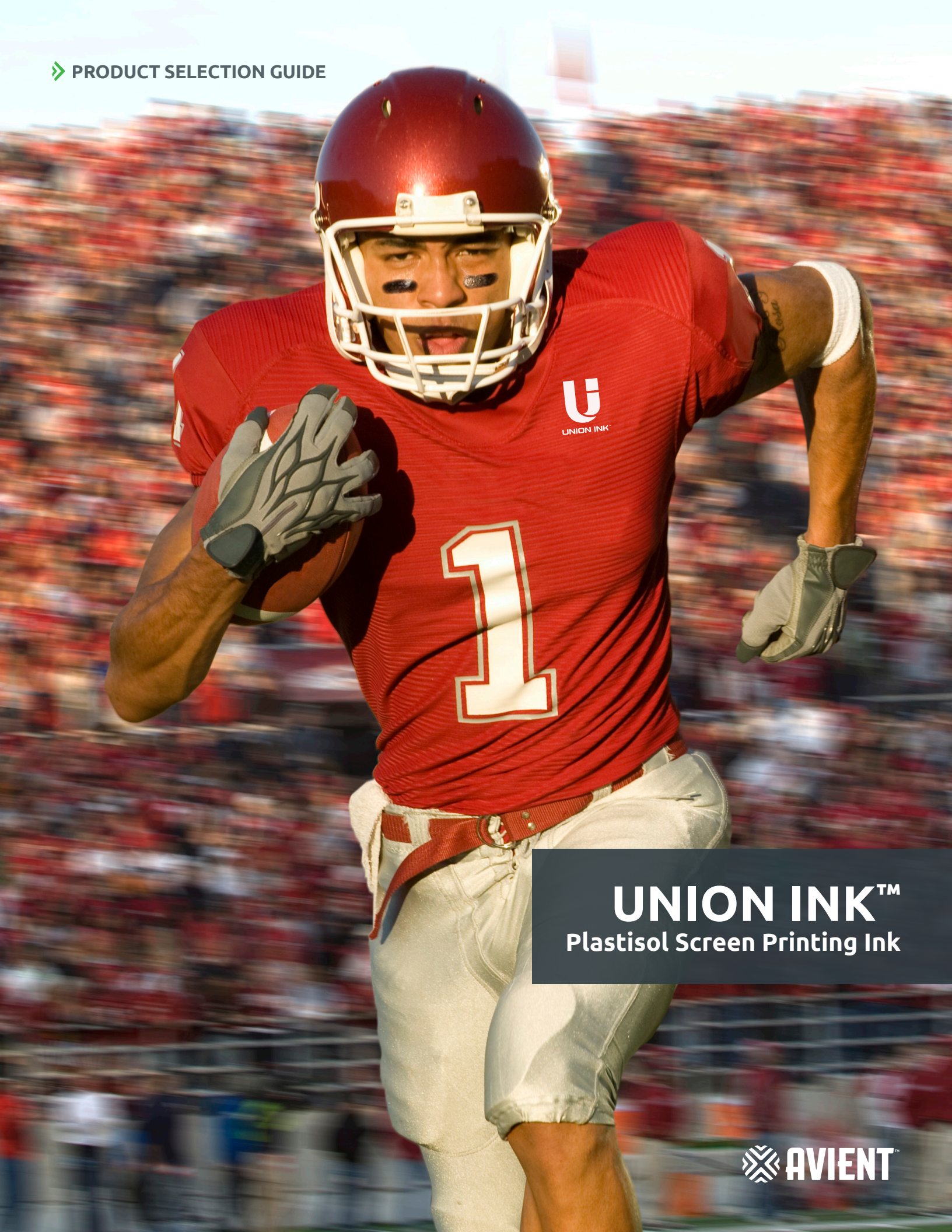
PRODUCT SELECTION GUIDE



UNION INK™

Plastisol Screen Printing Ink

AVIENT™

UNION INK™

Screen printers and brand owners face ever-changing market requirements, so it is imperative to have access to a portfolio of inks that set them up for success. Union Ink™ offers an extensive range of innovative and inspired non-phthalate plastisol screen printing inks that comply with our restricted substance list and high opacity mixing systems, providing tools to meet challenging market needs.

QUALITY AND CONSISTENCY

Union Ink™ products are produced to specific standards, with strict adherence to process, procedures, and documented compliance. This exacting process enables our products to be manufactured uniformly for every batch, creating consistent quality.

ROADMAP TO ZERO

OEKO-TEX®
CONFIDENCE IN TEXTILES
ECO PASSPORT

Union Ink™ is certified to **ZDHC Conformance Level 3** with **ECO PASSPORT by OEKO-TEX®**. To learn more about compliance standards, please contact Avient Specialty Inks.*

PROFESSIONAL SUPPORT NETWORK

Knowledgeable and Highly Experienced Team
Our Avient Specialty Inks sales team has many years of experience in the screen printing industry to help you innovate and succeed, provide troubleshooting support, and solve technical problems you may encounter in your printing production environment. Our customer service team is always ready to support ordering and fulfillment requests, providing a seamless customer experience.

Broad Distributor Network
Our extensive network of distributors makes Avient Specialty Inks products and services easily accessible and convenient.

Technical Expertise
We strive to help our customers stay ahead of marketplace trends and demands. Our qualified and experienced Avient Specialty Inks technical team is constantly looking at ways to improve the performance of our products and to develop new technologies to meet emerging demands.

* Union Ink ECO PASSPORT certification number: Union 2.10 - 22.0.01715

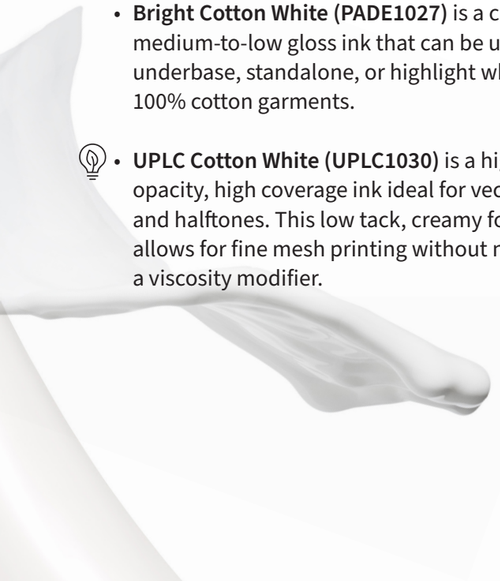
WHITE PLASTISOL INKS

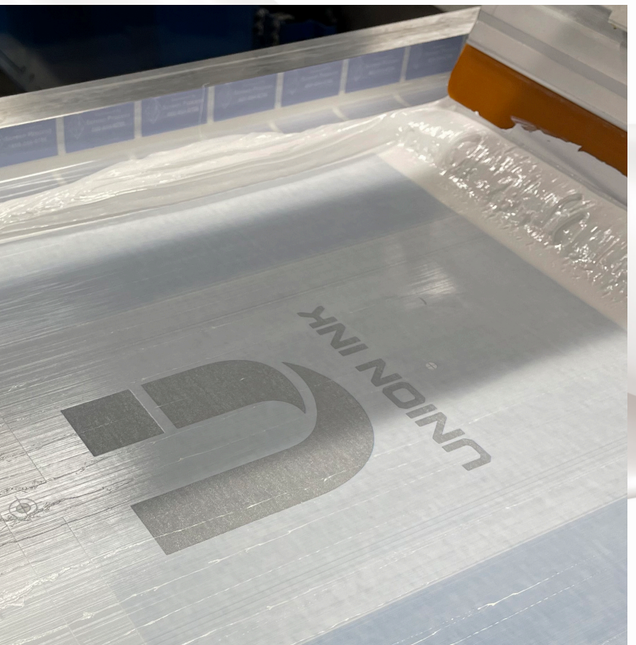
Cotton White Inks

- **Lunar White (PADE1040)** is an easy printing, satin hand finish ink that provides excellent coverage and mat down on dark garments.

- **Bright Cotton White (PADE1027)** is a creamy, medium-to-low gloss ink that can be used as an underbase, standalone, or highlight white on 100% cotton garments.

- **UPLC Cotton White (UPLC1030)** is a high opacity, high coverage ink ideal for vector and halftones. This low tack, creamy formula allows for fine mesh printing without needing a viscosity modifier.





Poly-Cotton Blend White Inks

- **Eclipse LB White (PLHE1060)** is a satin finish, low tack formulation white ink that provides excellent bleed resistance, opacity, and coverage with great-to-excellent printability and fiber mat down.

- **Mercury LB White (PLHE1050)** is developed for maximum smoothness and higher opacity on cotton (test for potential to ghost) and poly/cotton blend fabrics.

- **Diamond White (PLHE1070)** is known for its excellent bleed resistance and coverage with a smooth hand and creamy body.

- **Brite LB White (PLHE1075)** is a cost-effective, low bleed ink that offers great coverage and a soft hand. This creamy ink offers excellent printability with great fiber mat and can be used as a highlight, underbase, or stand-alone ink.

- **UPLC LB Polar White (UPLC1073)** is a high opacity, soft, creamy, low bleed, and low cure white ink that delivers superior printability over a range of garments. UPLC LB Polar White has the opacity and brightness to perform admirably in vector stand-alone white graphics while maintaining the ability to hold detail for fine mesh halftone graphics.

Polyester White Inks

- **Premium White (ATHP1070)** is an excellent standard-cure direct print ink for controlling dye migration on 100% polyester fabrics, athletic uniforms or any other fabrics prone to dye migration. This white ink has a medium to low gloss and serves as a terrific underbase with a finish that matches Brite Cotton White and Diamond LB White.

- **UPLC Poly-White (UPLC1071)** is a low bleed, low cure white ink that produces a very soft, matte-to-low gloss finish. This ink offers terrific fiber mat down and great dye-blocking ability on a wide range of fabrics.

- **UPLC Frosty Poly-White (UPLC1076)** is a high-opacity, low bleed white ink with excellent coverage and dye-blocking abilities for a wide range of fabrics, including Polypropylene and Rayon. UPLC1076 utilizes Union Ink's innovative low cure technology to cure prints as low as 250°F (121°C).

Nylon White Inks

- **Athletic White (PATE1000)** is a high gloss ink with superior stretch created specifically for nylon and tightly woven fabrics. This ink has good opacity and hand, great coverage, fiber mat down, and good to great printability. Athletic White has a medium body and tack that achieves excellent adhesion on nylon, nylon/Lycra®, and spandex. This is a cost-effective, high-gloss option when printing dye-stable sports uniform fabrics.

Low Cure White Plastisol Inks

- Inks and additives in Avient Specialty Inks' Reduced Energy Use portfolio are attributed to reducing energy consumption compared to traditional alternatives. Reduced energy use is typically associated with faster cycle times, decreased carbon emissions, and lower energy costs.

  Avient Specialty Inks offers a variety of low, or flexible, cure inks that not only reduce energy consumption but also minimize dye migration and prevent shrinkage of heat-sensitive fabrics. These inks cure at temperatures as low as 250°F (121°C), as opposed to the standard 320°F (160°C) cure temperature of standard inks.

- **UPLC Cotton White, UPLC LB Polar White, UPLC Poly White** and **UPLC Frosty Poly White** are classified as low cure inks due to their reduced energy use capabilities.

Sustainability Spotlight

Reduced Energy Use

WHITE PLASTISOL INKS

CATEGORY	COTTON WHITE INKS			POLY-COTTON BLEND WHITE INKS					POLYESTER WHITE INKS			NYLON WHITE INKS
Product Name	**Lunar White**	**Bright Cotton White**	**UPLC Cotton White**	**Eclipse LB White**	**Mercury LB White**	**Diamond White**	**Brite LB White**	**UPLC LB Polar White**	**Premium White**	**UPLC Poly-White**	**UPLC Frosty Poly-White**	**Athletic White**
Code	PADE1040	PADE1027	UPLC1030	PLHE1060	PLHE1050	PLHE1070	PLHE1075	UPLC1073	ATHP1070	UPLC1071	UPLC1076	PATE1000
Plastisol type	Standard cure	Standard cure	Flexible cure	Standard cure	Standard cure	Standard cure	Standard cure	Flexible cure	Standard cure	Flexible cure	Flexible cure	Standard cure
Colors	White	White	White	White	White	White	White	White	White	White	White	White
SUBSTRATES												
Cotton	Excellent	Excellent	Excellent	Good (1)	Good (1)	Good (1)	Good (1)	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended
Cotton/Polyester	Not recommended	Not recommended	Good (3)	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Not recommended
100% Polyester	Not recommended	Not recommended	Good (3)	Good (2)	Good (2)	Good (2)	Good (2)	Good (3)	Excellent (2)	Excellent (3)	Excellent (3)	Not recommended
Athletic Nylon Mesh	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Excellent
Tightly Woven Denier Cloths	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Catalyst required	Excellent(4)
PROPERTIES AND PERFORMANCE												
Opacity	Good	Good	Best	Best	Good	Best	Better	Best	Best	Best	Best	Best
Bleed Resistance	N/A	N/A	N/A	Best	Better	Best	Good	Best	Best	Best	Best	Best
Hand	Good	Better	Better	Better	Better	Better	Best	Best	Better	Best	Better	Best
Wet-on-Wet Capability	No	No	No	No	No	No	No	No	No	No	No	No
APPLICATION												
Mesh	86–230t/in	110–200t/in	86–305 t/in	86–230t/in	86–230t/in	86–156t/in	86–156t/in	86–305 t/in	110–156t/in	86–230t/in	86–156t/in	110–156t/in
Flash	Pre-heat pallets ~ 140°F (60°C)	Pre-heat pallets ~ 140°F (60°C)	220°F (104°C)	Pre-heat pallets ~ 140°F (60°C)	Pre-heat pallets ~ 140°F (60°C)	Pre-heat pallets ~ 140°F (60°C)	Pre-heat pallets ~ 140°F (60°C)	220°F (104°C)	Pre-heat pallets ~ 140°F (60°C)	150°F (66°C)	150°F (66°C)	Pre-heat pallets ~ 140°F (60°C)
Stencil	Direct or capillary	Direct or capillary	Direct	Direct or capillary	Direct or capillary	Direct or capillary	Direct or capillary	Direct	Direct or capillary	Direct	Direct	Direct or capillary
Cure Temperature	320°F (160°C)	320°F (160°C)	270–320°F (132–160°C)	320°F (160°C)	320°F (160°C)	300–320°F (149–160°C)	300°F (149°C)	270–320°F (132–160°C)	300°F (149°C)	250–320°F (121–160°C)	250–320°F (121–160°C)	300°F (149°C)
Wash	Plastisol screen wash	Plastisol screen wash	Non-phthalate press wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Non-phthalate press wash	Non-phthalate press wash	Non-phthalate press wash	Non-phthalate press wash	Non-phthalate press wash
ADDITIVES												
Viscosity Reducer	K2910 Viscosity Buster	K2910 Viscosity Buster	K2912 Viscosity Buster LC	K2910 Viscosity Buster	K2910 Viscosity Buster	K2910 Viscosity Buster	K2910 Viscosity Buster	K2912 Viscosity Buster LC	K2910 Viscosity Buster	K2912 Viscosity Buster LC	K2912 Viscosity Buster LC	K2910 Viscosity Buster
Bonding Agent	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst
Extender	K2922 Soft Hand Clear/K2920 Finesse	K2922 Soft Hand Clear/K2920 Finesse	UPLC9090 Unimix Extender Base	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended

(1) Perform all tests to avoid ghosting in cotton fabrics
(2) For challenging fabrics a bleed blocking underbase such as ATHP1500 Poly Low Bleed Gray is required
(3) For challenging fabrics a bleed blocking underbase such as UPLC Sport Victory Barrier Grey is required
(4) Requires the addition of K2940 Hugger Catalyst

STANDARD COLOR INKS

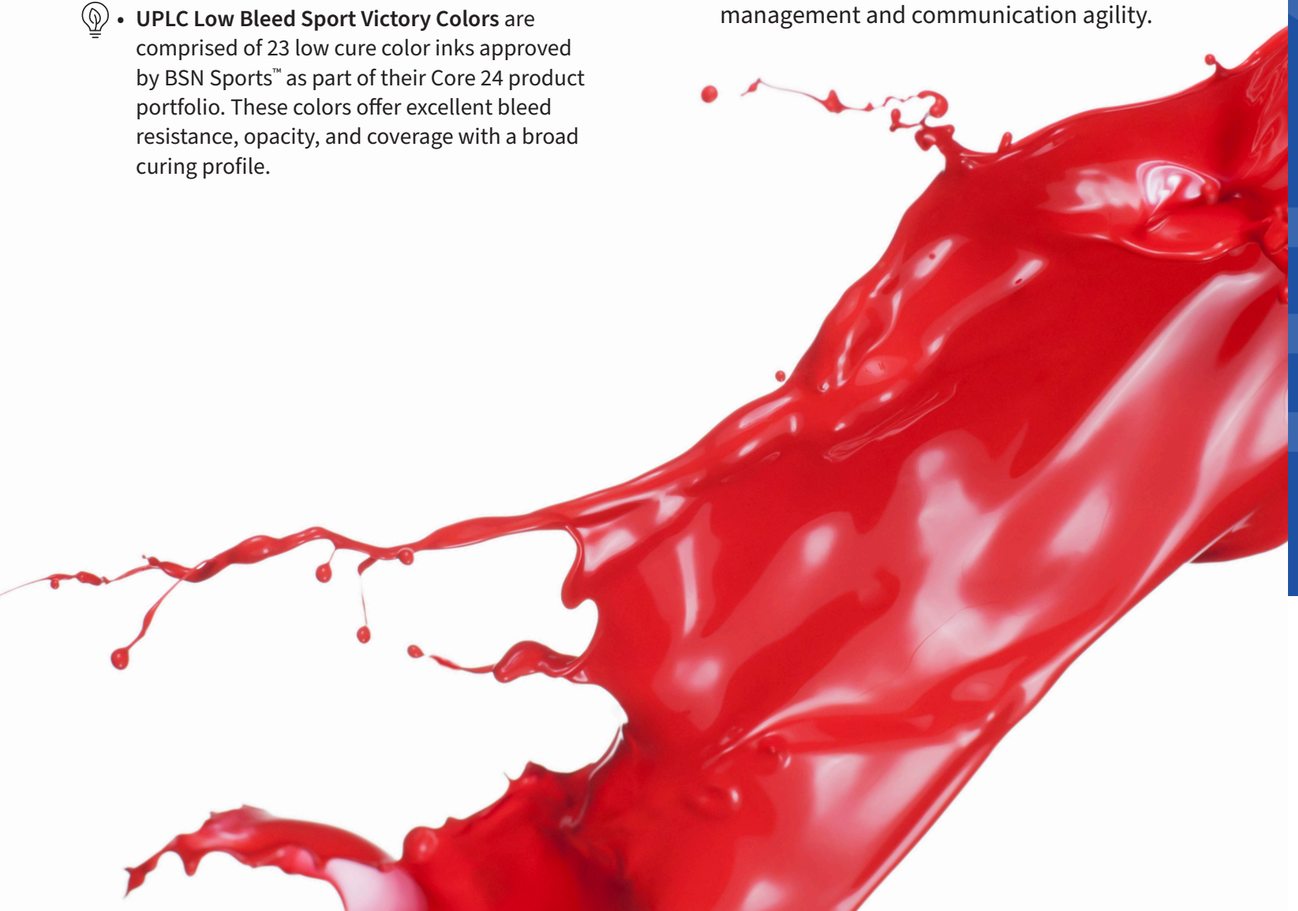
Standard Colors

- **Athletic Black (PATE8000)** is a press-ready black ink developed for high abrasion resistance on nylon fabrics. This ink is very stretchy with a high gloss.
- **Ultrasoft (PLUE)** inks are developed to give vibrant prints a soft feel on light colors or with an underbase.
- **Maxopake (PADE)** is the highest opacity ink series offered by Union Ink. These standard colors offer a limited variety of bleed-resistant formulations for cotton/polyester blends.
- **UPLC Low Bleed Colors** are flexible cure colors inks for 100% polyester athletic uniforms. These colors offer excellent bleed resistance and stretch.
- **UPLC Low Bleed Sport Victory Colors** are comprised of 23 low cure color inks approved by BSN Sports™ as part of their Core 24 product portfolio. These colors offer excellent bleed resistance, opacity, and coverage with a broad curing profile.

Color Matching System

- **Mixopake (MIXE) color matching system** is a versatile, easy-to-print, high-opacity finished ink mixing system intended for simulating Pantone® colors on colored garments.
- **UPLC Unimix** is a flexible cure finished ink mixing system that produces Pantone®-simulated colors. UPLC Unimix contains 15 versatile components that create highly opaque, bright colors.

Union Ink mixing inks are available on IMS 3.0, a proprietary color formulation software from Avient Specialty Inks. Offering tools for color creation and standardizing, IMS manages daily maneuvers in a highly functional ink room by providing color management and communication agility.



Low Cure Standard Color Plastisol Inks

- Inks and additives in Avient Specialty Inks' Reduced Energy Use portfolio are attributed to reducing energy consumption compared to traditional alternatives. Reduced energy use is typically associated with faster cycle times, decreased carbon emissions, and lower energy costs.

  Avient Specialty Inks offers a variety of low, or flexible, cure inks that not only reduce energy consumption but also minimize dye migration and prevent shrinkage of heat-sensitive fabrics. These inks cure at temperatures as low as 250°F (121°C), as opposed to the standard 320°F (160°C) cure temperature of standard inks.

- **UPLC Low Bleed Sport Victory Colors** and **UPLC Unimix Colors** are classified as low cure inks due to their reduced energy use capabilities.

Sustainability Spotlight

Reduced Energy Use

Standard Color Inks

CATEGORY	STANDARD COLORS					MIXING SYSTEMS	
Product Name	**Athletic Black**	**Ultrasoft**	**Maxopake**	**UPLC Low Bleed Colors**	**UPLC LB Sport Victory Colors**	**Mixopake**	**UPLC Unimix**
Code	PATE8000	PLUE	PADE	UPLC LB	UPLC	MIXE	UPLC Unimix
Plastisol type	Standard cure	Standard cure	Standard cure	Flexible cure	Flexible cure	Standard cure	Flexible cure
Colors	Black	27 standard, 4 fluorescents	25 standard colors, 5 fluorescents	30 colors	23 BSN Sports™ colors	15 standard ready-for-use colors, 8 neon ready-for-use colors	11 standard ready-for-use colors, 4 neon ready-for-use colors
SUBSTRATES							
Cotton	Not recommended	Excellent for light or dark colors with an underbase	Excellent for dark colors or light colors extended	Not recommended	Not recommended	Excellent for dark colors or light colors extended	Excellent for dark colors or light colors extended
Cotton/Polyester	Not recommended	Good (1)	Good (1)	Excellent	Excellent	Good (1)	Good (3)
100% Polyester	Good (1)	Good (1)	Good (1)	Excellent (3)	Excellent (3)	Good (1)	Good (3)
Athletic Nylon Mesh	Excellent	Good (2)	Good (2)	Excellent (2)	Excellent (2)	Good (2)	Catalyst required
Tightly Woven Denier Cloths	Excellent (2)	Excellent (2)	Excellent (2)	Excellent (2)	Excellent (2)	Excellent (2)	Catalyst required
PROPERTIES AND PERFORMANCE							
Opacity	Moderately high	Moderate	High	High	High	High	High
Bleed Resistance	Not neccessary for black inks	Dependent on color	Dependent on color, good with low bleed color	High	High	None	None
Hand	Good	Excellent	Only with soft hand additive	Good	Good	Only with soft hand additive	Better
Wet-on-Wet Capability	Fair, not recommended	Good	Only with soft hand additive	No	No	Only with soft hand additive	Excellent
APPLICATION							
Mesh	86–110t/in	86–305t/in	60–230t/in	83–230t/in	86–230t/in	60–230t/in	110–305 t/in
Flash	140°F (60°C)	140°F (60°C)	140°F (60°C)	150°F (66°C)	150°F (66°C)	140°F (60°C)	220°F (105°C)
Stencil	Direct or capillary	Direct or capillary	Direct or capillary	Direct	Direct	Direct or capillary	Direct
Cure Temperature	300°F (149°C)	300°F (149°C)	300°F (149°C)	250–300°F (121–149°C)	250–300°F (121–149°C)	300°F (149°C)	270–320°F (132–160°C)
Wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Non-phthalate press wash	Non-phthalate press wash	Plastisol screen wash	Non-phthalate press wash
ADDITIVES							
Viscosity Reducer	K2910 Viscosity Buster	K2910 Viscosity Buster	K2910 Viscosity Buster	K2912 Viscosity Buster LC	K2912 Viscosity Buster LC	K2910 Viscosity Buster	K2912 Viscosity Buster LC
Bonding Agent	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst	K2940 Hugger Catalyst
Extender	Not recommended	K2922 Soft Hand Clear/ K2920 Finesse	K2922 Soft Hand Clear/ K2920 Finesse/MIXE9090 Mixopake Extender Base	Not recommended	Not recommended	MIXE9090 Mixopake Extender Base	UPLC9090 Unimix Extender Base

(1) For challenging fabrics a bleed blocking underbase such as ATHP1500 Poly Low Bleed Gray is required
(2) Requires the addition of K2940 Hugger Catalyst
(3) For challenging fabrics a bleed blocking underbase such as UPLC Sport Victory Barrier Grey is required

BLEED BLOCKERS AND TRANSFER INKS

Bleed Blockers

- **Low Bleed Barrier Grey (PLHE1500)** is a dye-blocking underbase for difficult fabrics. This bleed blocker is a non-phthalate, low tack formulation for fast shearing action.
- **UPLC LB Victory Color-Stay Grey** (UPLC1552)is low-bleed ink that cures prints as low as 270°F (132°C) when printing on poly blends or 100% polyester garments. UPLC color inks can be printed on top of UPLC1552 as an over-print.
- **UPLC LB Sport Victory Barrier Grey (UPLC1555)** is a flexible cure, dye-blocking underbase with excellent bleed resistance and a creamy body.

Transfer Inks

- **Flash Trans Adhesive (FLTRE9080)** is created for use with the reflective transfer system utilizing 3M™ Scotchlite™ Reflective Material. This transfer system requires 4–6% by weight of FLTRE9120 Flash Trans Coupler agent.
- **Printable Adhesive (PLAE9080)** is a screen printable adhesive for foil and heat transferable applications.
- **Hot Split Additive (PLUE9040)** can be added to any standard plastisol for heat transfer printing.
- **Union Transfer Powder (ULON2027)** is a general-purpose, dry adhesive added to heat transfer prior to heat transferring.

Low Cure Bases

- Inks and additives in Avient Specialty Inks' Reduced Energy Use portfolio are attributed to reducing energy consumption compared to traditional alternatives. Reduced energy use is typically associated with faster cycle times, decreased carbon emissions, and lower energy costs.

  Avient Specialty Inks offers a variety of low, or flexible, cure inks that not only reduce energy consumption but also minimize dye migration and prevent shrinkage of heat-sensitive fabrics. These inks cure at temperatures as low as 250°F (121°C), as opposed to the standard 320°F (160°C) cure temperature of standard inks.

- **UPLC LB Sport Victory Barrier Grey** is classified as a low cure ink due to its reduced energy use capabilities.

Sustainability Spotlight

Reduced Energy Use

BLEED BLOCKERS AND TRANSFER INKS

CATEGORY	BLEED BLOCKERS			TRANSFER SYSTEMS			
Product Name	Low Bleed Barrier Grey	UPLC LB Victory Color-Stay Grey	UPLC LB Sport Victory Barrier Grey	Flash Trans Adhesive	Printable Adhesive	Hot Split Additive	Union Transfer Powder
Code	PLHE1500	UPLC1552	UPLC1555	FLTRE9080	PLAE9080	PLUE9040	ULON2027
SUBSTRATES							
Cotton	Not recommended	Not recommended	Not recommended	Good–Excellent	Good–Excellent	Good–Excellent	Good–Excellent
Cotton/Polyester	Excellent	Good	Excellent	Good–Excellent	Good–Excellent	Good–Excellent	Good–Excellent
100% Polyester	Excellent	Good	Excellent	Good	Good	Good	Good
Athletic Nylon Mesh	Not recommended	Not recommended	Not recommended	Good–Excellent	Good–Excellent	Good–Excellent	Good–Excellent
Tightly Woven Denier Cloths	Not recommended	Not recommended	Not recommended	Good–Excellent	Good–Excellent	Good–Excellent	Good–Excellent
PROPERTIES AND PERFORMANCE							
Opacity	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bleed Resistance	Excellent	Good	Excellent	N/A	N/A	N/A	N/A
Hand	N/A	N/A	N/A	N/A	Good - Great	N/A	N/A
Wet-on-Wet Capability	No	No	No	No	No	No	N/A
APPLICATION							
Mesh	74–86t/in	86–110t/in	86–110t/in	110–156t/in	80–110t/in	N/A	N/A
Flash	120°F (49°C)	120°F (49°C)	120°F (49°C)	150°F (66°C)	300°F (149°C)	N/A	N/A
Stencil	Direct	Direct	Direct	Direct	Direct	Direct	N/A
Cure Temperature	320°F (160°C)	270–320°F (132–160°C)	250–320°F (121–160°C)	300°F (149°C)	300°F (149°C)	N/A	320°F (160°C)
Wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash	Plastisol screen wash
ADDITIVES							
Viscosity Reducer	K2910 Viscosity Buster	K2912 Viscosity Buster LC	K2912 Viscosity Buster LC	N/A	N/A	N/A	N/A
Bonding Agent	Not recommended	Not recommended	Not recommended	N/A	N/A	N/A	N/A
Extender	Not recommended	Not recommended	Not recommended	N/A	N/A	N/A	N/A

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