



# Silicones for textile processing

## **Silicones in textile**

### **Main advantages**

- Excellent softness and slickness
- Very nice gloss
- Hydrophobic or hydrophilic
- Darkening/ deepening color
- High weatherability

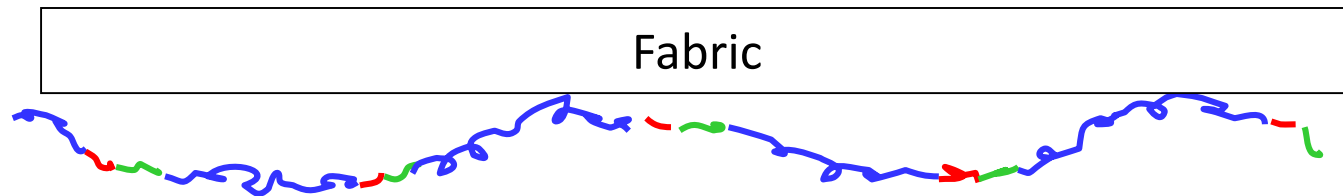
# Mechanism of silicone softening

## Affinity to textiles

- Silicone backbone distribution on fabric surface and inside fabric
- Flexible or pliable hand-feel vs. only surface slickness



## Multifunctional softeners : Extremely high affinity with textiles



# Treatment process

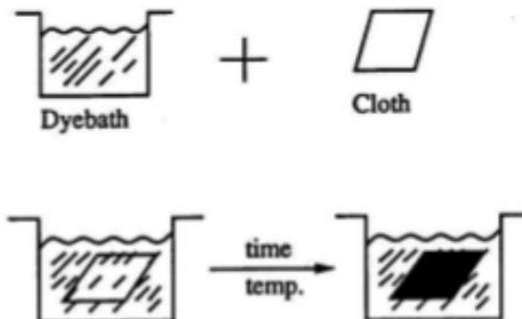
Main parameters influencing textile treatment and thus choice of product

- pH
- Temperature
- Shear
- Sensitivity to oxidization

These parameters are determined by the treatment process

# Treatment process

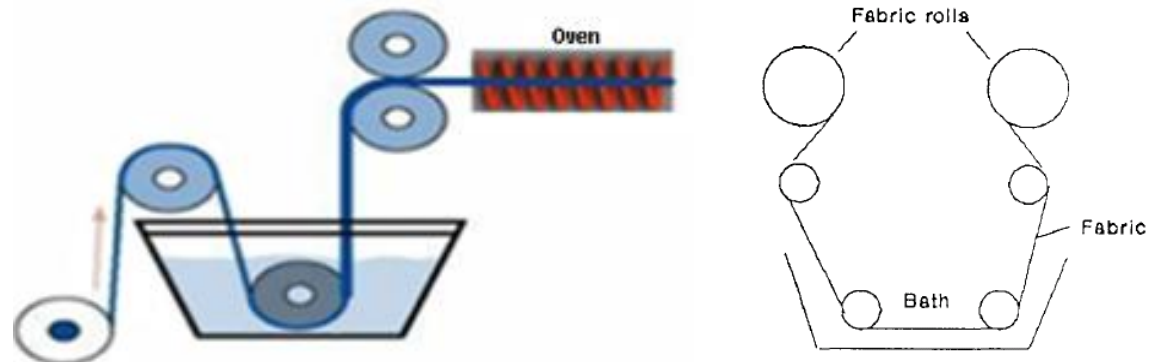
## Exhaust bath



- Rather low temperatures
- No shear applied
- Large liquor to goods ratio
- Open bath more susceptible to oxidization

# Treatment process

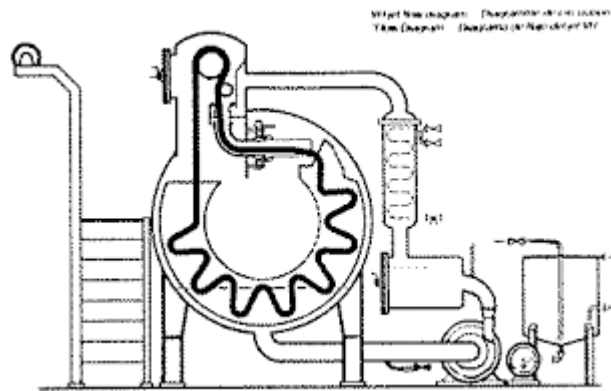
## Padding



- Higher temperatures
- Solution subjected to shear
- Easier to apply chemicals with low affinity for the fiber

# Treatment process

## Jet dyeing



- Higher temperatures
- Solution subjected to high shear
- Less water and time consuming
- Easier to apply chemicals with low affinity for the fiber

## BRB product range

- Amino silicone oils
- Amino silicone emulsions
- Hydrophilic silicones
- Antifoams



## Standard amino silicone softeners

- Good slickness: silky and bouncy hand-feel
- Not hydrophilic
- Fabric yellowing (amine content) can be overcome:
  - Application in acidic conditions
  - Amino groups are quaternized to cationic species (stronger attraction for the negatively charged fabric)
  - Especially for cotton-based fabrics (anionic charges on surface)
  - Improves deposition, performance and durability of the softener coating

# Amino silicone oils

Product	Type	End Cap	N % w/w	Viscosity cP
BRB 8373	Pendant	Reactive	0.37	1,000
BRB3163	Pendant	Reactive	0.33	1,500
BRB 4535	Pendant	Reactive	0.22	4000

- Standard primary / secondary amino silicone oils
- Easy to emulsify to micro and macro emulsions
- Higher viscosity gives good greasy hand

# Amino silicone oils

Product	Softness	Whiteness	Absorbency	Repellency
BRB 8373	+	++	++	+++
BRB 3163	++	++	++	+++
BRB 4535	+++	+++	++	+++

- Standard to low yellowing
- Increase physical adsorption thus providing softening effect

# Amino silicone emulsions

Product	Type	Active content	N % w/w	Viscosity cP
BRB AFE 674	Macro	52%	0.07	400
BRB AFE 675	Micro	43%	0.04	500

Product	Softness	Whiteness	Absorbency	Repellency
BRB AFE 674	+++	+++	++	+++
BRB AFE 675	+++	+++	++	++

- Based on reactive pendant amino silicone oil
- Macro-emulsions deliver the silicone to the surface (topcoat)
- Macro-emulsions provide a more slick hand and higher hydrophobicity
- Micro-emulsions provide better fiber penetration
- Micro-emulsions give better softness to the fabric

# Hydrophilic silicones

- Superior softness
- No fabric yellowing
- Bulky, full and rich hand-feel
- Resistant to laundry washing
- Develops hydrophilicity

## Hydrophilic silicones

Product	Fabric	Type	Active content	Viscosity cP
BRB SQO 100	Natural	Fluid	92 %	3,000
BRB SQE 60	Natural	Micro emulsion	70 %	2,000
BRB SQO 80	Natural	Concentrate	77 %	2,000

- Current range mostly suited for natural fabrics
- BRB SQO 100 easy to emulsify into micro or macro-emulsions
- SQO 80 readily dispersible in water
- BRB SQE 60 is ready to use
- Compatible with organic softeners
- Suitable for all application methods (exhaust, padding or spray)

# Hydrophilic silicones

Product	Softness			Hydrophilicity		
	Cotton knit	Cotton towel	Poly ester	Cotton knit	Cotton towel	Poly ester
BRB SQO 100	+++	++++	++	++++	+++	++
BRB SQE 60	+++	++++	++	++++	+++	++
BRB SQO 80	++++	++++	++	+++	++++	+

- Superior hydrophilicity
- Excellent softness to all cellulosic fabrics and blends
- SQO 100/ SQE 60 best suited for cotton knit
- SQO 80 best suited for towels
- Universal softener to various fabrics
- Durable to several laundry home washes, especially on cotton, linen and rayon
- Quickly absorbs water and perspiration

# Antifoam

<b>New</b> Product	Type	Active content	Viscosity cP
BRB Snapsil SP 20	Macro emulsion	30%	1,500

- High efficiency in surfactant-rich systems
- Excellent foam control at temperatures up to 95°C
- Long durability in acid and alkaline conditions
- Rapid foam knockdown
- Easy dispersion in all foam systems & hard water
- No oily spots or lumps when diluted with water
- Compatibility with a variety of surfactant concentrates





# Powerful like a major, flexible like a formulator

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