



# From nature to fashion

## Eastman Naia™ cellulosic yarn

**EASTMAN**

Eastman Chemical Company  
Approved for External Use

Introduction Meeting  
August 17, 2017

# Agenda



- Introductions
- Eastman Naia™ cellulosic yarn presentation
- Review Naia fabrics
- Joint discussion



# Who is Eastman?

# Headquartered in Kingsport, Tennessee

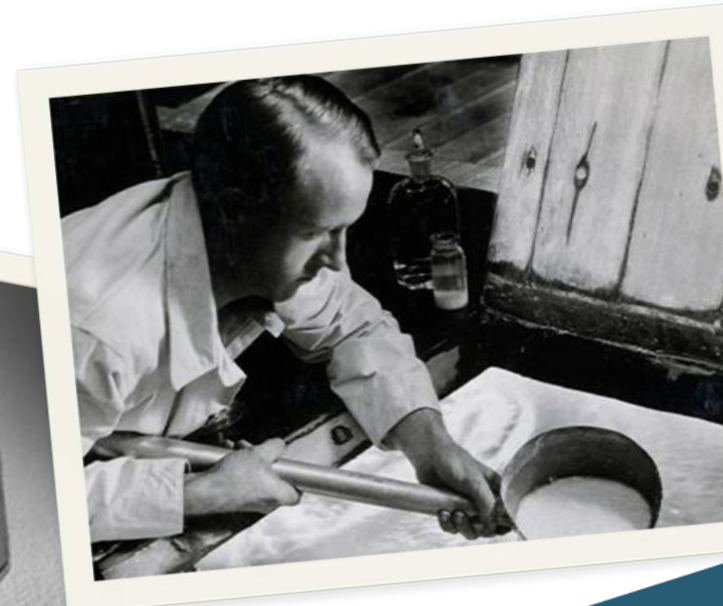
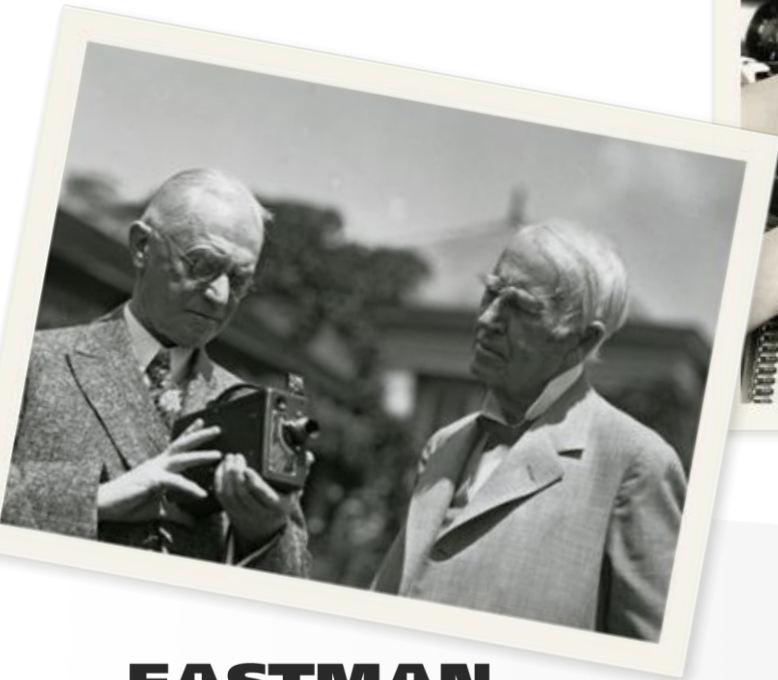




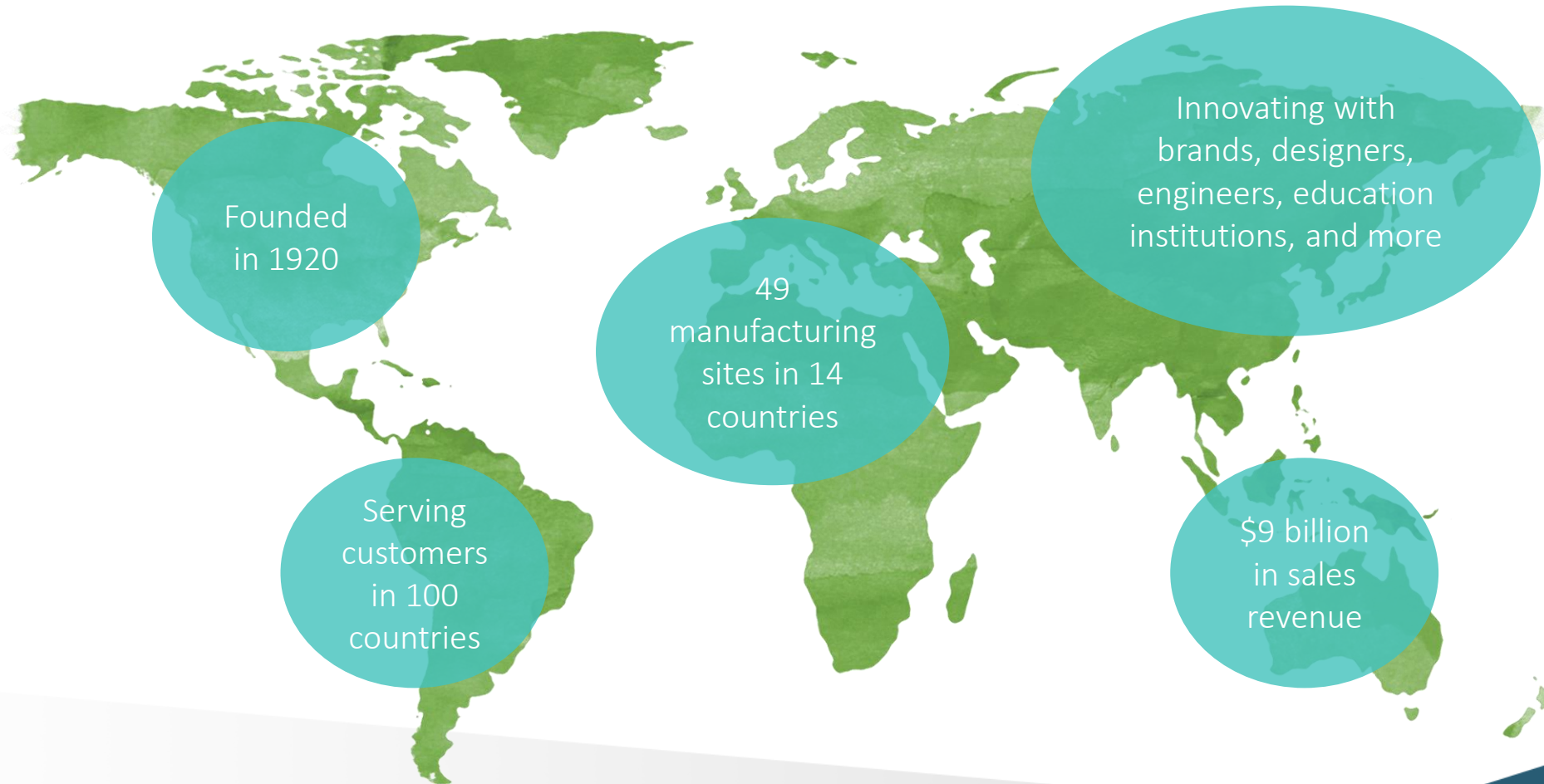
# A heritage of innovation and design



- Founded in 1920, Eastman began as part of the iconic Eastman Kodak Company.
- From photographic chemicals, we expanded our **world-class technology** to become a **Fortune 300 company** serving a variety of global markets, including the textiles industry!



# Today we are a global specialty chemical company.





# How long has Eastman been making cellulose acetate fiber?



Seafaring colors  
in  
**CHROMSPUN**

Jet black takes to the sea... in two sophisticated shades by ROSE MARIE ROSE. The fluttering new fabric is Naivette... a subtly textured combination of Chromspun crystal acetate and elastinized rayon. And the deep brilliance of Chromspun black is locked right into the Eastman fiber against sun, sea, atmosphere fumes, and even chlorinated pools. You'll find these in its feel wonderful, dry quickly too.

Left: Fashionette, size 10-16, \$35. Right: Rose Notice, size 10-16, \$19.95.

R. BERTMAN & CO., New York City  
WILLIAMS' BROTHERS, Los Angeles  
HILLEBRAND, Cleveland  
R. E. BULLOCK, Inc., LTD., New Orleans  
JAMES MASON, California and Toronto  
WALTON & GIBSON, Washington, D.C.

MADE BY EASTMAN

PROTECTED BY U.S. PATENT 2,514,100

EASTMAN CHEMICAL COMPANY, INC., MEMBERS OF EASTMAN KODAK COMPANY, ROYALTON, MASSACHUSETTS, U.S.A.

Eastman **CHROMSPUN**

Protect your skin from the sun... this gentle shade in Chromspun acetate and elastinized dyed rayon. A dahl of drapery tops Chromspun color that's locked in against sun, sea and chlorinated pools.

34 McCall's, May, 1957



CHROMSPUN

Chromspun  
Crystal  
Acetate





# Meet the new name in cellulosic fibers.

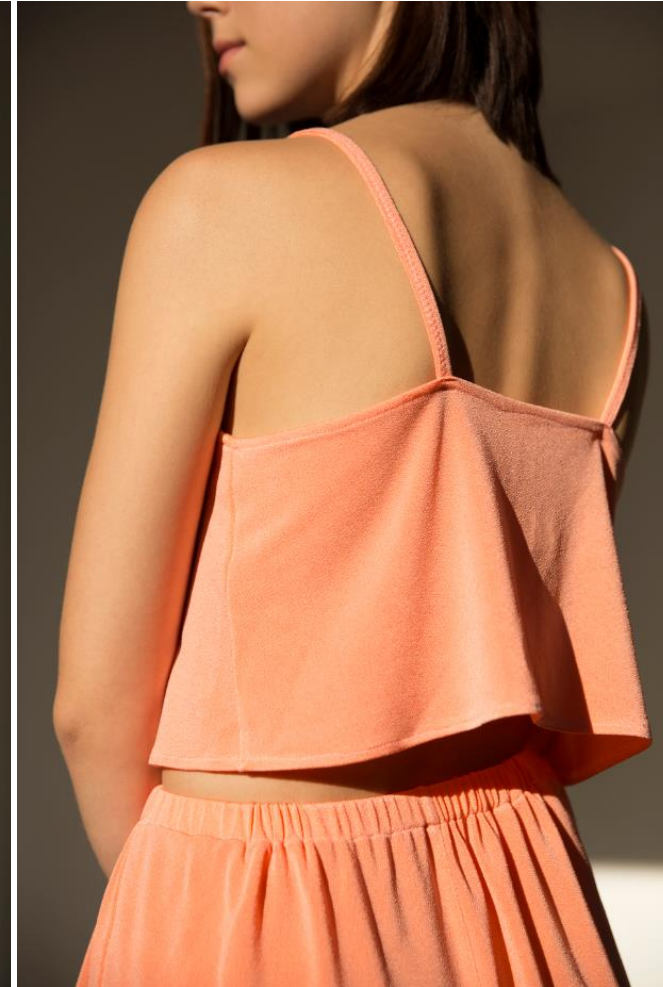
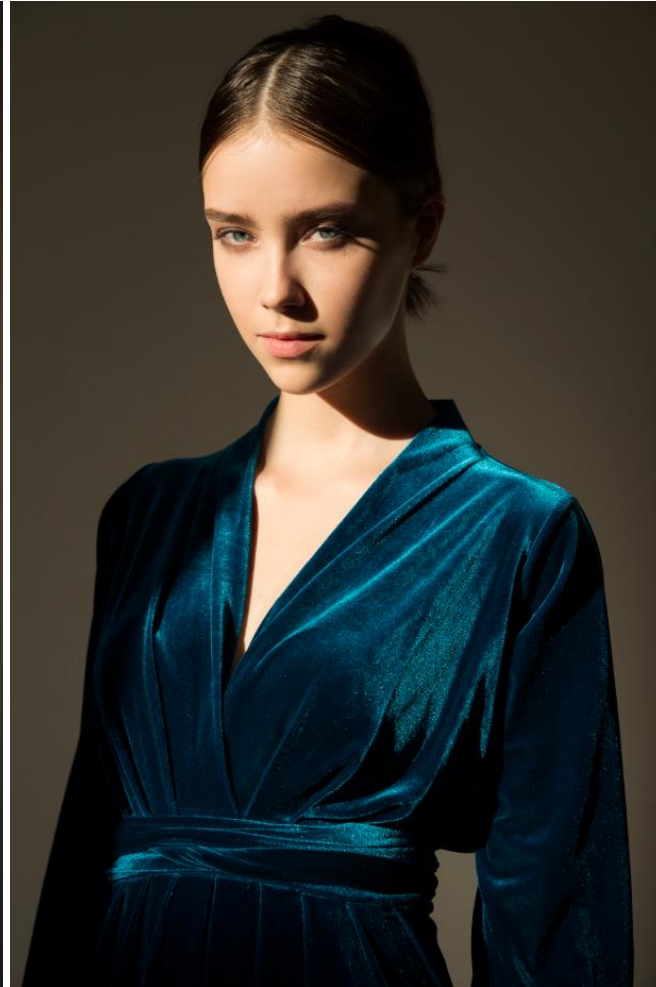






[www.naiafromeastman.com](http://www.naiafromeastman.com)

Naia means **COMFORT, EASE OF CARE,** and **LUXURY.**





# Launched at Interfilière Paris

January 2017



Iconic intimate apparel trendsetter Jos Berry displayed an ethereal piece lit from within and made with Naia™ from Eastman.



The Eastman Naia booth offered a collection of finished garments and swatches made with Naia.





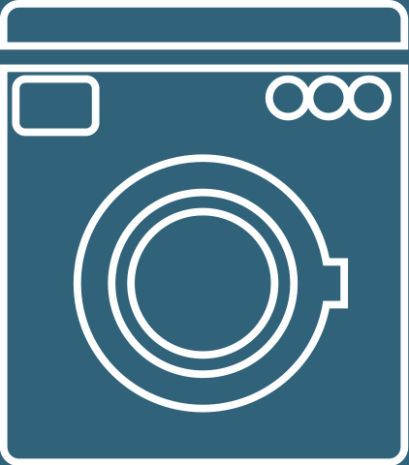


# What does Naia mean for you and your garments?





Comfort



Ease of care



Luxury

# Comfort



## Naia means you feel . . .



- ✓ Soft, smooth, and light fabric against your skin
- ✓ Refreshed and cool in a breathable garment
- ✓ Cool and dry thanks to inherent moisture management

# Naia means **comfort.**



## Silky hand

- Garments feel light, soft, and freeing.\*
- Inherent moisture management produces smooth, cool-feeling fabrics

## Breathability

- Naia cellulosic yarn fabrics are twice as breathable as nylon.\*\*
- It's a feature that's inherent to the fiber, so it won't wash off or fade in performance like some treated fabrics.



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*\* Based on focus group results*

*\*\* Based on various third-party test methods; fiber composition, fabric construction, and finishing can vary results.*

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# Naia means **comfort.**



## Cool and dry

- Naia has **excellent dry rates**: 3 ml/hr\*\*
- Naia dries **twice as fast as nylon**.\*\*
- Naia wicks away moisture from the skin **7 times better than polyester**.\*\*

## Skin friendly and hypoallergenic

- Fabrics made from Naia offer **next-to-skin comfort** thanks to the **nonirritating nature of the fiber**.
- Rest comfortably knowing that Naia holds a **Product Class II certification with the OEKO-TEX 100 label**.



**EASTMAN**

*\* Based on focus group results*

*\*\* Based on various third-party test methods; fiber composition, fabric construction, and finishing can vary results.*

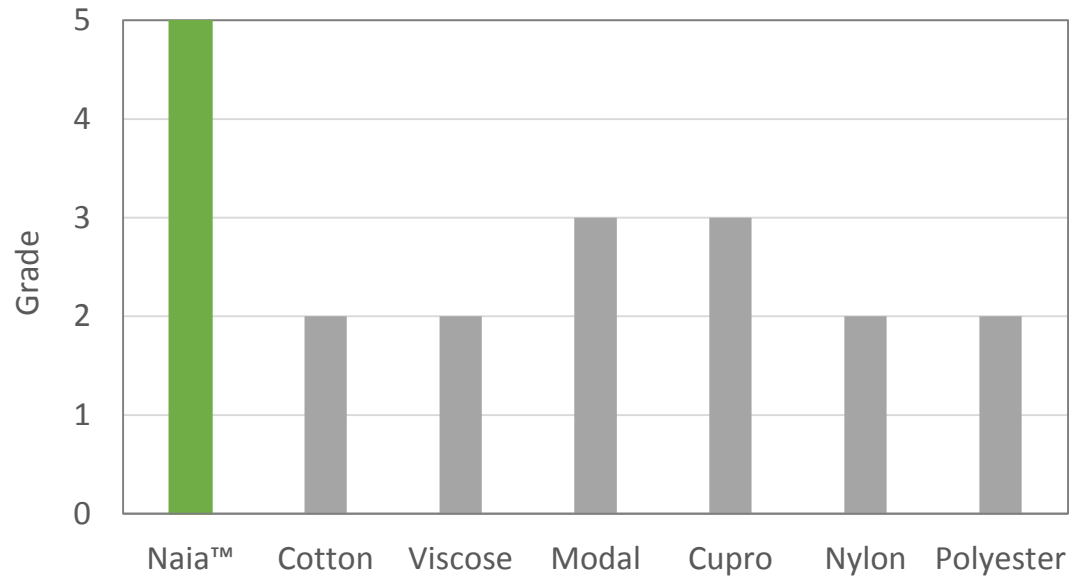
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# Naia means **cool and dry.**



## Dry rate (AATCC 201-2014)

*Grading scale of 1–5, with 5 being the best*



In an evaluation of moisture management by dry rate, **Naia** outperformed all competitive fibers.\*



*\* Based on results from AATCC test method; fiber composition, fabric construction, and finishing can vary results.*

# Test methods



## Comfort

Test number	Test description	Where tested
FTTS-FA-019, v 3.0	Instant cool to touch	Intertek
Hand survey	Instant cool to touch	Focus group
Hand survey	Silkiness	Focus group
ASTM D1388-Option A	Drape	Vartest

**Silkiness:** An internal hand survey composed of 31 panelists was used to assess silklike handle and yielded statistically significant results.

**Cool to touch:** Several different techniques were employed to evaluate the cool-to-touch handle.  $Q_{max}$  measures the heat flow per unit area required to maintain the fabric at the equilibrated skin temperature. This technique was carried out using the Kawabata  $Q_{max}$  method at Intertek. An internal hand survey was also carried out and yielded statistically significant results.



# Test methods

## Moisture management



Test number	Test description	Where tested
AATCC 195-2012	Liquid moisture management properties	Intertek
AATCC 201-2014	Drying rate of fabrics	Intertek
AATCC 197-2013; Option A	Vertical wicking of textiles	Intertek
ASTM F1868-2014 Part B	Water vapor resistance	Intertek

### Liquid moisture management properties:

A moisture management tester was used in this test, and an overall moisture management capability (OMMC) was calculated with the provided software.

The OMMC uses the wetting time, accumulative one-way moisture transport, and spreading speed to approximate moisture management.

**Breathability:** Evaporative resistance in a controlled environmental chamber was used to assess breathability. Fabrics were placed on a heated plate with air moving across the top of the sample while water vapor was generated on the bottom side of the fabric to mimic sweating. Lower resistance of a fabric to evaporation corresponds to better breathability.

**Dry rate:** The time required to evaporate 200 uL of added liquid water with the fabric on a heated plate with air moving across the top of the fabric.

**Wicking:** Vertical wicking testing was used to assess wicking. The very bottom of fabric strips were vertically placed in water. The wicking distance at 30 minutes was recorded.



# Test methods



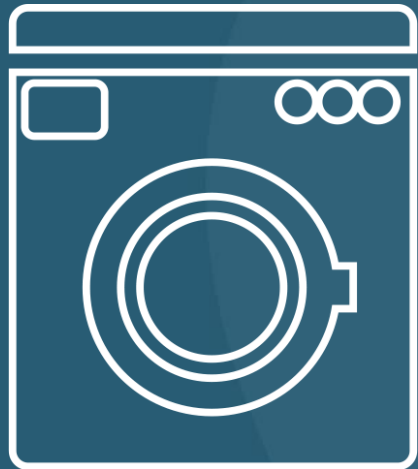
## Skin sensitivity

Testing was carried out at Consumer Product Testing Co. by protocol number CP-01.01S, which is called the Human Repeated Insult Patch Test. 206 subjects completed the study. Patches of the acetate fabric were applied 3 times per week for a total of 9 applications to the same site. Patches were placed onto skin for 24 hours during each application. None of the subjects displayed an adverse reaction to the fabric.

The summary from the report states, "Under the conditions of this study, test material, acetate knit fabric Lot 6385, indicated no potential for dermal irritation or allergic contact sensitization."



# Ease of care



## Naia means you can . . .

- ✓ Launder garments easily at home
- ✓ Remove wine, coffee, and cosmetics stains with ease
- ✓ Wear your garments regularly without fear of pilling
- ✓ Enjoy knit fabrics with excellent wrinkle recovery

# Naia means **ease of care.**



## Launder at home

- Naia fabrics don't require dry cleaning.
- Wash knit Naia fabrics **without fear of shrinkage or stretching.**

## Remove stains with ease

- Wine, coffee, cosmetics...**all wash out easily** from a Naia fabric.\*
- Naia releases stains from red lipstick and foundation makeup **twice as effectively as polyester and nylon.**\*

## Garments for your lifestyle

- Naia enables knit fabrics to have **excellent wrinkle recovery.**\*
- Wear your favorite garments with **no fear of pilling.**
- Naia also **reduces odors twice as well as polyester.**\*



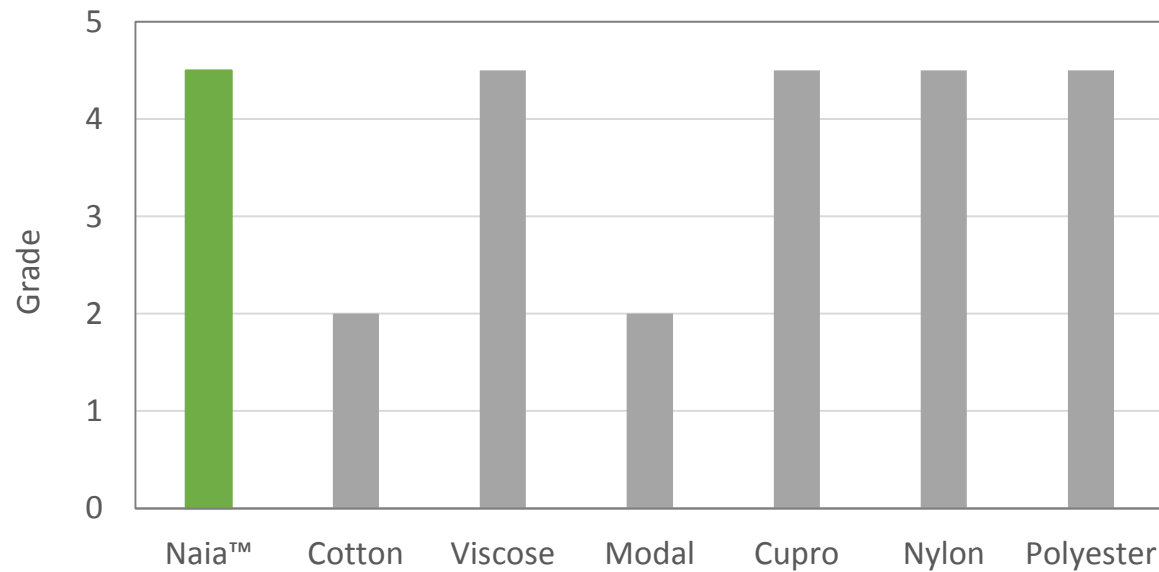
*\* Based on results from third-party test methods; fiber composition, fabric construction, and finishing can vary results.*

# Naia means **durability.**

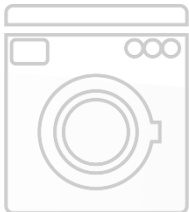


## Pilling resistance (ISO 12945-1:2000)

*Grading scale of 1–5, with 5 being the best*



Naia knits perform better than modal knits in comparable pilling tests.



*\* Based on results from third-party ISO test method; fiber composition, fabric construction, and finishing can vary results.*

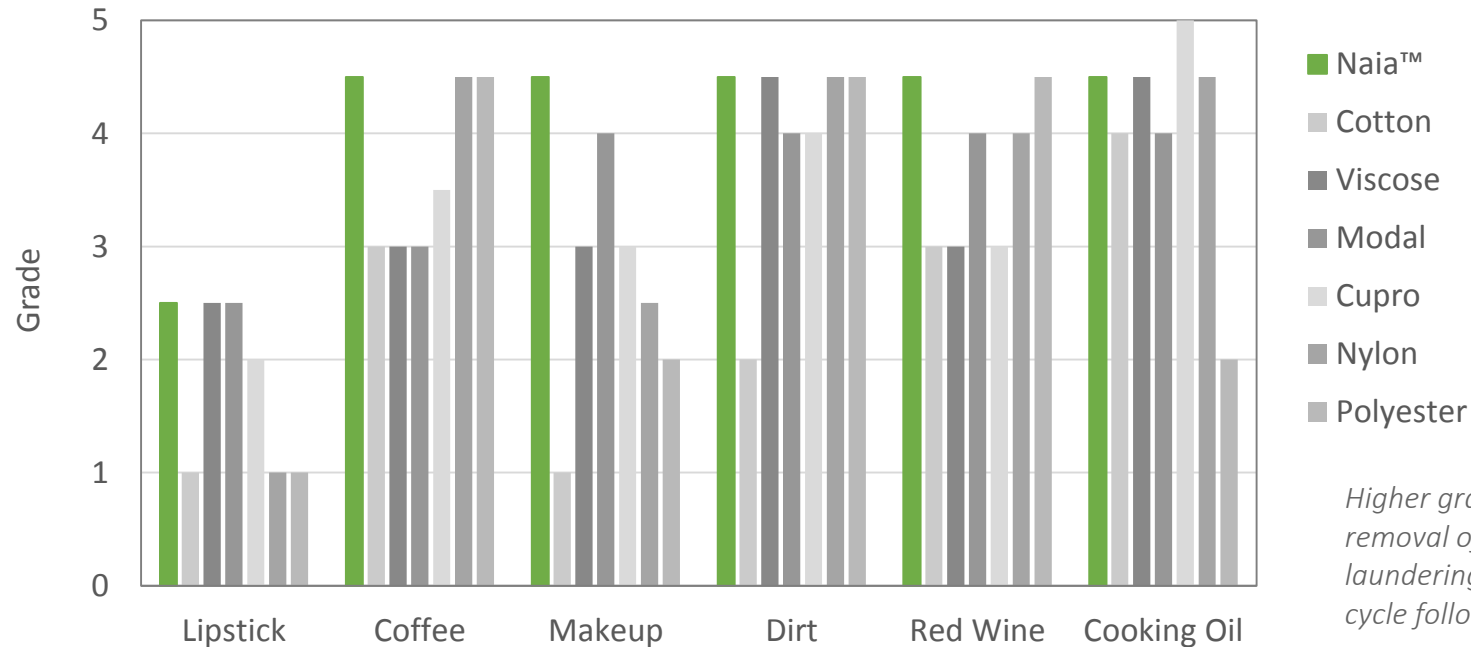


# Naia means **easy stain release at home.**



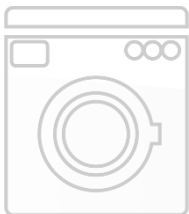
## Soil release (AATCC 130-2010, Wash Procedure II)

Grading scale of 1–5, with 5 being the best



Naia knit fabrics can be washed at home to easily remove stains like coffee, cosmetics, and wine.\*

*Higher grade corresponds to better removal of the stain after 1 home laundering in cold water on normal cycle followed by tumble dry on low.*



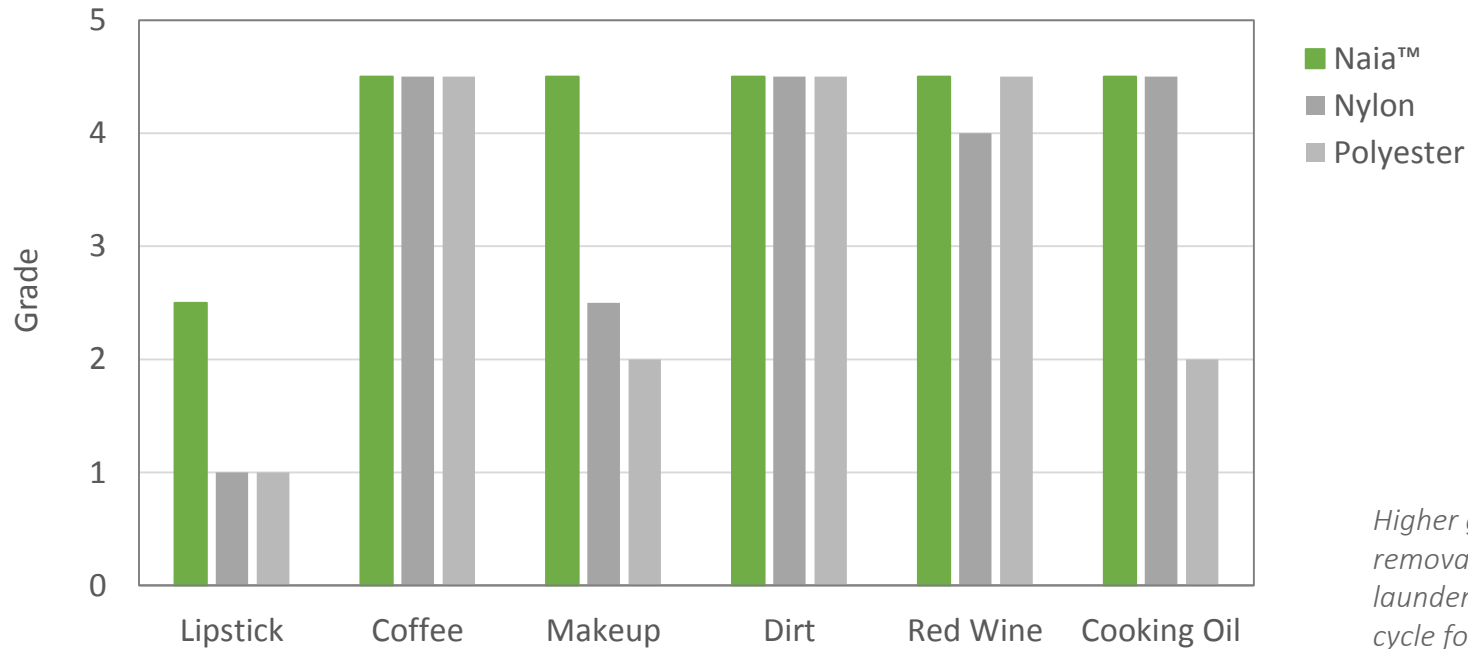
\* Based on results from third-party AATCC test method; fiber composition, fabric construction, and finishing can vary results.

# Naia means **easy stain release** *at home*.



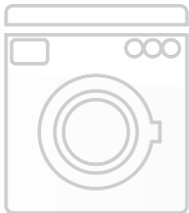
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\* Based on results from third-party AATCC test method; fiber composition, fabric construction, and finishing can vary results.

# Test methods



## Ease of care

Test number	Test description	Where tested
AATCC 135-2015; Test No (1)IIA(II)	Dimensional stability to laundering	Intertek
AATCC 130-2010; Wash procedure II	Soil release	Intertek
AATCC 128	Wrinkle recovery	Intertek

## Durability

Test number	Test description	Where tested
ISO 12945-1:2000	Pilling resistance	Intertek

**Dimensional stability to laundering:** Benchmarks were drawn on the fabrics. Fabrics were laundered three times (normal wash in cold water; tumble dry low). Benchmarks were measured to assess dimensional stability.

**Soil release:** Each of six tested soils were applied to the fabrics. Fabrics were then laundered and graded for the extent of soil release.

**Wrinkle recovery:** Fabrics were wrinkled under standard atmospheric conditions in a standard wrinkling device under a predetermined load for a prescribed period of time. The fabric is then reconditioned and evaluated visually for appearance.

**Pilling:** Fabrics are mounted on polyurethane tubes and tumbled randomly in a cork-lined box at a constant rotational speed. Fuzzing and pilling are assessed visually after 5 hours of tumbling.



# Luxury



## Naia means you can have . . .

- ✓ Stunning high-luster fabrics or subtle, matte finishes
- ✓ Beautiful and effortless drape
- ✓ Limitless possibilities with blended fabrics



# Naia means **luxury.**



## Stunning luster and shine

- Naia fibers inherently bring a beautiful luster to fabrics.
- Naia is 1.5x more lustrous than Nylon.\*

## Beautiful drape

- Naia is a soft, pliable fiber.
- Naia drapes effortlessly to accentuate silhouettes.

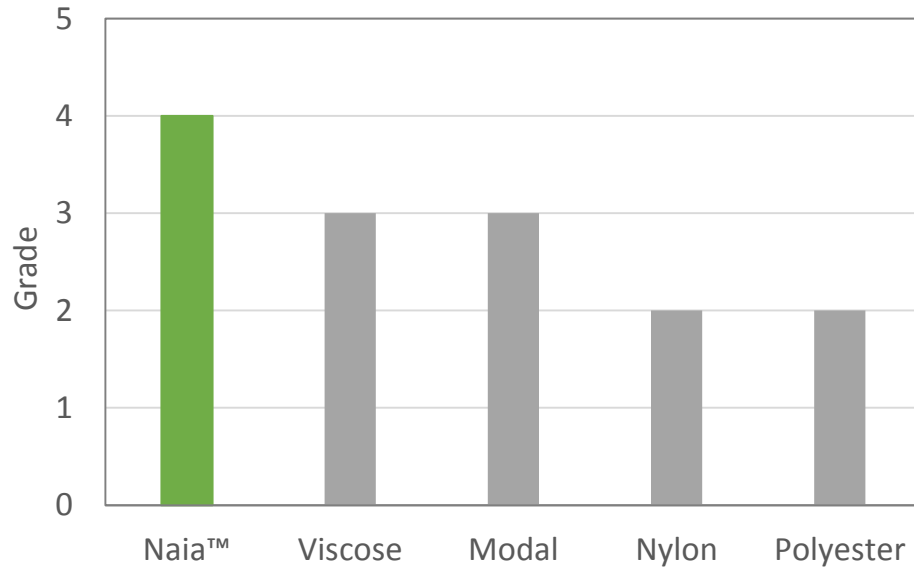


*\* Based on results from third-party test methods; fiber composition, fabric construction, and finishing can vary results.*

# Naia means **stunning luster.**



Specular gloss (ASTM D 523)



Naia is **1.5 times more lustrous** than nylon.\*



\* Based on results from ASTM test method; fiber composition, fabric construction, and finishing can vary results.

# Test methods



## Luxury

Test number	Test description	Where tested
ASTM D523	Luster	Vartest
ASTM D1388-Option A	Drape	Vartest
Hand survey	Silkiness	Focus group

**Luster:** Gloss readings were taken with a gloss meter along the length, width, and bias of the fabric.

**Drape:** An evaluation using test ASTM D1388-Option A by Vartest laboratories in New York, NY. Strips of fabric were pushed off the edge of a platform and allowed to drape. The length of fabric pushed off the edge before reaching a given bending radius was reported.

**Silkiness:** An internal hand survey composed of 31 panelists was used to assess silklike handle.





# Sustainability at Eastman



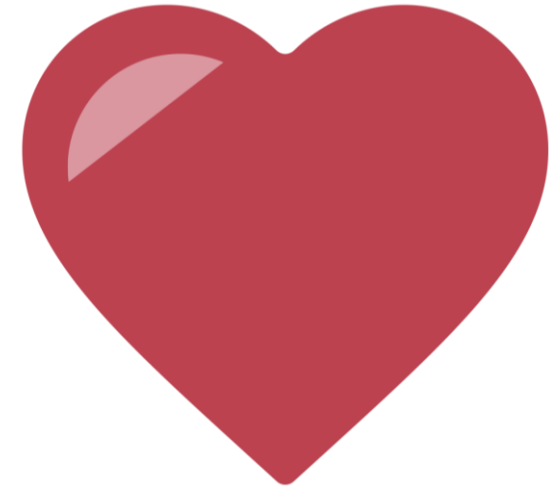
# A company that cares



Eastman Naia™ cellulosic yarn is made from renewable wood pulp, produced in a near-closed loop process in the United States where all waste is either recycled, reused or offered for resell.



During the production of Naia, production solvents are recycled back into the system for reuse. Water returned to source streams is routinely tested to ensure the biodiversity of the local river is receiving clean and safe water.

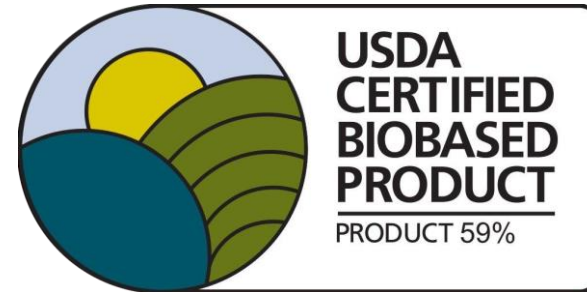


We care about the safety and wellbeing of our employees, the environment and our global communities. So we operate under corporate-wide sustainability and safety initiatives. Learn more at [www.eastman.com/sustainability](http://www.eastman.com/sustainability).

# Dedicated to environmental stewardship, social responsibility, and economic growth



# Recognized by global industry standards



# Operating safe processes



## American Apparel and Footwear Association

- Eastman has reviewed the AAfA Restricted Substances List (RSL) document version 17 and has confirmed that Eastman cellulosic yarn products are in alignment with the AAfA RSL.

## Manufacturing Restricted Substances List, *Zero Discharge of Hazardous Chemicals Programme*

- Eastman has reviewed the Manufacturing Restricted Substances List (MRSL) document version 1.1, the latest list released by ZDHC, and has confirmed that Eastman cellulosic yarn products are in alignment with the ZDHC MRSL.



# Designing with Naia



# Where else is Naia used?



Women's casual apparel,  
knits and wovens  
Suit/dress fabrics and linings  
Ceremonial robes such as  
graduation or choir



## TECHNICAL TEXTILES

Medical tapes  
Industrial and automotive  
tapes



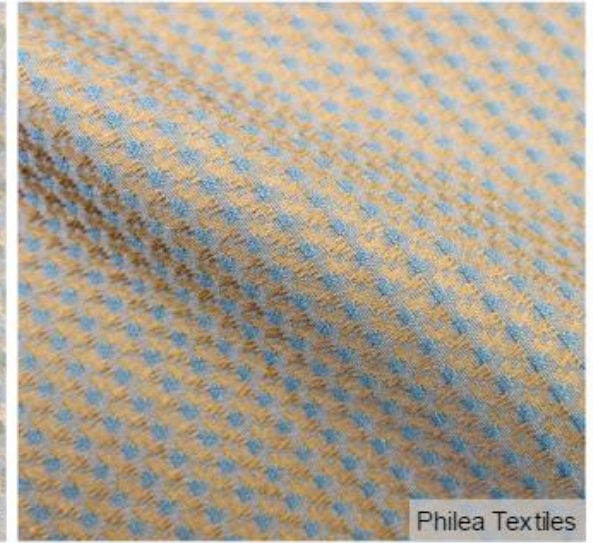
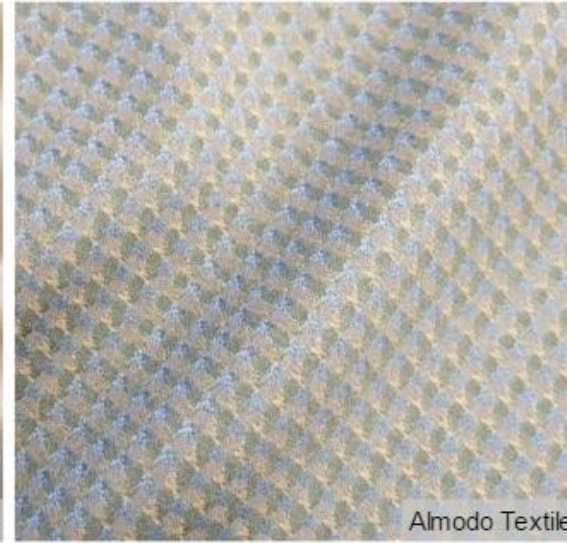
## HOME TEXTILES

Bedding  
Furniture lining



## ACCESSORIES

Ribbons  
Velvets  
Scarves and neck ties  
Purse linings and more



## SENSUOUS SHEEN

### SURFACE & FINISH

Subtle lustre transforms women's dresses and separates and menswear suiting fabrics with sophisticated aplomb, giving them occasion and eveningwear appeal. Silky and fluid polyester and viscose blends are brushed for sensuous surfaces, with spun acetate inclusions optimising dimensional shimmer. More structured wool, silk and cotton suiting weights display fragmented sheen with modular micro structures. Contrasting matte and shine properties are smoothed and polished with a calendared finish.





Zero + Maria Comejo



Efilan



Gulipek



Vanners



Pastel by Yilmazipek



Yekpa Tekstil



Ciabatti - Tessuti A Maglia

## Sheer Graphics

CONSTRUCTION

Summer sheers are impactful in pattern and impressive in size for S/S 18, experimenting with opaque and transparent levels. Papery translucent sheers are contrasted with opaque cotton, silk and viscose surfaces for statement dresses, shirting and jackets. Weightless jacquard fil coupé feature oversized checks, polka dots and abstract florals on crinkled acetate and nylon grounds, while dobby repeats appear more structured, emulating mesh grids. The clean, fresh palette complements the simplicity.





DK&D



Yekpa Tekstil



Belinac



B.O.B. Textile



Korukcu Tekstil Ltd



Gulipek

## High Shine

## SURFACE & FINISH

Synthetic blends turn artificial shine into a feature for womenswear fabrics, establishing a new category that is moving away from traditional luxury – ideal for contemporary fancy, evening and leisure applications. Acetate, lyocell, nylon and polyester blends are worked into weightless densities with various degrees of translucency, elevating soft drape with liquid gloss and subtle shimmer.









# Thank you!



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