impact



Less water consumption

Less plastic in the package

Less waste to recycle

Lower energy consumption

Lower shipping & packing costs

Less retail shelf space



### Limitation:

– Concentrated products are normally highly viscous, making them hard to process and use.



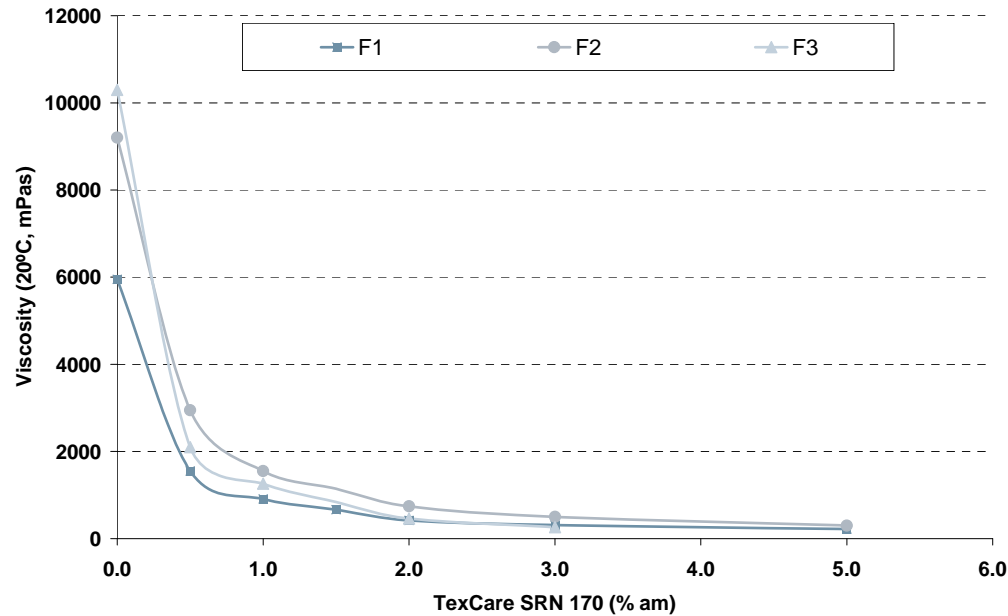
TexCare SRN types help lowering the viscosity of concentrated liquid detergents making it possible to formulate products with high surfactant content.

# TexCare<sup>®</sup> SRN Benefits Concentrated Liquids



Exactly your chemistry.

## Concentrated HDWL



% am	F1	F2	F3
Hostapur <sup>®</sup> SAS	13.0	13.0	12.0
SLES 2EO	13.0	13.0	12.0
Genagen <sup>®</sup> CAB	4.0	-	3.0
Genaminox <sup>®</sup> LA	-	4.0	2.0
Water	qsp 100	qsp 100	qsp 100
<b>Total am</b>	<b>30.0</b>	<b>30.0</b>	<b>29.0</b>
<b>Viscosity* (mPas)</b>	<b>5950</b>	<b>9200</b>	<b>10300</b>



*Viscosity decrease is not observed in regular HDL formulations with lower active level*



Exactly your chemistry.

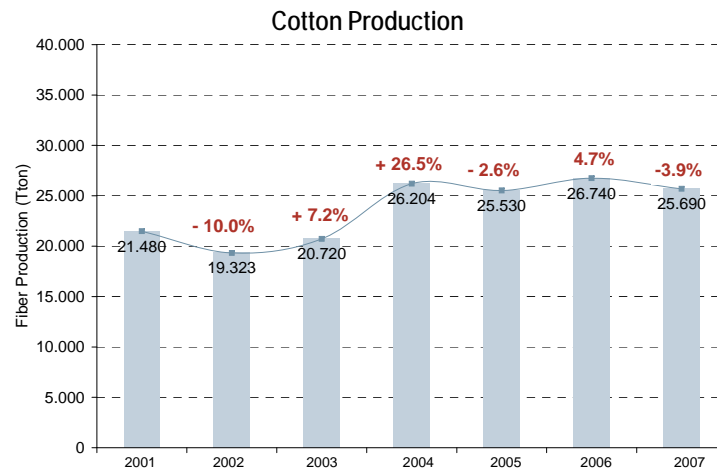
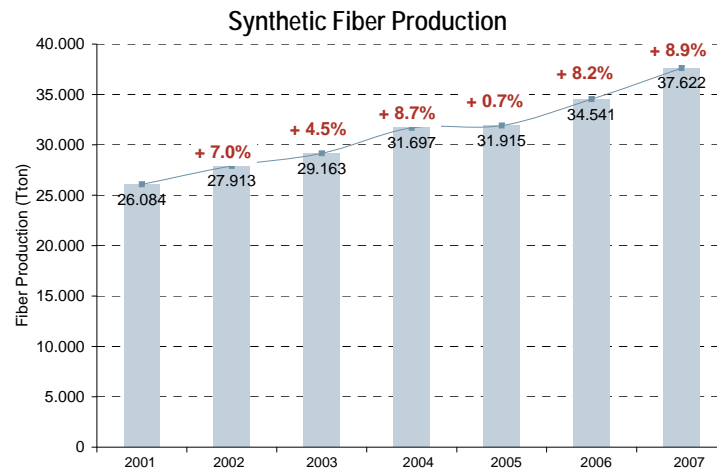
*Give the cloths a  
comfortable feeling*

# TexCare® SRN Benefits Hydrophilization of PES



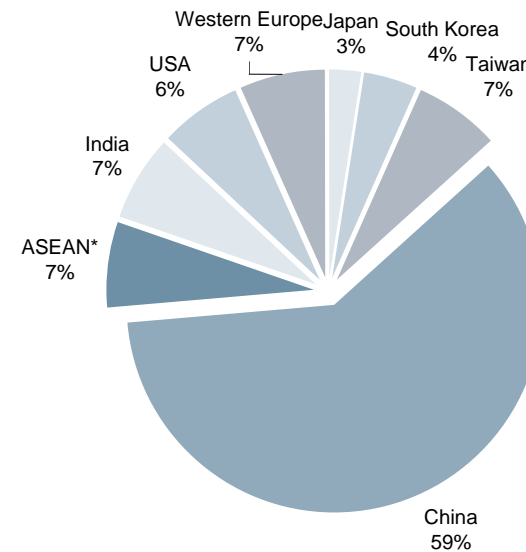
Exactly your chemistry.

## The Global Fiber Market



## Synthetic Fiber Production

2007 Market Share Per Country



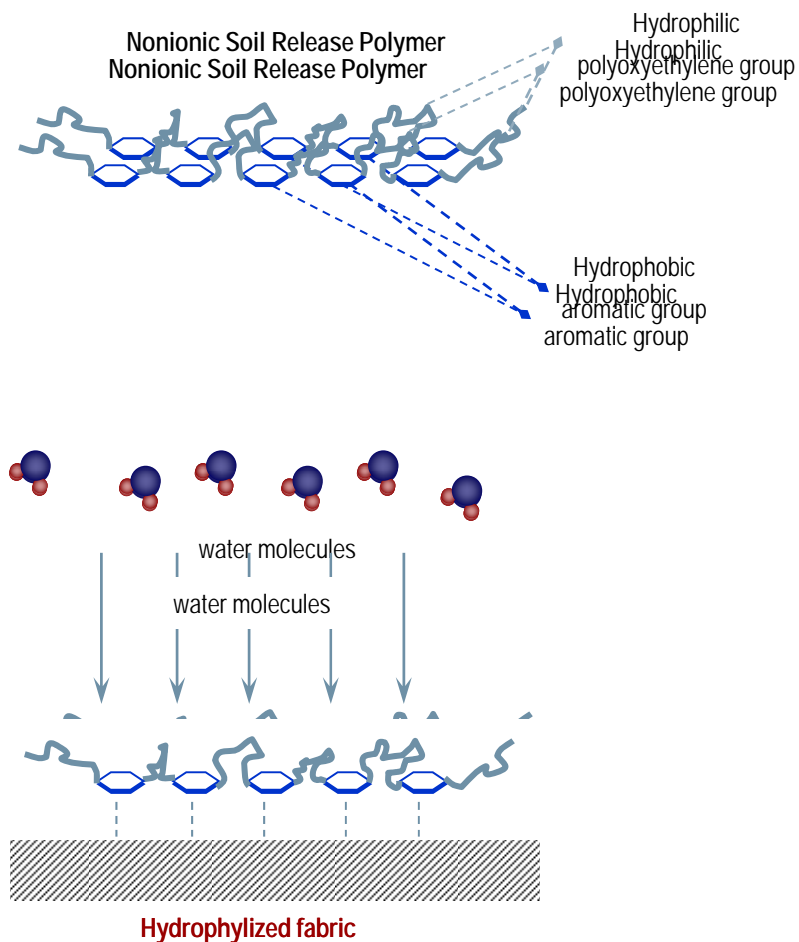
# TexCare<sup>®</sup> SRN Benefits Fabric Hydrophilization



Exactly your chemistry.

## Gives the cloth a comfortable feeling

TexCare SRN has high affinity with hydrophobic fibers, increasing its hydrophilicity and wettability, helping to wick the sweat and humidity away from the skin and providing a more pleasant sensation of the fabric.



# TexCare® SRN Benefits Fabric Hydrophilization



Exactly your chemistry.



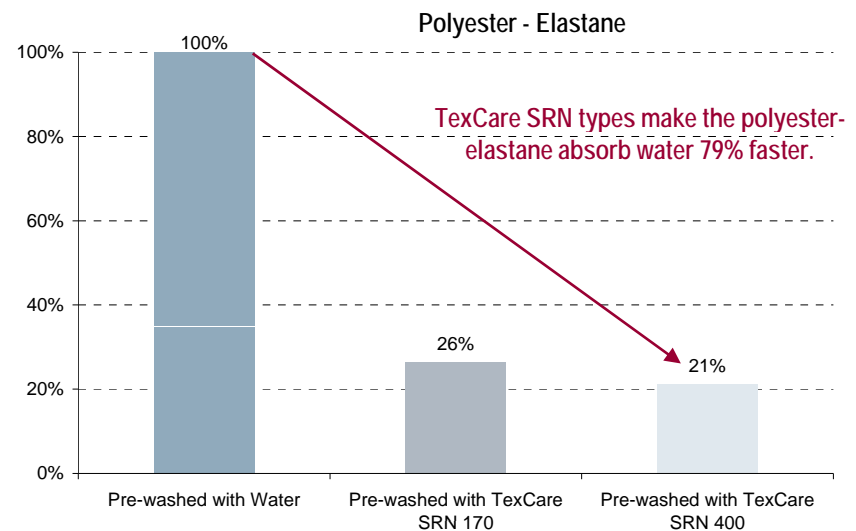
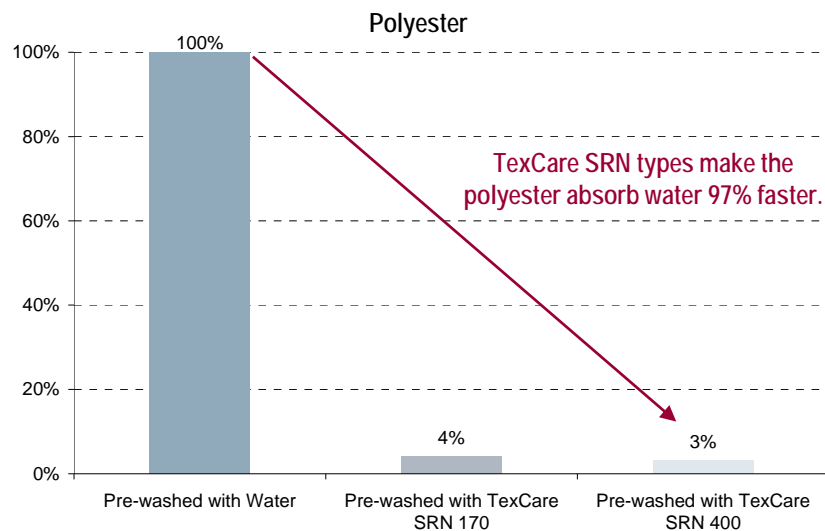
## ■ Wetting Test

– Evaluates the time needed for the fabric, pre-treated with and without the polymer, to absorb water and reach the bottom of the beaker.

– The lower the time, the more hydrophilic the fabric

### Sinking Time

(relative to a fabric treated with water only)



Conditions:

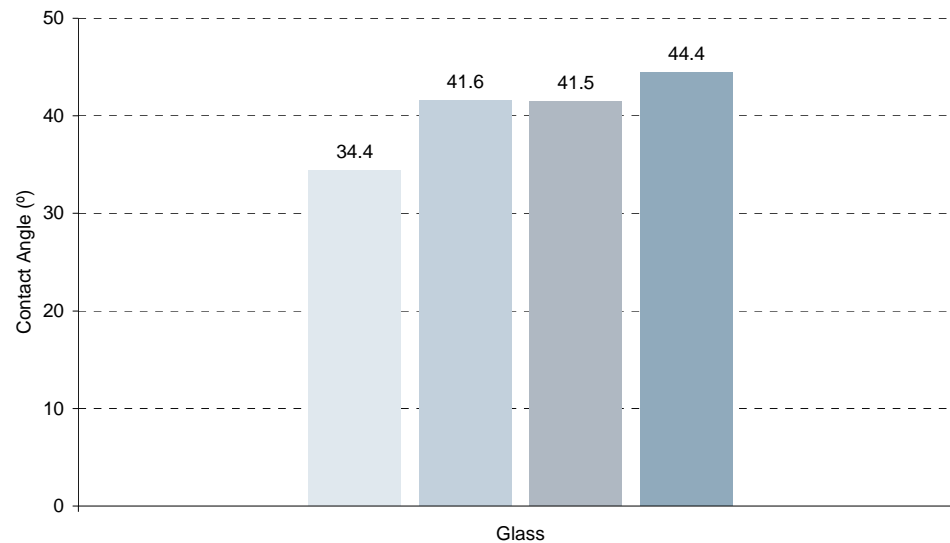
**Polymer application:** 268 ppm of CaCO<sub>3</sub>, 40°C, no detergent, 0.005% a.m. of polymer, 2 consecutive washing cycles, Linitest. **Wetting test:** 1 L, deionized, 2.5 cm X 2.5 cm test swatch, 12 replicates

# TexCare<sup>®</sup> SRN Benefits Surface Modification



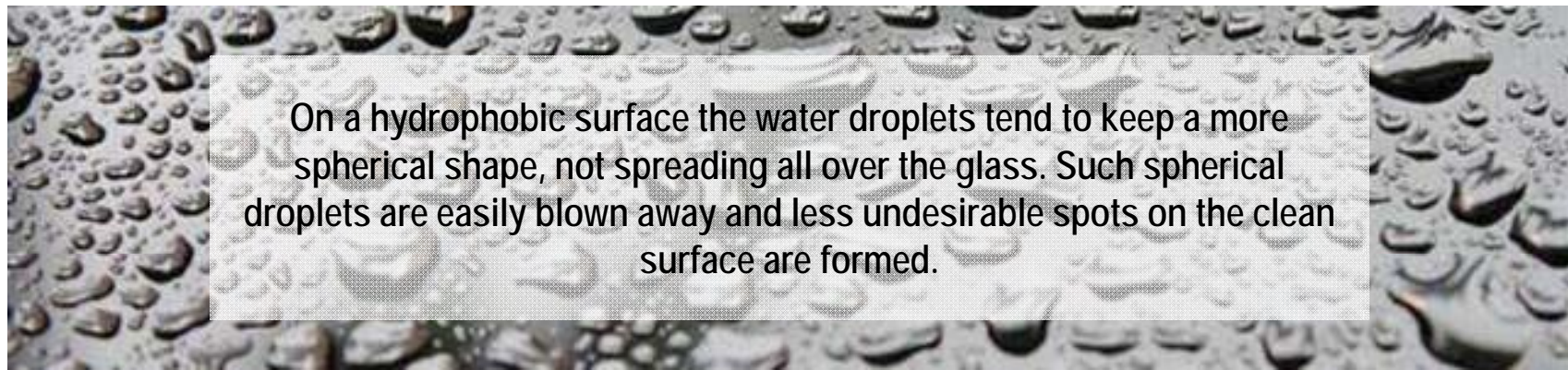
Exactly your chemistry.

## Contact Angle



The glass surface treated with TexCare<sup>®</sup> SRN 100 became more hydrophobic

Blank                      0.10 g/L of SRN 100  
0.05 g/L of SRN 100    0.15 g/L of SRN 100





Exactly your chemistry.

# *Skin Mildness*

# *TexCare<sup>®</sup> SRN Benefits*

## *Skin Mildness*



Exactly your chemistry.



- Handwash products (laundry and dishwash) with higher added value
- Skin feeling should be soft, silky and refatting
- Rich, creamy and fine foam should be enhanced
- No negative impact on detergency
- Clear formulations should be possible
- Compatible with all other ingredients (cationic, anionic and other actives)

# TexCare<sup>®</sup> SRN Benefits

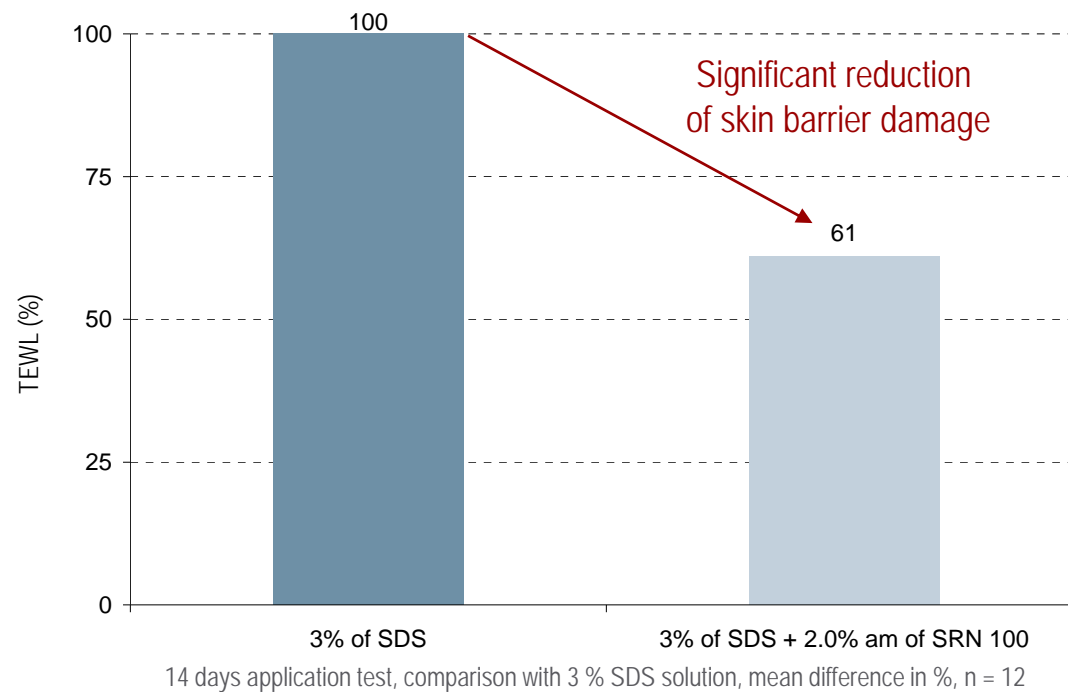
## Skin Mildness



Exactly your chemistry.

### ■ Evaluation: Transepidermal Water Loss (TEWL):

– One of the functions of the skin is to work as a water permeability barrier to keep the body fluids and minimize dehydration. When the water content falls too low, water barrier function is impaired and the skin becomes more sensitive to repeated use of irritants substances such as surfactants\*.



\*"Marzulli and Maibach's Dermatotoxicology", F.N. Marzulli, H. Zhai, H. I. Maibach, K.P. Wilhelm CRC Press, 7th edition, 2007, pg. 32

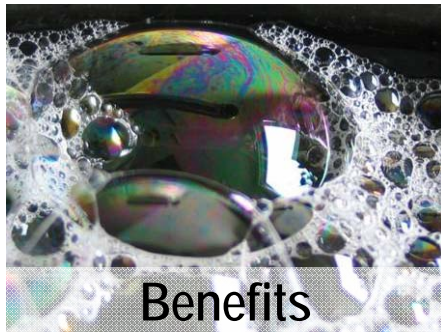
# TexCare<sup>®</sup> SRN Benefits

## Skin Mildness



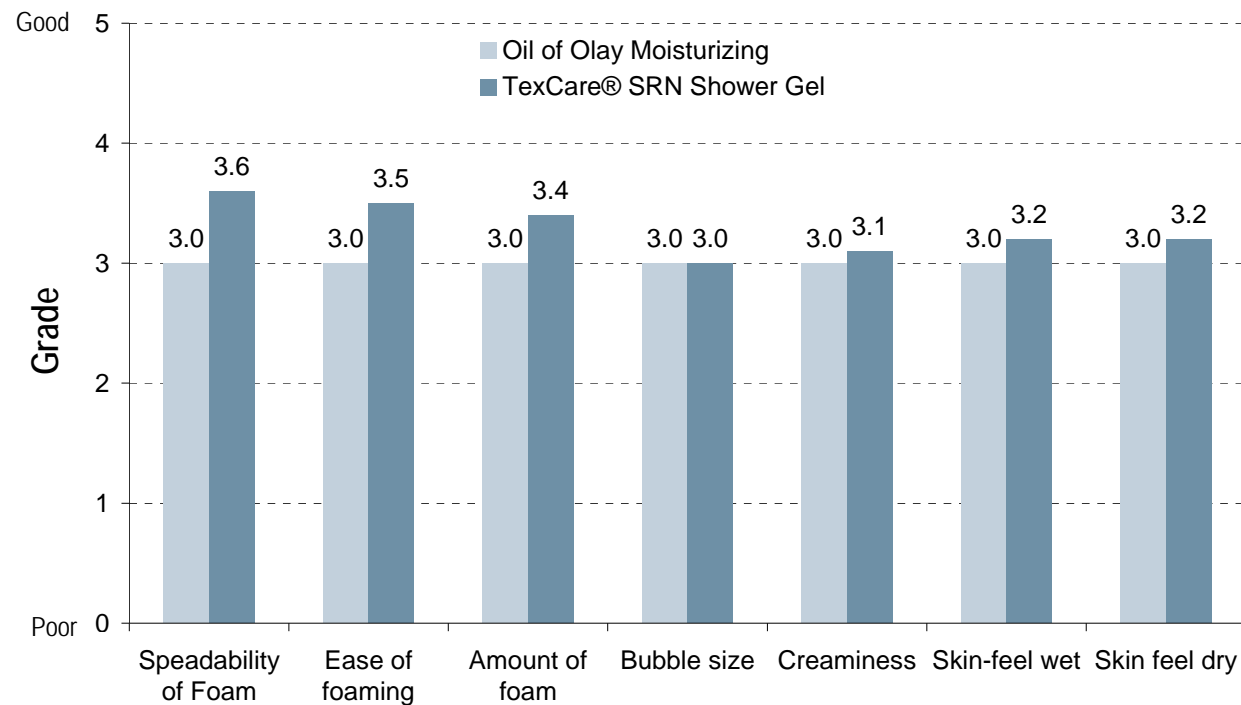
Exactly your chemistry.

■ Panel tests show addition of 1 to 2% of TexCare<sup>®</sup> SRN 100 to foaming cleansers provides similar skin-feel benefits to those obtained through incorporation of oil



- ✓ More abundant foam
- ✓ Richer, creamier foam texture
- ✓ Improved skin feel

Panel Test Data: Smoothing Shower Gel



# TexCare® SRN - Summary



Exactly your chemistry.



## TexCare® SRN

- Due to its multifunctionality, TexCare SRN polymers support several different claims, adding value to your brand.

Easily remove tough stains

Environmentally friendly

Keeps the white... white

More comfortable feeling to synthetic fabrics

Mild to the skin

- Benefits observed at low dosages

