

PowerPrint[®] Banner 1900 UV Screen Ink has been formulated to excel in performance for indoor and outdoor Point of Purchase display and banner printing. PowerPrint[®] Banner 1900 features: low UV output required for curing, good flexibility, and extremely high block resistance.

SUBSTRATES Vinyl banner, treated polyethylene banner, most static cling, pressure sensitive vinyl and styrene
The surface tension for polyethylene substrates should be at or above 44 dynes/cm

USER INFORMATION

While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. See full disclaimer at the end of the document.

MESH 355-420 tpi (140-165 tpcm) monofilament polyester mesh for most applications

STENCIL Solvent resistant, UV ink compatible direct emulsions and capillary films

SQUEEGEE 70-90 durometer polyurethane squeegee

COVERAGE 3,000 - 3,600 square feet (278 - 335 square meters) per gallon depending upon ink deposit

PRINTING 1900 Series ink is formulated to be press ready. Thoroughly mix the ink prior to printing. Maintain ink temperature at 65°-90°F (18°-32°C) for optimum print and cure performance. Lower temperatures increase the ink viscosity, impairing both flow and cure. Elevated temperatures lower the ink viscosity, reducing print definition, film thickness and opacity. Pretest to determine optimum printing performance for a particular set of ink, substrate, screen, press, and curing variables/conditions.
The inks can be affected by stray UV light in and around a printing facility. Be aware of skylights, windows and overhead lights curing the ink in the screen. Light filters are recommended. Leaving a container uncovered may result in the ink's surface forming a "skin," caused by reaction with ambient lighting. Keep containers covered.
Static Cling Applications:
Multiple layers of 1950 Barrier White are not recommended for the production of 2-sided graphics on static cling; substitute with the 3950 Barrier White to inter-print with 1900 series colors.

CURE PARAMETERS 1900 Series ink cures when exposed to a medium pressure mercury vapor lamp set at 200 watts per inch with millijoules (mJ) and milliwatts (mW) of:
90 - 140 mJ/cm² @ 600+ mW/cm²
These guidelines are intended only as a starting point for determining cure parameters, which must be determined under actual production conditions.
"Undercuring" the ink may result in poor adhesion, poor block resistance, and higher residual odor. "Overcuring" the ink may reduce the flexibility of the printed part, and adhesion of subsequent ink layers.
To increase mJ levels, slow down the belt speed or scan speed. To increase mW levels, increase the wattage setting of the UV reactor. To optimize mJ and mW output, maintain the bulb and reflector condition and focus to the substrate.
The values mentioned above are representative of measurements taken using an EIT UVICURE Plus radiometer measuring the UVA bandwidth (320-390 nm). To obtain accurate readings with the UVICURE Plus, reduce the belt speed to less than 40 ft/min.

**CLEARs /
VARNISHES**

Mixing Clear: Use 1926 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics.

Overprint Clear: Use 1927 Overprint Clear to provide added surface protection and to extend the weatherability and outdoor durability.

ADDITIVES

All additives should be thoroughly mixed into the ink. Prior to production, test any additive adjustment.

Reducer: Use RE310 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight.

Adhesion Promoter: Use NB80 UV Adhesion Promoter to increase adhesion on lower grade or aged substrates and to provide adhesion to treated polypropylene corrugated (fluted) plastic. Add up to 5% by weight. Improved adhesion will be demonstrated after 24 hours. Ink mixed with NB80 UV Adhesion Promoter has a 6-12 hour pot life.

Flexibilizer: Use RE308 UV Reducer to increase the flexibility of these inks. Add up to 10% by weight. The addition of RE308 UV Reducer may decrease block resistance.

CLEAN UP

Screen Wash (Prior to Reclaim): Use IMS203 Economy Graphic Screen Wash or IMS207C Graphic Recirculating Wash.

Press Wash (On Press): Use IMS301 Premium Graphic Press Wash

STORAGE

Store tightly covered at temperatures between 65°-90°F (18°-32°C). Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink.

PROCESSING

Finishing: Pre-qualify any finishing processes before full scale production.

Blocking: 1900 Series ink is intended to resist blocking for 1 and 2-sided printing when properly cured.

GENERAL INFORMATION

INK HANDLING

Wear gloves and barrier cream to prevent direct skin contact. Safety glasses are suggested in areas where ink may be splashed. If ink does come in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent or reducer). Wash the affected area with soap and water. Consult the 1900 Material Safety Data Sheet for further instructions and warnings.

1900 Series ink is a one-part, 100% solids UV-curable screen printing ink and does not contain N-vinyl-2-pyrrolidone (trade name V-Pyrol[®]).

**ADHESION
TESTING**

Even when recommended UV energy output levels are achieved, it is imperative to check adhesion on a **cooled down** print:

1. Touch of ink surface – the ink surface should be smooth and dry.
2. Thumb twist – the ink surface should not mar or smudge.
3. Scratch surface – the ink surface should resist scratching. Some vinyls scratch easily, so use magnification to determine if scratches are ink only or ink and top layer of substrate.
4. Cross hatch tape test – use a cross hatch tool or a sharp knife to cut through ink film only; then apply 3M #600 clear tape on cut area, rub down, wait for 1 minute and rip off at a 180 degree angle. Ink should only come off in actual cut areas.

Full adhesion characteristics are demonstrated within 4 hours after cure.

**WEATHERING /
OUTDOOR
DURABILITY**

At full strength and properly cured, 1900 Series colors are formulated to provide 2 years outdoor durability when mounted vertically in the Central U.S.A. The use of 1927 Overprint Clear increases the projected outdoor durability.

Outdoor durability cannot be specified exactly. Slight color change and loss of gloss should be expected. Variables affecting a printed part's durability include:

- Ink film thickness and degree of curing
- Color formulation:
 - Adding large amounts of mixing clear or white to any color
 - Mixing several colors to achieve a specific color
 - Mixing a small quantity of any single color with any other color
- Substrate type and age
- Mounting angle or directional orientation
- Geographical location
- Air pollution and exposure to excessive abrasion (for example, brush car washes)
- Non-clear coated prints exhibit more color change and loss of gloss

Exceptions: 1900 EC (Economy) Halftones have a projected 6 months outdoor durability.

PRODUCT OFFERING

**STANDARD
PRINTING
COLORS**

Standard Printing Colors have excellent opacity and flow characteristics. These colors are intended to work well from the container.

**PANTONE
MATCHING
SYSTEM[®]
BASE COLORS**

Pantone Matching System[®] Base Colors are used to simulate the Pantone[®] Formulation Guide. These inks are press ready, can be used in matches to achieve Pantone[®] color simulations, or let down with mixing clear. ColorStar[®] Color Management System software uses Pantone Matching System[®] Base Colors to blend and match Pantone colors. These blend formulations are also available at www.nazdar.com.

360 Series Colors: 19360-19369 colors are formulated to have no white or opaque pigments. This allows the colors to be more vibrant and allows for a better match of intense and darker colors. All white needed to match a color is added as the 19358 Tinting White.

**HALFTONE
COLORS**

Halftone Extender Base is used to reduce the density of any of the halftone colors.

Standard Halftone Colors are formulated with hues and densities matched to the high end of the SWOP standards.

Dense Halftone Colors are formulated with increased densities over the Standard Halftone densities and are designed for printers that want to have the latitude to adjust the density levels of their halftone inks.

High Intensity Halftone Black functions as a dense halftone and line color in a single pass.

Medium Tack Rheology (MTR) Halftones achieve processing speeds for flatbed, clam shell and most in-line presses while maintaining dot quality with reduced dot pile.

EC (Economy) Halftones are indoor/short-term outdoor colors closely matching the long-term, durable counterpart.

**PANTONE[®]
871c - 877c
METALLIC
COLORS**

Pantone[®] 871c to 877c colors have been matched in 1900 Series ink using pearlescent pigments. When printed on a white background, a gold or silver metallic effect is achieved. A 305 tpi (120 tpcm) monofilament polyester mesh is recommended for printing these colors. These colors are Special Order items.

**FLUORESCENT
COLORS**

1900 Series ink is inter-printable with the one-part PowerPrint[®] Fluorescent colors. Refer to the PowerPrint[®] Fluorescent technical data sheet for item numbers, substrate range, and processing information.

**SPECIAL
ADDITIVES**

When inks are to be printed over a special effect color, the overprinting ink(s) must be evaluated for intercoat adhesion before proceeding with the production run. To maximize intercoat adhesion, specialty colors should be printed as late as possible in the print sequence. Pigments may settle in the container; prior to printing, thoroughly mix the ink. The following special effect pigments may be added to 1900 Series. These pigments are available in 1-pound containers. Contact Nazdar for the item number(s) and availability of special effect products.

Metallics: Silver (aluminum) - Add up to 8% by weight, Gold (bronze) - add up to 15% by weight. Mix only enough metallic ink to be used the same day. Chemical reactions in metallic inks may result in viscosity, color and printability changes over time.

Pearlescents / Interference / Multi-Chromatic: Pearlescent and Interference pigments - add up to 20% by weight, Multi-Chromatic pigments - add up to 10% by weight. See the Pearlescent, Interference, and Multi-Chromatic Technical Data Sheets for more information.

**COLOR CARD
MATERIALS**

The following is a list of screen printed samples available.

UV Color Card (CARDUV): shows the Standard Printing Colors, Pantone Matching System[®] Base Colors, Halftone Colors

Special Effects Color Card (CARDSPL): shows Metallic, pearlescent, Interference, and Multi-Chromatic effects mixed with clear

Non-Metallic Pantone[®] Simulations sheet (LIT0121): shows representations of the 871c to 877c Pantone[®] metallic color matches using pearlescent pigments

**PACKAGING /
AVAILABILITY**

All items listed below are inventoried items and available in gallon containers.

Item Number	Standard Printing Colors	Item Number	Standard Printing Colors
1910	Primrose Yellow	1952	Super Opaque Black
1911	Lemon Yellow	1967	Reflex Blue
1912	Medium Yellow	1968	Process Blue
1919	Fire Red	1975	Super Opaque White
1926	Mixing Clear	1978	High Intensity White
1927	Overprint Clear	1979	High Intensity Black
1950	Barrier White		

Item Number	Pantone Matching System [®] Base Colors	Item Number	Standard/Dense MTR Halftone Colors (MTR: Medium Tack Rheology)
19358	Tinting White	19140	Halftone Extender Base (MTR)
19359	Tinting Black	19141	Halftone Cyan (MTR)
19360	Orange	19142	Halftone Magenta (MTR)
19361	Yellow	19143	Halftone Yellow (MTR)
19362	Warm Red	19144	Halftone Black (MTR)
19363	Rubine Red	19151	Halftone Cyan Dense (MTR)
19364	Rhodamine Red	19152	Halftone Magenta Dense (MTR)
19365	Purple	19153	Halftone Yellow Dense (MTR)
19366	Violet	19154	Halftone Black Dense (MTR)
19367	Reflex Blue	19156	Halftone High Intensity Black (MTR)
19368	Process Blue		
19369	Green		

PACKAGING / AVAILABILITY

Special order colors: all items listed below are non-inventoried items and may require additional lead time. These items are available in gallon containers.

Item Number	Standard Printing Colors	Item Number	Pantone [®] 871c - 877c Metallic Colors
1913	Emerald Green	68880619	SPL 19 871C Pearl Gold
1920	Brilliant Orange	68880719	SPL 19 872C Pearl Gold
Item Number	Standard/Dense MTR Halftone Colors (MTR: Medium Tack Rheology)	68880819	SPL 19 873C Pearl Gold
19EC142	<i>Economy</i> Halftone Magenta (MTR)	68880919	SPL 19 874C Pearl Gold
19EC143	<i>Economy</i> Halftone Yellow (MTR)	68881019	SPL 19 875C Pearl Gold
19EC152	<i>Economy</i> Halftone Magenta Dense (MTR)	68881119	SPL 19 876C Pearl Gold
19EC153	<i>Economy</i> Halftone Yellow Dense (MTR)	68881219	SPL 19 877C Pearl Silver
19155	Halftone Yellow Dense RS (MTR)		

PACKAGING / AVAILABILITY

All items listed below are inventoried items. Additives/Reducers are available in quart and gallon containers. Cleaners are available in gallon, 5 gallon, and 55 gallon containers.

Stock Number	Additives/Reducers	Stock Number	Clean Up
RE308	UV Reducer	IMS203	Economy Graphic Screen Wash
RE310	UV Reducer	IMS207C	Graphic Recirculating Wash
NB80	UV Adhesion Promoter (quarts only)	IMS301	Premium Graphic Press Wash

Nazdar[®] stands behind the quality of this product. Nazdar[®] cannot, however, guarantee the finished results because Nazdar[®] exercises no control over individual operating conditions and production procedures. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Users are also responsible for testing to determine that our product will perform as expected during the printed item's entire life-cycle from printing, post-print processing, and shipment to end-use. This product has been specially

formulated for screen printing, and it has not been tested for application by any other method. Any liability associated with the use of this product is limited to the value of the product purchased from Nazdar[®].

Based on information from our raw material suppliers, these products are formulated to contain less than 0.06% lead. If exact heavy metal content is required, independent lab analysis is recommended.

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