



**HUNTSMAN**

Enriching lives through innovation

High IQ®

repel

Intelligent  
durable  
water  
repellency

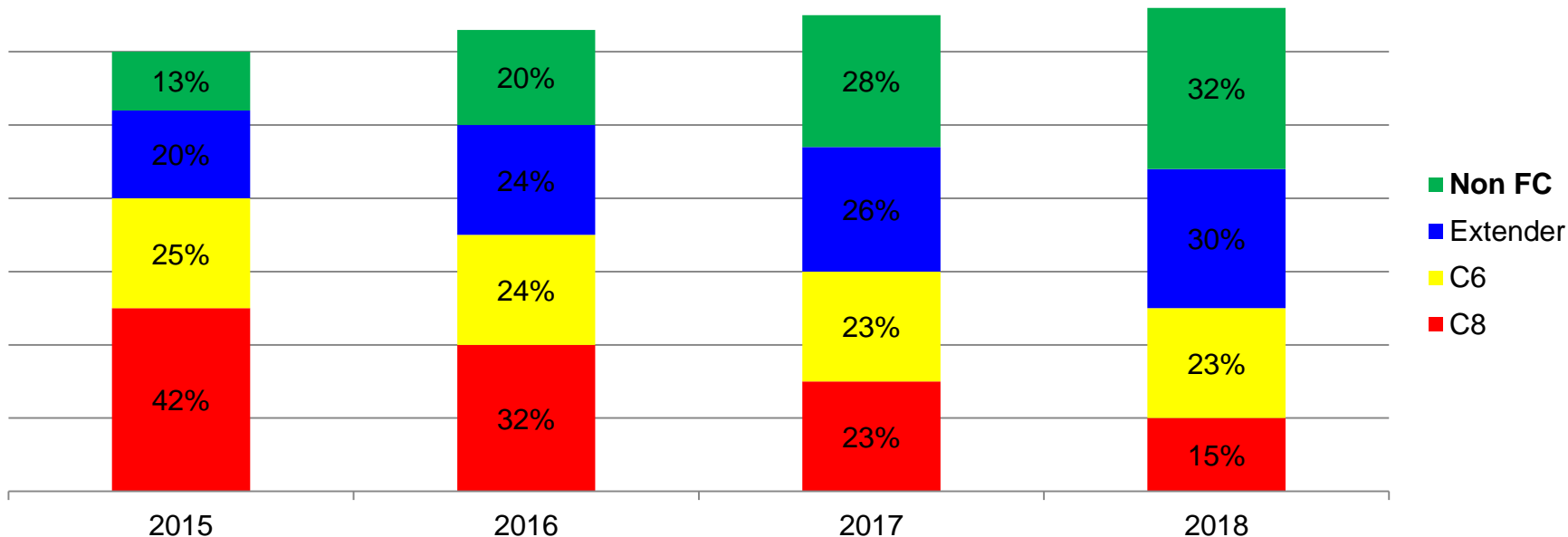


Sustainability  
Innovation  
Collaboration



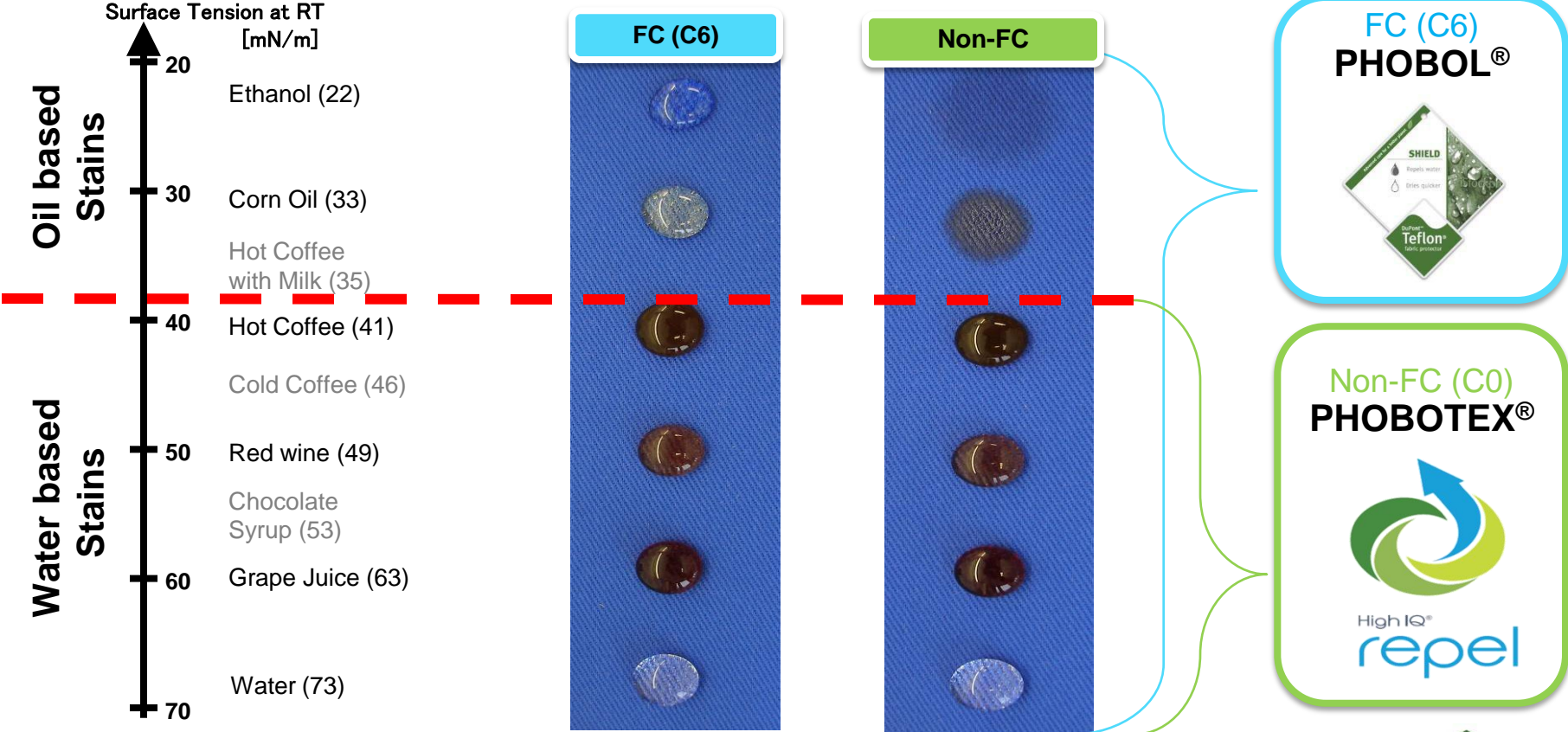
**The industry  
is facing a  
paradigm shift  
and challenging  
times ahead**

## Total market size DWR (%)



- Over the next 3 years from 2016 to 2018 , PFC will continue to decline
- C6 FC maintain, NON-FC will grow exponentially as DWR programs shift away from PFC

# DWR technologies





# The most comprehensive range

## Non-wash durable

**PHOBOTEX® APK**

**PHOBOTEX® ZAN**

## Wash durable

**PHOBOTEX® WS CONC**

**PHOBOTEX® CAT. BC**

**PHOBOTEX® JVA**

**PHOBOTEX® RSH**

**PHOBOTEX® RHP**

**PHOBOTEX® RHW**

**PHOBOTEX® RCO**

**Zelan™ R3**

NEW!

NEW!



everyday

School Wear | Casual Wear | Athleisure Wear | Business Wear



outdoor

Hiking and Trekking | Running | Cycling | Golf



extreme

Snow Boarding | Skiing | Mountaineering | Climbing



- The most comprehensive range of non-fluorinated DWR technologies powered by **PHOBOTEX®** & **ZELANTM** ranges
- End-use targeted applications include schoolwear, bottom-weights, outerwear, activewear, sportswear and careerwear
- Listed on existing global regulatory inventories, including US (TSCA), Europe (EINECS), China and Korea
- Suitable for Oeko-Tex® standard 100
- bluesign® approved
- Aligned to the commitments of the ZDHC joint roadmap
- Brand MRSL compliant

# Zelan™ R3 renewably sourced finish

- Contains 63% renewably sourced content per ASTM method 6866
- Refers to material from plant origin that can be replenished naturally over time
- Repels water and common water-based stains
- Delivers high-performance repellency to at least 30 washes
- Performs well on cotton, wool, synthetics, and blends
- Is applied in pad bath applications at loading levels comparable to other repellent finishes

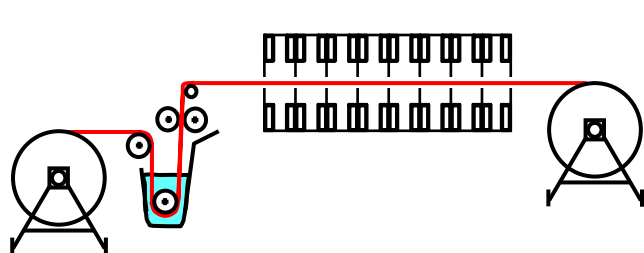


# PHOBOTEX WS 7 BC: dry cleaning

WO: dry cleaning resistance		PHOBOTEX® WS CONC PHOBOTEX® CATALYST BC
Tessuto pettinato	Initial	100
	1 x DC	80-90
	3 x DC	70-80
Tessuto cardato	Initial	90-100
	1 x DC	80-90
	3 x DC	70-80
Pannetto WO/PA	Initial	90-100
	1 x DC	80
	3 x DC	70-80
Tessuto pesante follato	Initial	90-100
	1 x DC	80
	3 x DC	70-80
mano		😊😊😊😊



# DWR finishing on wool fabrics



1	ml/l	Acetic acid
1	g/l	FUMEXOL® WDN
30-40	g/l	PHOBOTEX® WS CONC
30-40	g/l	PHOBOTEX® CATALYST BC

Drying and curing 120 - 160°C

Residues of textile auxiliaries have negative influence on the effect level of DWR finish:

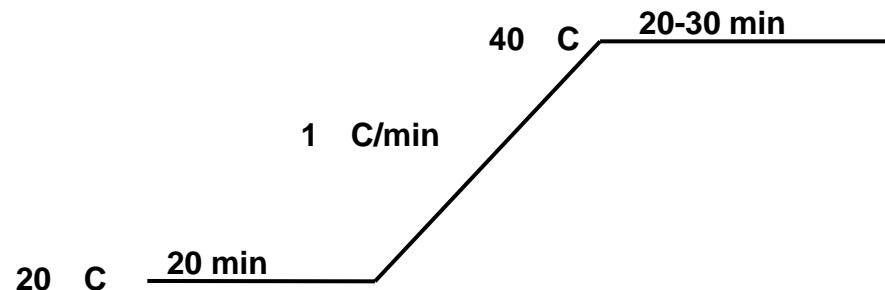
- sizing residues,
- spinning lubricants,
- alkaline residues,
- dyeing auxiliaries, soaps, dispersing agents, detergents

Compatibility with other finishing chemicals must be tested

# DWR finishing on wool yarn, exhaust application



ZELAN™ R3 5%



Residues of textile auxiliaries can impair the effect level of DWR finish

Compatibility with other finishing chemicals must be tested

pH can affect the exhaustion of the bath

Knitted garments must be ironed to ensure good WR effect and durability

# DWR finishing on wool yarn, exhaust application

## Influence of pH:

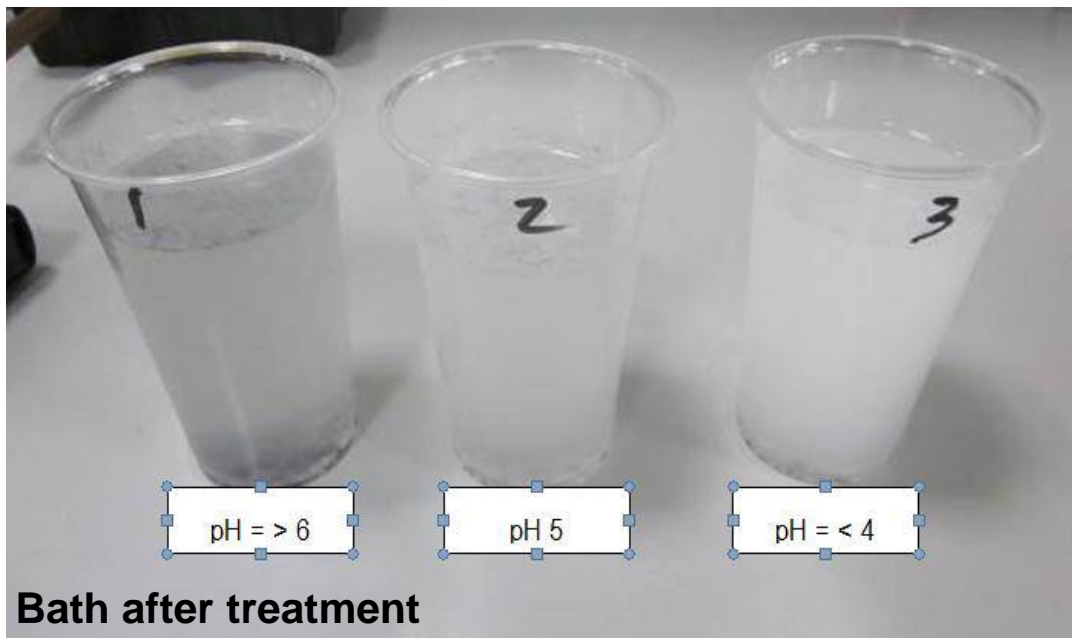
ZELAN™ R3 5%

Exhaust application on wool superwash:

40°C, 30 min.



**Initial bath**



**Bath after treatment**

# hangtags for POS communication

visit [www.high-IQ.com/repel](http://www.high-IQ.com/repel)

HIGH IQ® repel everyday



HIGH IQ® repel outdoor



HIGH IQ® repel extreme

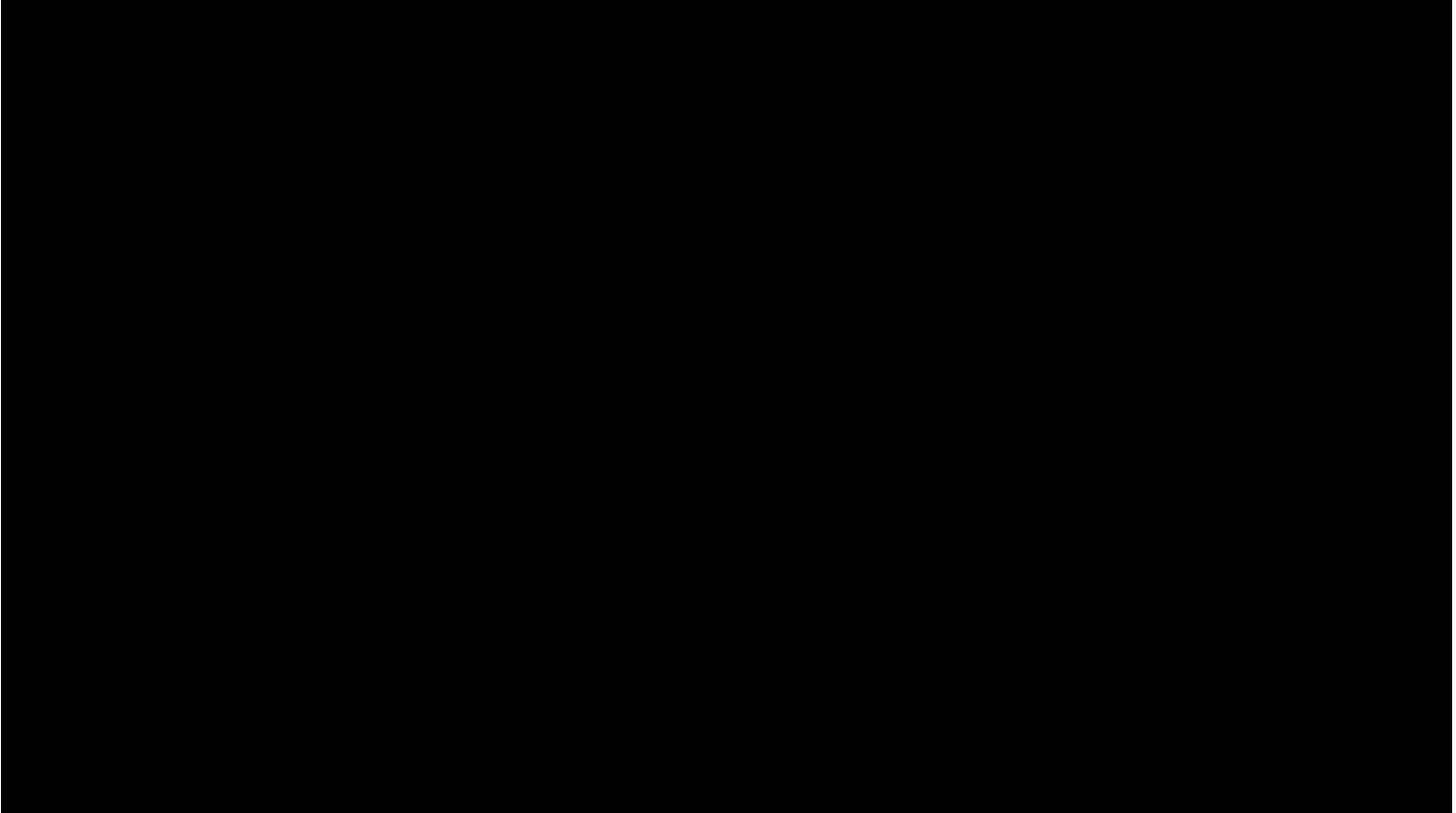


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# Want to learn more?

visit [www.high-IQ.com/repel](http://www.high-IQ.com/repel)



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## High IQ® Repel Intelligent Durable Water Repellency

From work or home to the great outdoors, be ready for anything with High IQ® Repel's comprehensive range of advanced, non-fluorinated durable water- and stain-repellent technologies.

EXPLORE

SOLUTIONS FOR EVERY PERFORMANCE NEED

