

A woman with dark hair in a ponytail, wearing a dark grey puffer jacket with a maroon stripe on the shoulder, black leggings, and bright pink and blue sneakers, is sitting on a wooden park bench. She is looking down at her right foot. The background is a blurred park scene with trees and sunlight filtering through the leaves.

FIBER COLORANTS & ADDITIVES

From the clothes we wear to the upholstery in the cars we drive, color plays a major role in driving consumer appeal. However, the way color is added to fibers can directly affect the sustainability of the final fabric, which is an important topic for the textile industry.

Avient's high performance colorants and additives support the textile industry as it seeks to increase the sustainability of its products and manufacturing processes. Whether in solid or liquid form, our fiber

concentrates are developed for use in the more sustainable process of spin-dyeing, or dope-dyeing, which requires no water and less energy than other dyeing methods.

Our extensive portfolio of specialty colorants helps producers of synthetic fibers and nonwovens achieve brilliant colors and optimal dyeing of polyester, polypropylene and polyamide fibers. Additives can also be used to enhance fiber properties and to improve processing during fiber production.



TYPICAL APPLICATIONS

- **Clothing:** apparel, hosiery, sportswear, shoes
- **Home:** upholstery, carpets, furniture, curtains
- **Outdoor:** awnings, umbrellas, automobile/boat covers
- **Automotive:** seat covers, floor systems, headliners, side panels, tyre cords
- **Technical:** ropes, belts, luggage, monofilament fishing yarn, artificial grass
- **Healthcare & Sanitary:** diapers, hygiene products, face masks, surgery gowns, wound dressing
- **Building & Construction:** filtration systems, flooring, padding, geotextiles

Renol™ & Remafin™ Fiber Colorants

Black & White

STANDARD AND CUSTOM BLACK CONCENTRATES

- High pigment concentrations for high tinting strength
- Lower concentrations to meet specific customer needs
- Tailored for special requirements, with specific physical/rheological properties

STANDARD AND CUSTOM WHITE CONCENTRATES

- TiO₂ based with excellent opacifying or tinting strength
- Optical white to improve the surface whiteness and/or brightness of end articles
- Regulatory compliance support

Product characteristics

- Optimal melt flow properties allow a good mixture with the polymer matrix yielding the best possible spinnability
- Full pigment dispersion ensures maximum CPF/Spinning pack life
- Carriers: PET, PBT, PA 6, PA 66, PP, and others

Applications

- Continuous filament spinning, including fine denier (POY, FDY, HOY, bi-component yarns)
- Long and short spinning staple fiber
- Spunbond



Renol™ & Remafin™ Fiber Colorants

Single Pigment Dispersions & Custom Colors

SINGLE PIGMENT DISPERSIONS (SPDS)

We have extensive experience in using advanced technologies and special raw materials, which make our SPDs suitable for more demanding applications. Our product range includes a comprehensive selection of colors and color indexes, which can be produced at various concentrations to meet customer requirements.

CUSTOM COLORS

Our pilot spinning plants are capable of producing a full range of yarn counts, to match custom colors and offer bespoke color options. All information relevant to the first colorant batch is archived and stored for the life of the color. Every subsequent lot is internally tested in comparison with the standard and is accompanied by a Quality Control Report. Lower-concentration solutions can be developed to meet specific customer needs.

Product characteristics

- Good spinnability
- Full dispersion
- Excellent tinting strength
- Maximum fastness properties
- Lot-to-lot consistency
- Carriers: PET, PBT, PA 6, PP

Applications

- Continuous filaments (POY, FDY, HOY, BCF)
- Long and short spinning staple fiber



Special Products

Our portfolio includes color formulations for high-tenacity yarn applications.

Cesa™ Fiber Additives

ADDITIVE CONCENTRATES

Functionalization is an important topic for the synthetic fiber industry. Additives that help enhance properties and improve fiber manufacturing processes can help fiber and filament producers meet the challenging performance and regulatory requirements of different textile applications. Avient offers a wide range of functional additive concentrates specially formulated for filament, staple and nonwoven fiber processes.

Product range

- Flame retardants to reduce flammability of fibers and fabrics especially in building and construction applications
- Light stabilizers to protect fibers used outdoors or exposed to sunlight against UV light
- Antimicrobials to protect hygienic fiber products from bacteria proliferation
- Antistatics to reduce electrostatic charges
- Antioxidants to reduce polymer oxidation during spinning and protect fabrics during service life
- Optical brighteners to provide a brilliant white effect and blueish hue
- Electrets to retain electrostatic charge on the polymer surface for a longer period of time in filtration applications
- Hydrophobics to impart durable water repellency
- Chain extenders for recycled polyester fibers
- Others on request

Product characteristics

- Good spinnability
- Fiber-specific QC and protocols
- Lot-to-lot consistency
- Carriers: PET, PBT, PA 6, PP, and others
- Possibility to combine colors and additives into a combination concentrate for convenience
- Product guidance from our fiber expert team
- Focus on safe and sustainable formulations

Applications

- Continuous filaments (POY, FDY, HOY, BCF)
- Long and short spinning staple fiber
- Nonwoven processes (spunbond and meltblown)



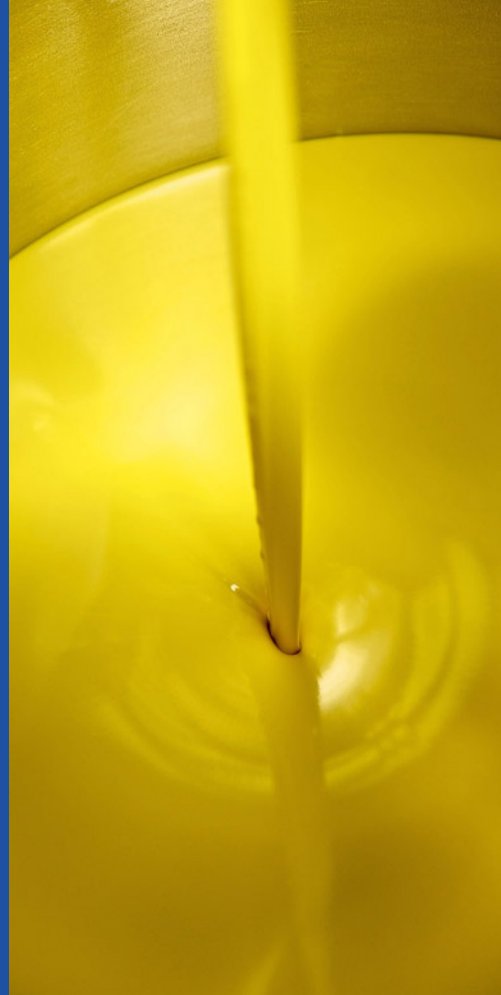
MagIQ™ Liquid Fiber Colorants & Additives

Avient's liquid fiber colorant technology combines advanced liquid color formulations with state-of-the-art, high-pressure metering equipment to enable late-stage injection of liquid color for spun-dyed polymer melt.

It works by injecting liquid color at high pressure into the polymer melt-flow between the end of the extruder, or melt-pipe, and the spin head. The extruder is never contaminated with color which translates into faster, more efficient color changeovers that make low volume and custom color production a reality.

Avient's liquid fiber colorant solutions can help achieve the color precision and color fastness of conventional spin-dyeing concentrates, while giving the production flexibility of traditional aqueous dyeing.

A broad spectrum palette of liquid colorants (40%–80% pigment or dye loading) is available for custom colors and a variety of pigment and dye preparations, including additives and color and additive blends, available on request.



LIQUID FIBER PRODUCT FEATURES

Multiple color production

- Depending on the manufacturing set-up, several injection points can be added to enable multiple color production at the same time on a single extruder

Batch size flexibility

- Fiber producers can manufacture anything from a few kilograms to hundreds of tons using the same simple process

Rapid color changes

- No extruder contamination and easy color-on, color-off operation increases color change speed

Waste reduction

- Rapid color changes, precise metering and the ability to adjust color in-line reduces waste during color changeovers

Continuous metering & long spin pack life

- High pigment and dye concentrations mean fewer pack changes are required
- Where color is running low for larger volume runs, low level metering sensors alert operators and packs can be changed without disrupting production

In-line IV adjustment

- Specialist additives are available to adjust Intrinsic Viscosity (IV) in-line for rPET applications
- These additives are available as single products, or can be combined with color to create a multi-functional formulation

Color design service

- Avient offers a dedicated color design service to help shorten product development cycles and enhance market agility

Liquid color processing

- Formulations are stable at temperatures up to 60°C and retain good flow properties at temperatures as low as 10°C
- These formulations can help lower yarn friction and abrasion, and there is no fuming or evaporation during production

Fiber Solution Services

LABORATORY PERFORMANCE BASED ON STATE-OF-THE-ART TECHNOLOGY

To ensure the highest quality products, our customers rely on high-performance raw materials which guarantee that the final products meet the required specifications for heat resistance, household washing, weathering and lightfastness.

Our technical laboratories and production processes are completely integrated and equipped with state-of-the-art technology focused on minimizing waste products. All installations are computerized and are constantly monitored. Our laboratories are equipped with quality instrumentation to test all necessary parameters to ensure the highest quality product suitable for the application and to fulfill customer requirements.

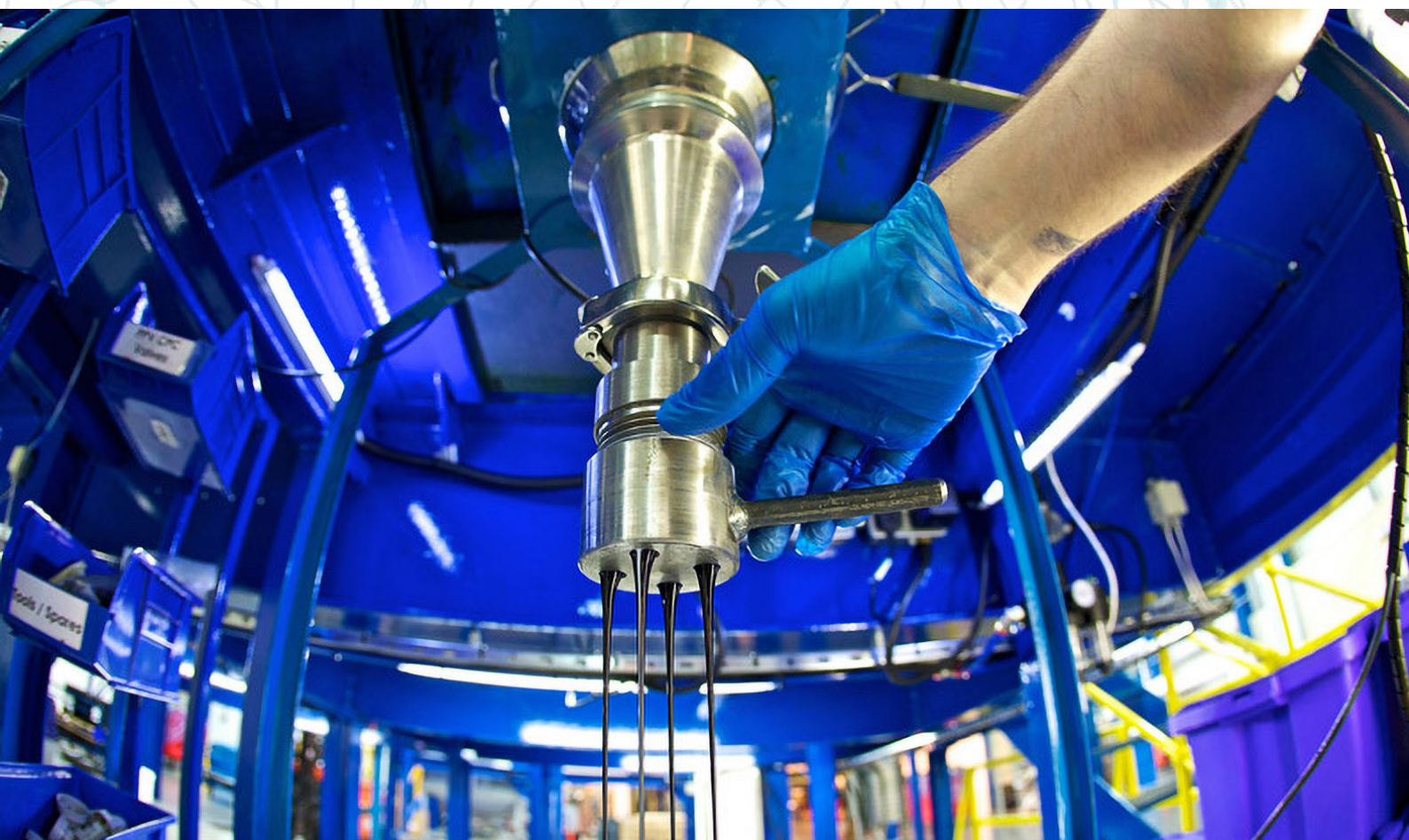
COMMITMENT TO RECORD RETENTION

Formulations and yarn samples of every production lot are archived and retained for 2 to 5 years to ensure traceability. Our library contains thousands of bobbins from all ranges of the color spectrum.

COLORMATRIX™ FLEXCART™ AND FLEXONE™ LIQUID METERING EQUIPMENT

Designed to optimize the benefits of liquid colorant and additive technologies, ColorMatrix FlexCart and FlexOne systems are highly flexible, and offer high-level metering accuracy and controllability for all injection molding and extrusion applications. Simply choose the system that is best suited to your process and throughput; the state-of-the-art controller units on each model feature simple and intuitive operation panels—so you can begin working with your system right away.

Avient's liquid metering equipment can achieve continuous, consistent and accurate dosing—even at very low addition rates. The reliable low liquid level detection system alerts operators when product is running low; adding additional product does not require stopping the machine, so continuous production is possible without any loss of part color.





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