PASSION FOR DENIM / Creating colors and effects to boost your inspiration
At Archroma, we continuously challenge the status quo in the deep belief that we can make our industry sustainable. Archroma is committed to developing innovative products and processes that are safer for the consumer and for the environment. We strongly believe, based on our extensive experience in textile processing, that sustainability can generate innovation, performance and can even lead to cost reductions for our customers. For this reason, our clear ambition is to offer our customers the best possible product solution package for them in each textile segment.

Innovation is a core competence of Archroma, which ensures that our products and services meet future demands, foster future technologies and contribute to a more sustainable textile industry.

As a global leader in color and specialty chemicals, together with our trusted heritage, our new product solution packages and innovations, we aim to be a reliable partner for textile mills as well as major retailers and brands for the whole textile chain – from the first idea to the final garment.

Brand owners and retailers around the world are taking action to evaluate the environmental impact of textile treatment, dyeing and finishing processes in response to consumer concerns. We can help textile manufacturers with this, our exclusive ONE WAY Process Simulator can be used to mimic and compare products and processes, and thus calculate the ecological and economical profile of the final end-product.

CREATING SUSTAINABLE SOLUTIONS

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Archroma is a global color and specialty chemicals company committed to innovation, world-class quality standards, high service levels, cost-efficiency and sustainability.

From fiber to finish, Archroma’s Brand and Performance Textile Specialties plays a key role throughout the entire textile supply chain, with special package solutions for spinning, pretreatment, dyeing, sizing, coating and finishing.

**Desizing & wash down effects**

**Finishing**

**Spinning & weaving**

**Pretreatment & dyeing**

**Desizing & wash down effects**

**FINISHING**

**Finishing**

**Spinning**

**Pretreatment & dyeing**

**Sizing & weaving**

**Desizing & wash down effects**

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The majority of Archroma’s products are endorsed by some of the most important eco-standards.

- bluesign®
- Oeko-Tex®
- GOTS
- ZDHC
- REACH
- EU Ecolabel
- C2C
- RSL
- MRSL

**Archroma’s ONE WAY Process Simulator** allows customers to assess the cost, performance and environmental profile of the evaluated products and processes.

**GLOBAL DENIM SERVICES**

Benefit from Archroma’s denim expertise and networks for:

- Mill and brand marketing partnership collaboration;
- Innovative solutions for improved performance and sustainable production;
- New trends in the denim market;
- Collaboration network with market leaders in machinery manufacturers, denim producers, laundry specialists, universities, textile industries, training centers and brands.

**Archroma’s spinning agents**

- Spin finish
- Softeners, lubricants and antistatic agents

**Archroma combines the chemistry knowledge and yarn manufacturing experience to develop high performance and innovative spin finishes.**

**PRODUCTION PHASES OF THE TWO MOST IMPORTANT TYPES OF THREAD**

**DIAGRAM 1**

**Ring spun**

- Pressed cotton fibers called bales
- Cleaning and mixing of cotton -opener-
- Carding
- Drawing frame
- Speed frame
- Yarn on spindle
- Yarn on a bobbin

**Open-end yarn**

- Pressed cotton fibers called bales
- Cleaning and mixing of cotton -opener-
- Carding
- Open-end Spinning
- Yarn on a bobbin

**Influence of a type of yarn on dyeing**

Generally, open-end yarns have a good absorption capacity in short periods of bath-material contact in dye vats. Ring spun also has a good absorption capacity, although lower than that of open-end yarn. If the ring spun is additionally combed (with greater orientation of fibers in the same direction), absorption capacity is even lower, although yarn quality is the best.

**Influence of the type of yarn on the finish effects**

The use of yarn that display certain irregularities or slubs is related to the current tendency to produce final garments with worn-out or ‘old’ appearance. Attempts are also made to manufacture jeans using methods that were used in the past, when the operation of weaving was selvedge and the irregularities were produced accidently or by chance.
The Archroma Denim portfolio offers a scope of possibilities in effects and colors, from the traditional to the most innovative solutions; while maintaining high standards of quality and sustainability.

An old saying states that “well prepared is half dyed”. Pretreatment is indeed a key step in textile production. The diversity of fibers and quality variations are major challenges in consistently obtaining a perfectly prepared fabric, ready for the next processing steps.

Archroma is a recognized leader in integrated solutions for dyeing. Archroma offers the best-in-class specific package of auxiliaries for dyeing. Our portfolio is comprised of products designed to address the specific dyeing requirements of all types of effects.

### Archroma’s dyestuffs
- Pre-reduced indigo solution
  - Denisol® Indigo 30 liq
- Pre-reduced sulfur dyes
  - Directsul® RDT Blue Specialties liq
  - Directsul® RDT Black & Grey liq
  - Directsul® RDT Colors liq

### Archroma’s chemical auxiliaries
- **Mercerizing**
  - Mercerol® QWXL liq
- **Wetting**
  - Primsol® NF liq
  - Leonol® EHC liq c
- **Dispersing agents**
  - Ekaline® F liq
  - Setamol® WS p
- **Sequestering agents**
  - Dekol® SN 100 liq
  - Dekol® 2005 liq c
- **Reducing agents**
  - Reducing agent DE liq
  - Reducing agent D p
  - Rongalit® DNM p
- **Peroxide oxidation booster**
  - Direfix® GPAN liq
- **Cationic fixing agents**
  - Direfix® SD liq
- **Lubricant (Rebeaming)**
  - Humectol® Denicomb Ro liq

### Archroma’s sizing agents selection
- **Carboxymethylcellulose**
  - Arkofil® CMC 20 gr
  - Arkofil® CMC 300 gr
- **Starch & compounds**
  - Arkofil® S60 p
  - Arkofil® UCF-4 gr
- **Polyvinyl Alcohol & copolymers**
  - Arkofil® PFM gr
  - Arkofil® G1 gr
- **Polyacrylates**
  - Arkofil® CE liq
  - Arkofil® CO p/1iq
- **Sizing wax**
  - Trefix® MSW fla
  - Trefix® P liq
- **Others (Pad/Sizing-Ox)**
  - Arkofil® DEN –FIX IN

### Archroma’s sizing packages
- **DENIM STRUCTURE**
  The structure is the particular way in which the warp and the weft ends cross and interlace each other. Denim fabrics are distinguished by a colored warp yarn and raw or uncolored weft.

The weaving process is achieved by using looms, which are mechanical devices that maintain the warp tension in order to facilitate the interweaving of the weft. There are different shapes and mechanical looms according to the type of fabric produced. In the case of denim fabric, the type of looms used are called plane looms.
From denim performance to the jeans look

Finishing of denim fabrics has been largely developed over the past years. Apart from the conventional treatments that assure quality standards, there are also special finishing treatments which improve the performance of the fabric and the final effect on the garment. The finishing treatments of the denim garments are based on current fashion trends and desired effects.

Archroma’s color effects solutions

**COATING**
- Sulfide-free solubilized sulfur dyes: Optisul® C liq
- High quality pigment printing preparation: Printofix® T p
- Blue T-WD p (Indigo look)
- Binders, thickeners and auxiliaries (including Zero Formaldehyde Add-on solutions): Appretan® N, E (ultra low FA)
- Appretan® NF, Lurapret® N (FA-free)

**OVERDYING**
- Pre-reduced sulfur dyes & DAX: Direx® RDT liq
- Sulfide-free solubilized sulfur dyes: Optisul® C liq
- Reactive dyes & DAX: Drimaren® Ultimate HD
- Drimaren® HF
- Direct dyes: Indosol®

Archroma’s thermo-control & protection solutions help make your garment more resistant to extreme weather conditions; from heatwaves to rain pours.

Archroma’s care effects solutions bring softness and comfort to your garment whilst looking good at all times.

Archroma’s polymers allow tailor-made solutions for customer specific requirements; from soft to hard, from elastic to rigid, from hydrophilic to hydrophobic and impermeable to breathable.

Discover more information in our ‘Functional Finishing’ brochure.

Archroma’s performance and care effects solutions

- **Thermocontrol**
  - Hydroperm®
  - coldblack®
- **Care effects**
  - (including softeners that help to prevent yellowing caused by ozone during fabric storage): Arkofix®
  - Siligen®
  - Ceralube®
  - Fixapret®
  - Ceraperm®
  - Cepreton®
  - Solusoft®
  - Protection
  - Smartrepel® Hydro
  - Nuva® N
  - Sanitized®
  - Actigard®
  - NanoSphere®
  - Pekoflam®
- **Water-based solvent-free polymers for elastic, soft and flexible surfaces**
  - Appretan®
  - Siligen®
  - Lurapret®
  - Texapret®

The cornerstone of fashion effects

**SPECIAL GARMENT FINISHING**

During the last few years new mechanical (dry) as well as chemical (wet) effects for garments have been developed. By combining both a series of unique and individual looks in each pair of jeans, a vintage denim effect can be obtained.

**DRY PROCESSING**
- Grinding
- Tagging & clipping
- Damages & breaks
- 3D effects with resin applications
- Patch and repair
- Laser effects
- Ozone effect

**WET PROCESSING**
- Desizing
- Stone wash
- Enzyme washing & biowashing
- Bleached effect
- Acid wash effect
- Spray & pulverizing effect
- Tie effects
- Tinting on garment

Archroma’s desizing & wash down solutions

- **Desizing enzymes**
  - Bactosol® PHC liq hc
  - Bactosol® HPA liq
- **Wash down enzymes**
  - Bactosol® CA liq c
  - Bactosol® CNX liq c
  - Bactosol® CB liq c
- **Anti-back staining agent**
  - Kieralon® P800 p
  - Optivator HPE liq
- **Garment dyeing**
  - Direx® RDT liq
  - Drimaren®
  - Indosol®
  - Printofix® T
  - 3D effects (bleachable resins, FA-free*, low curing)
  - Arkofix® NZF New liq
  - Arkofix® NZK liq (self catalyzed)
  - Arkofix® NF liq
  - Catalyst FF
  - Catalyst NKD
  - 3D effects (non bleachable resins)
  - Fixapret® NEC Plus
  - Perapret® PU New (grey cast**)
  - Arkophob® DAN New (wash fast improver)
  - Appretan® NF (grey cast**)
  - Appretan® TT (blue cast**)
  - Appretan® MB extra (blue cast**)

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Denim, of course, is in constant evolution and new developments and regulations will surely influence the future of the industry. Archroma aims to be the best partner in this journey.

Archroma’s desizing & wash down solutions

*formaldehyde-free
**after chlorine bleach
ARCHROMA DENIM PORTFOLIO

1. SPINNING
- Reducing friction and ensure high quality level of yarn production

3D Effects
- Avant-garde style
- Blue Beyond Blue

2. PRETREATMENT & DYEING
- Suitable for sustainable ADVANCED DENIM technology
- Pre-reduced liquid sulfur dyestuffs, low sulfide content

3. SIZING & WEAVING
- Ecological & economical products for all types of yarns & yarn counts

4. FINISHING
- Technical denim

5. DESIZING & WASH DOWN EFFECTS
- Wash down solutions

Check our latest updates at www.denim.archroma.com
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