

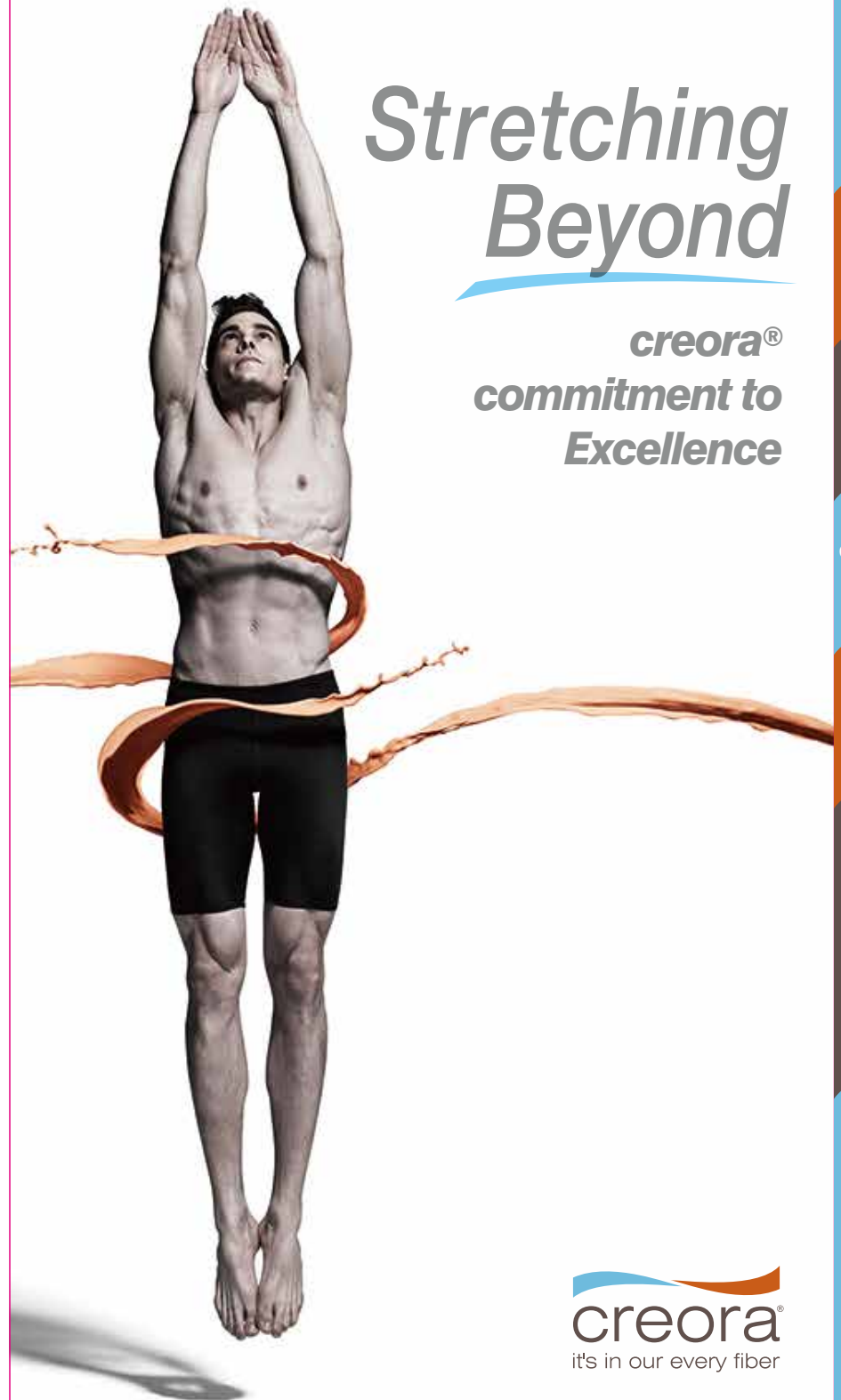

creora[®]
it's in our every fiber
www.creora.com

HYOSUNG TNC CORPORATION

Spandex Performance Unit

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creora[®] is registered trademark of the Hyosung TNC Corporation for its brand of premium spandex/ elastane.



Stretching Beyond

creora[®]
**commitment to
Excellence**


creora[®]
it's in our every fiber

creora[®] Color+

Black

Power Fit

highclo[™]

eco-soft

STEAMSET+ / Soft Fit

Fresh

creora® commitment to Excellence

The leading spandex/ elastane brand in the world

“State of the art, proprietary technology for highest quality and competitiveness”

- Investment in capabilities to meet market demands.
- Continue to deliver world's best quality, services and innovation.
- Commitment to finding new ways to meet evolving business needs.

**THE WORLD'S
BEST QUALITY**

**UNPARELLELED
SERVICE AND
VALUE**

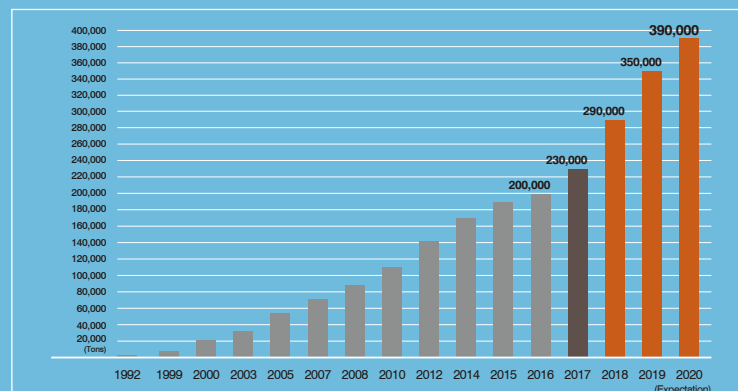


High elongation
spandex/ elastane

Black
spandex/ elastane

Fluorescent
spandex/ elastane

creora® Production Capacity



“The largest & fastest growing global leading spandex/ elastane producer”

State of the art production capability for cost competitiveness
Fully localized sales & marketing to serve customer needs
Dedicated to innovation & highest quality

Continuous Innovation

The commitment to excellence guides creora® from servicing its client's global needs to developing new, innovative spandex/ elastane that deliver additional value.



Steam settable
spandex/ elastane

High power and
heat resistant
spandex/ elastane

Low heat
settable
spandex/ elastane

Super chlorine
resistant
spandex/ elastane

creora® commitment to Excellence

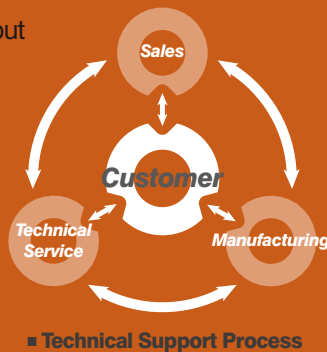
**Outstanding technology, quality,
consistency, value and technical service**

Enhanced Customer Service

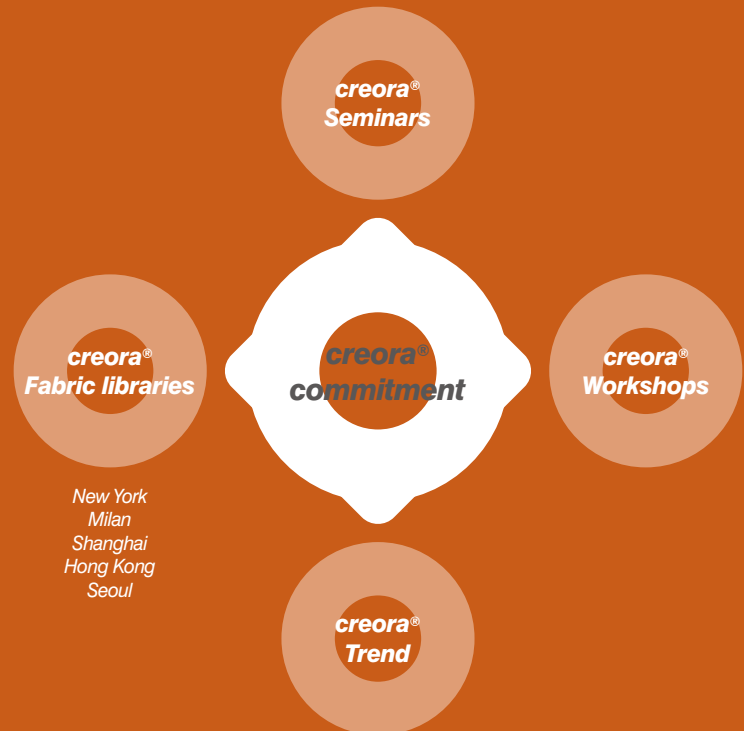
- Identification of best product for application
- Pre-test of new products
- Technical problem solving

Systematic Production Prove-out & Upgrades

- Feedback on customer needs & market information to improve production
- New product tests for R&D prove-out
- Testing of physical properties



**Support our customer growth through
a range of marketing and
business development activities**



creora® Technical Service Center



creora® commitment to Excellence



creora® Color+
Extraordinary color



creora® Black
Absolute black with power



creora® Power Fit
Feel the power



creora® highclo™
Longer lasting fit for swimwear



creora® eco-soft
Exceptional softness & whiteness



creora® Fresh
Stay fresh all day long



creora® STEAMSET+
Comfortable fit by steam setting



creora® Soft Fit
Feel the soft



creora® LUMINOUS
Ensure high quality CSY



creora® comfort
Feel the comfort



creora® SiliconFree
*Spandex/elastane engineered
without silicon*

creora® Color+

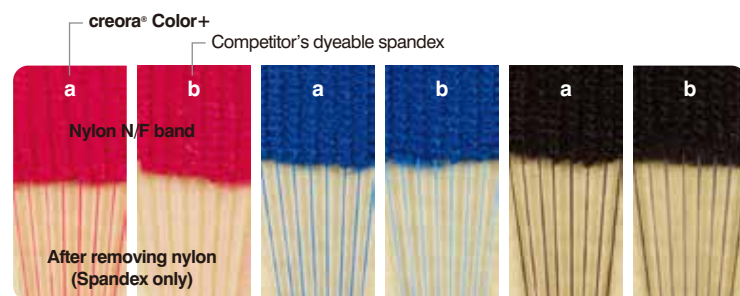
Extraordinary color

creora® Color+ has unique property with excellent dye-ability and color fastness in blends with nylon to produce deep and exclusive colors without grin-through.

[Value]

- Deeper, darker, and richer color shades with nylon
- Better color & wash fastness than competitor's dyeable spandex
- Elimination of grin through
- Low heat settability (ideal for fine gauge production & molding)

Deeper, darker, richer color of creora® Color+



• Fabric : N/F band(8mm), Warp Nylon : 100/24, Weft Nylon : 140/48, Spandex : 140de

Wash fastness comparison

Higher number means better wash fastness

Yarn	Levelling type	Milling type	Set type
creora® Color+	3 / 4	3 / 4	4 / 5
Competitor's dyeable spandex	3	3	4

- Fabric : N/F band(8mm), Warp Nylon : 100/24, Weft Nylon : 140/48, Spandex : 140de
- Dyestuff : Blue color of Levelling, Milling, Set type
- Dyeing Method : 98°C × 40min, Under pH 4.0~4.5, 1/1 standard depth
- Test method : IOS 105-C06 : 2010, B1M, 45min. Mechanical wash at 50°C with 50 steel balls

[End use applications]

- Intimate Apparel (e.g. Molded bras & High gauge panties)
- Seamless
- Hosiery (Colorful hosiery)
- Beachwear (Vivid color)
- Activewear (Colors)



Superior dye-ability of Color+



• Fabric : The Front – Nylon 40/24, The Back – Spandex 40de.

[Companion Yarn]

- Nylon

[TAG]



creora® Black

Absolute black with power

creora® Black is a black dope dyed spandex/ elastane, which can produce a deeper and darker color without grin-through.

[Value]

- Elimination of shiny grin-through
- Maintains deep black color even when it is stretched
- Deeper and darker black on products
- A variety of textile designs : Stripes, Tone on Tone

Elimination of Grin-through



Regular spandex



creora® Black

[End use applications]

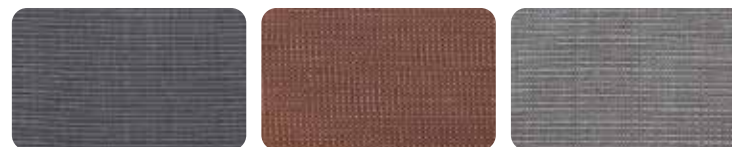
- Sportswear (CompressionWear, Cycle Wear etc)
- Yoga wear
- Hosiery (Socks & Stocking)
- Intimate Apparel
- Ready to Wear



Comparison of Black color depth



A B C
Circular knitting double jersey : Nylon 100/96 + black spandex 70d



A B C
100% Black spandex 70d

	A (creora® Black)	B (Competitor 1)	C (Competitor 2)
Fabric power (g)	216	214	204
Recovery (%)	95.2	94.1	92.8
Color depth (%)	Black spandex + Nylon	100	82.5
	After removing nylon	100	79.3
		80.7	53.2

[Companion Yarn]

- Cotton, Nylon, Polyester, T/C

[TAG]



creora® Power Fit

Feel the power

creora® Power Fit is a family of spandex/ elastane products engineered with high power and excellent heat-resistance to maintain fabric power even when setting at high temperature or re-dyeing. In particular, it delivers outstanding color and excellent fastness in blends with polyester.

[Value]

- Higher power & retention: superior shaping and compression
- Heat resistance: excellent color fastness with disperse dye stuff at higher temperature
- Ability to re-dye without loss of power
- Chlorine & bleach resistance

Superior wash fastness

(Improvement of the color fastness of fabric with polyester and creora® Power Fit, which is dyeable at high temperatures 135°C)

Dye	125°C						135°C					
Blue (E)	W	A	P	N	C	D	W	A	P	N	C	D
Blue (SE)												
Red (S)												

- Fabric: Circular knit (PET 75de+creora® 20de)
- Dyes: Disperse dye (E, SE, S type)
- Dyeing: 1/1 Standard Depth Dyeing
- Fastness Test Method: ISO 105 C06 / C2S(60°C)

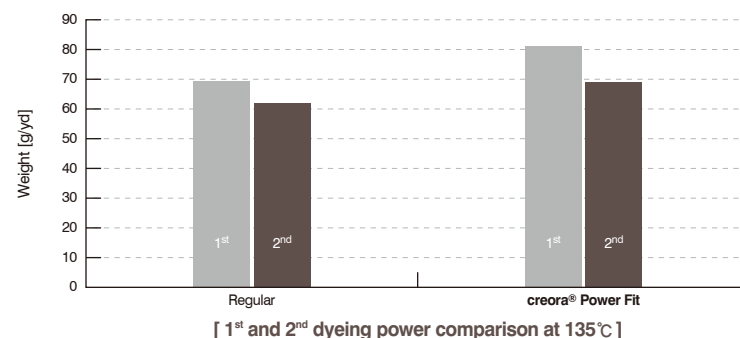
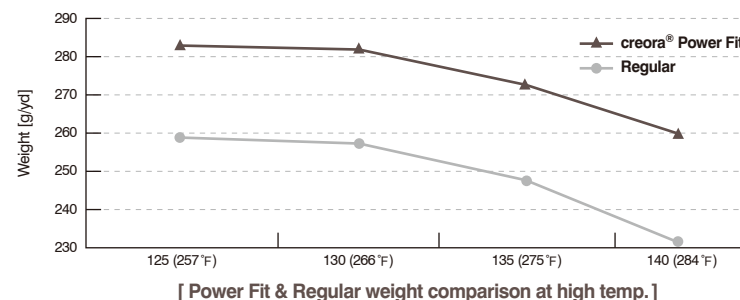
W: Wool A: Acryl P: PET N: Nylon C: Cotton D: Diacetate

[End use applications]

- Active Outdoor (Compression, Sportswear)
- Intimate Apparel • Shape wear • Swimwear



High power and excellent redyeability



[Companion Yarn]

- Polyester, etc

[TAG]



creora[®] highclo[™]

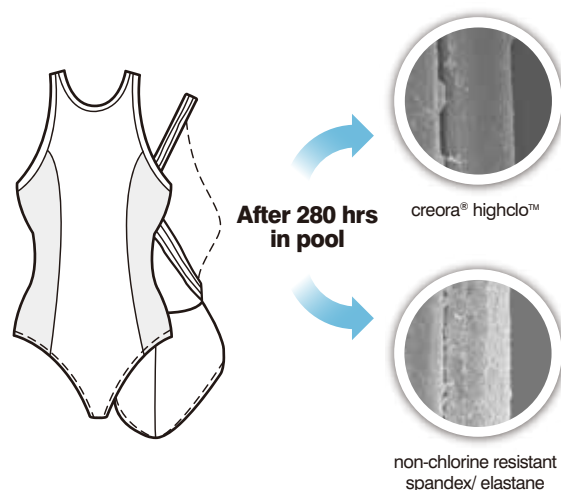
Longer lasting fit for swimwear

creora[®] highclo[™] was designed to overcome spandex/elastane's vulnerability to damage by chlorine. In swimwear it improves fabric durability and delivers lasting fit in garments.

[Value]

- Deliver higher levels of chlorine resistance
- Provides compression and shaping in garments
- Longer lasting fit & shape retention
- Engineered from high power family of creora[®]

Superior performance of creora[®] highclo[™]

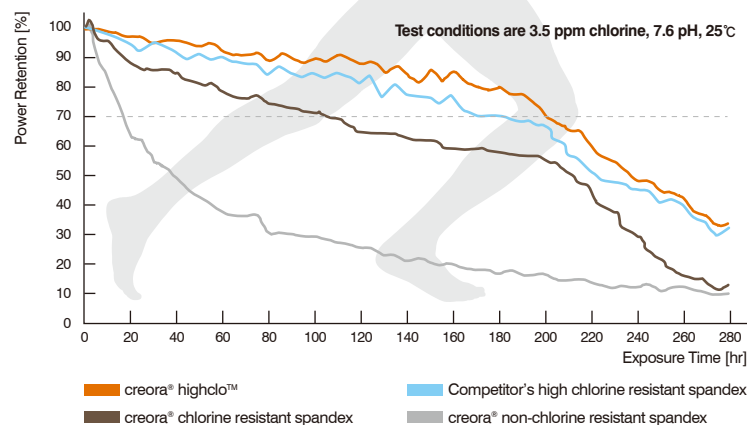


[End use applications]

- Competitive Swim Wear
- Aqua fitness and fashion swimwear
- Denim

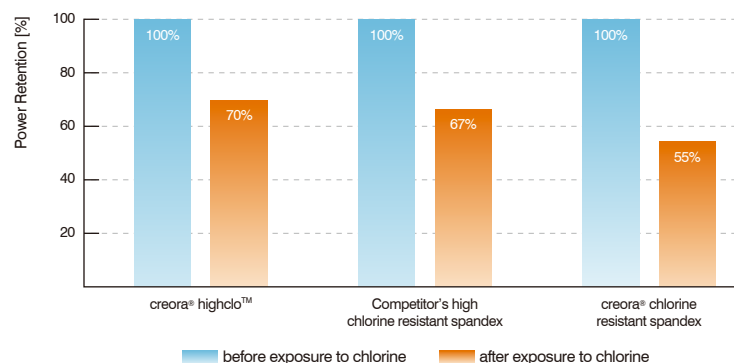


Chlorine resistance of creora[®] highclo[™]



[Dynamic fabric test in 3.5 ppm chlorine]

Power retention in 200hrs after exposure to chlorine



[Companion Yarn]

- Nylon, Polyester

[TAG]



creora[®] eco-soft

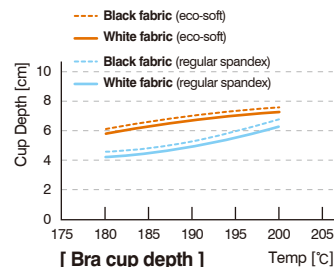
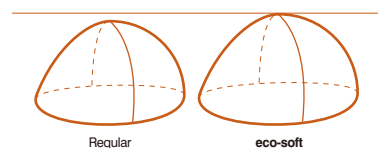
Exceptional softness & whiteness

creora[®] eco-soft enables heat setting at a low temperature as compared to common spandex/ elastane. This improves hand-feel of fabrics in blends with a heat-sensitive, cellulose based material, reduces fabric yellowing and offers excellent dimensional stability. Additionally, lower heat consumption allows manufacturers to save costs or achieve higher productivity.

[Value]

- Softer hand and drape with heat-sensitive fibers
- Superior dimensional stability with less shrinkage
- Improves curling problem
- Better molding performance
- Whiter whites
- Cost saving and improved productivity

Better molding performance



Regular		eco-soft	
P/set temp. 195°C	139	P/set temp. 175°C	145
Molding 190°C, 90sec	106	Molding 190°C, 45sec	117

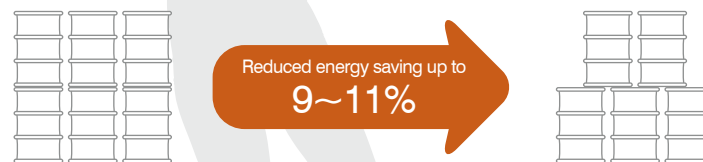
[Comparison of whiteness]

[End use applications]

- Intimate Apparel
- Ready To Wear • Denim



Cost saving or improved productivity



[Reduced energy savings] by setting at 15~20°C lower temp. during heat setting



[Improved productivity] by picking up speed of tenter up to 20%

Eco friendly spandex creora[®] eco-soft

Energy savings delivered

Based on production of 10,000 T-shirts (or 10,000 yds of fabric) decreasing heat set temp. up to 15°C



250g/yd(4% spandex, 10g/yds)
100kg/10,000yds consumption



Saves 40t
of bunker-C oil



The burning of 40t oil
produces 0.12tons of CO₂



Equal to 100m² of 35year old cypress
forest 6 years CO₂ consumption

[Companion Yarn]

- Heat sensitive fibers
 - Natural Fiber : Cotton, Wool, Silk
 - Regenerate Fiber : Rayon, Modal[®], Tencel[®]
 - Synthetic Fiber : Nylon, Acetate, Acryl

[TAG]



creora® STEAMSET+

Comfortable fit by steam setting

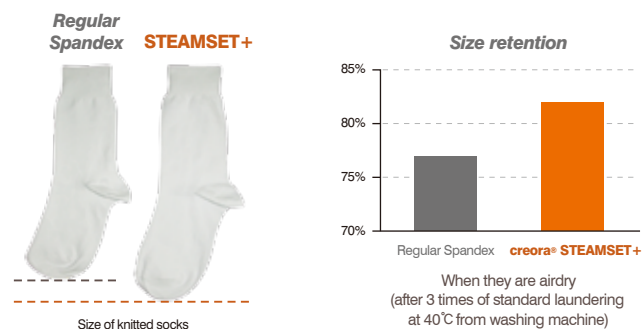
creora® STEAMSET+ offers excellent productivity, dimensional stability and a soft tactile quality without the need for a high-temperature heat setting. It is appropriate for stockings, socks, seamless products, etc. requiring a steam setting.

[Value]

- *Excellent steam setting*
 - Superior dimensional stability/ reduced shrinkage
 - Larger size than regular spandex/ elastane after steam setting
- *Comfortable fit with soft power*
- *Higher productivity*
 - 10% higher yield in garment manufacturing
 - Reduced content or number of courses

Socks (Steam-settable)

Socks : Cotton 30's / Nylon 6 70de / Spandex 20de



[Companion Yarn]

- Cotton, Nylon, Rayon, Acetate

[End use applications]

- Seamless • Socks • Hosiery



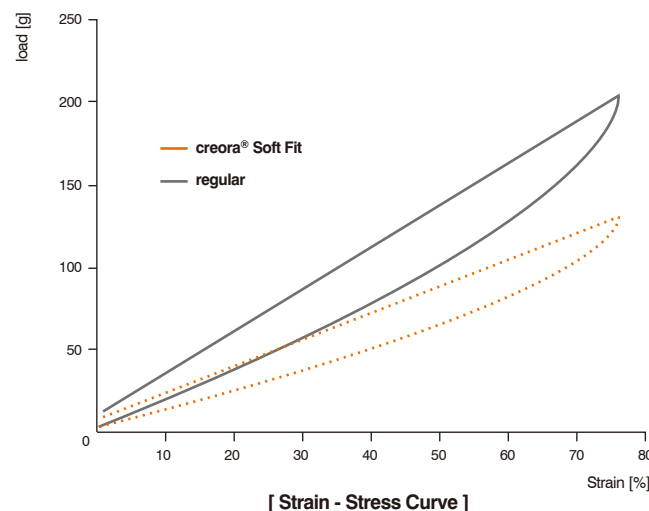
creora® Soft Fit

Feel the soft

creora® Soft Fit has higher draftability, soft stretch power, and provides a comfortable wearing sensation. It is optimal yarn for covering applications and hosiery.

[Value]

- *Superior elongation*
 - Soft touch & excellent drape
 - More comfortable fit from soft elasticity & power
 - Savings in manufacturing cost through reduced content/ higher yield



[End use applications]

- Hosiery



creora® Fresh

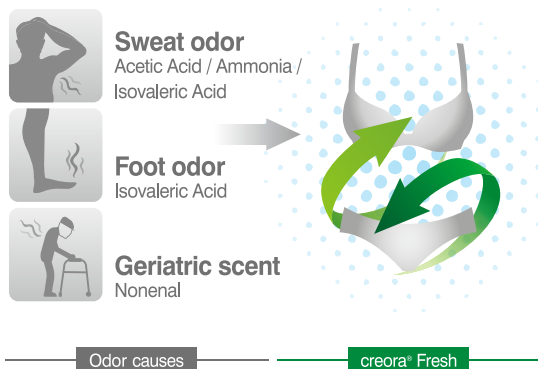
Stay fresh all day long

creora® Fresh is an anti-odor spandex/elastane by neutralizing sweat odor and foot odor to provide comfortable fit with fresh feeling all day long.

[Value]

- Neutralize odor through chemically bonding with odor-causing substances : Acetic Acid, Ammonia, Isovaleric Acid, Nonenal
- Deodorization function built into spandex yarn
- Lasting of function even after repeated washes and molding process
- Provides compression and shaping in garments

Anti-odor(deodorizing) effect of creora® Fresh



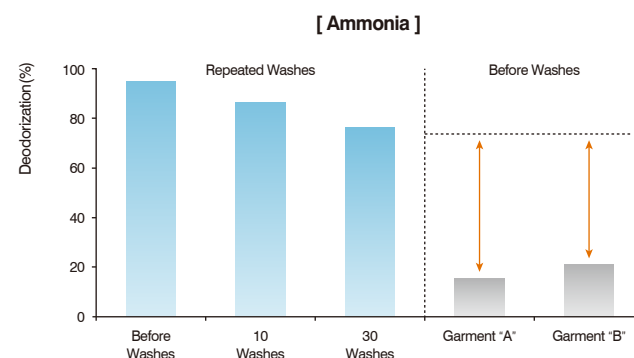
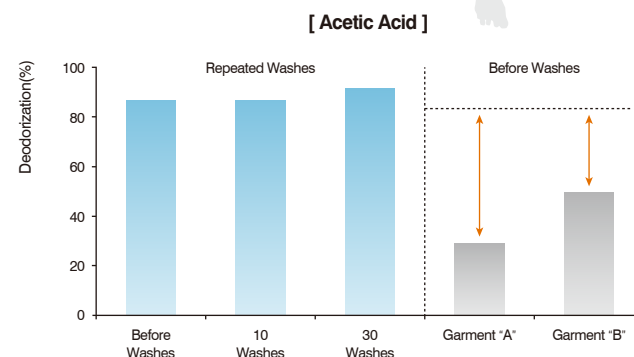
[End use applications]

- Intimate apparel • Sportswear
- Footwear • Socks, Hosiery



Lasting function of creora® Fresh

creora® Fresh Fabric : PET 91% + Fresh 9%
Antimicrobial Finished Garment A : PET 92% + Spandex 8%
Antimicrobial Finished Garment B : PET 92% + Spandex 8%



[Companion Yarn]

- Nylon, Polyester
- Cotton is not recommended for knit.
Yarn dyed cotton without dyeing process for socks is acceptable

[TAG]



creora® Product Offerings

For textiles

Denier	20	30	40	55	70	140	180	210	280	420	560	840	1120	1680
creora® Color + (H-550)	•	•	•	•	•	•	•	•	•					
creora® Color + (H-350A)	•	•	•	•	•	•								
creora® Black	•	•	•	•	•	•				•	•	•	•	•
creora® Power Fit	•	•	•	•	•	•		•	•	•	•	•	•	•
creora® highclo™	•	•	•	•	•									
creora® eco-soft	•	•	•	•	•	•	•	•	•					
creora® STEAMSET+	•													
creora® Soft Fit	•	•				•	•	•	•					
creora® Fresh	•	•	•		•									
creora® LUMINOUS			•		•									

For diapers

Dtex	470	540	620	680	800	940	1100
Regular Spandex	•	•	•	•	•	•	•
Color Spandex			•	•	•	•	•

creora® fine product

creora® provides a family of fine denier for the trend to lightweight weight, finer gauge fabrics. Hyosung's proprietary technology has a competitive advantage in the ability to manufacture fine deniers.

[Value]

- Much lighter weights without diminishing high power.
- Maintain stretch and recovery even in featherweight fabrics
- Applicable for every application



For textiles

Type	10	12	15
creora® Color + (H-550)		•	•
creora® Power Fit	•	•	•
creora® eco-soft		•	•
creora® STEAMSET+			•
creora® Soft Fit			•

creora® Global network

[Supply Chain Excellence]

We provide “Supply Chain Excellence” through our global warehouse management systems linking all locations for proper inventory levels.

[Excellence in Business Communication]

We have over 40 production facilities and sales office in almost all continents including Europe, Americas, and Asia, to serve all of our international customers with “Excellence in Business Communication”



Santa Catarina, Brazil



Cerkezkoy, Turkey



Nhon Trach, Vietnam



Gumi, Korea



Jiaxing, China



Quzhou, China



Zhuhai, China



Guangdong, China

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