

Nazdar 3900 UV Screen Ink Series

3900 Series UV Flexible Banner Screen Ink has been formulated specifically for indoor and outdoor vinyl banner applications requiring an ink film flexible enough to accommodate folding, sewing, and grommeting, while being block resistant when banners are stacked ink to ink. This ink will work well for cling vinyl applications that require extreme flexibility and the intercoat adhesion properties necessary for printing double sided window decals. 3900 Series has been designed to adhere to highly plasticized vinyls.

Substrates

Vinyl banner (PVC)
Static Cling (PVC)
Low tack vinyl (PVC)
Flexible vinyl (PVC)

Substrate recommendations are based on commonly available materials intended for the ink's specific market when the inks are processed according to this technical data. 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. Reference the 'Quality Statement' at the end of this document.

Mesh

355-420 tpi (140-165 tpcm) with a mesh opening of 22-38 um monofilament polyester mesh for most applications.

305-355 tpi (120-140 tpcm) with a mesh opening of 50 um or more monofilament polyester can be used for specialty applications (i.e. pearlescents, aluminums, etc.).

Coarser mesh counts and/or twill weave result in heavier ink deposit requiring additional cure output.

Stencil

Use direct emulsions and capillary films which are solvent resistant and UV compatible.

Squeegee

70-90 durometer polyurethane squeegee.

Coverage

Depending upon ink deposit, the estimated coverage per gallon: 2,000 – 3,500 square feet (185 - 325 square meters)
Reference www.nazdar.com/en-us/ColorStar for examples of coverage calculations.

Screen Printing

Standard items are formulated to be press ready. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent color and ink performance.

Maintain ink temperature at 65°-90°F (18°-32°C) for optimum print and cure performance. Lower temperatures increase the ink viscosity, impairing flow and increasing film thickness. Elevated temperatures lower the ink viscosity, reducing print definition and film thickness.

Pretest to determine optimum printing parameters for a particular set of ink, substrate, screen, press, and curing variables/conditions.

The ink can be affected by stray UV light. 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.

Nazdar does not recommend inter-mixing this ink series with other inks or series.

Cure Parameters

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, lower block resistance, reduced durability, and higher residual odor. "Overcuring" the ink may reduce the flexibility of the printed part and adhesion of subsequent ink layers.

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Mercury Vapor UV Curing: Standard ink cures when exposed to a single medium pressure mercury vapor lamp emitting output millijoules (mJ) and milliwatts (mW) of:
150-180 mJ/cm² @ 600+ mW/cm²

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, and ensure proper focus to the substrate.

These guidelines are representative of measurements taken using an EIT® UVICURE® Plus radiometer measuring the UVA bandwidth (320-390 nm). To obtain accurate mJ readings with the UVICURE® Plus, reduce the belt speed to less than 40 ft/min.

Processing

Finishing: The adhesion and flexibility benefits of 3900 Series ink allow for folding, sewing, and grommeting without the risk of cracking or chipping print designs.

Adhesion Testing

When recommended UV energy output levels are achieved, checking the degree of cure on a **cooled down** print is imperative:

- Touch of ink surface – the ink surface should be smooth.
- Thumb twist – the ink surface should not mar or smudge.
- Scratch surface – the ink surface should resist scratching.
- Cross hatch tape test – per the ASTM D-3359 method, 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, and rip off at a 180 degree angle. Ink should only come off in actual cut areas.

Full adhesion characteristics at proper cure levels are demonstrated within: 4 hours

Cleanup

For screen cleaning, similar products to those listed below may be used.

Screen Wash (Prior to Reclaim): Use IMS201 Premium Graphic Screen Wash or IMS203 Economy Graphic Screen Wash
Press Wash (On Press): Use IMS301 Premium Graphic Press Wash

Ink Modifications

Clears / Varnishes

Mixing Clear: use to reduce the density of colors.

Overprint Clear: use to provide added surface protection and increase durability.

Additives

The market specific performance properties of this ink series / ink item should be acceptable for most applications without the need for additives. When required, any additives should be thoroughly mixed before each use. Prior to production, test any additive adjustment to the ink. Inks containing additives should not be mixed with other inks.

Example for additives: Ink at 100g with 8% of an additive is calculated as: 100g ink + 8g additive = 108g total

Reducer / Thinner

Use the following item(s) to reduce the viscosity of these inks. Over reduction can reduce print definition, film thickness and adversely affect cure.

RE309 UV Reducer: add up to 10%.

Gloss / Flattening Powders / Improved Slip

Use to reduce gloss and improve slip.

CARE118 Satin Paste add up to 10% and should be power mixed into the ink.

General Information

Handling

Refer to the SDS for recommendations on handling.

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Wear gloves and barrier cream to prevent direct skin contact. Safety glasses are suggested in areas where ink may be splashed. If product 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 applicable Safety Data Sheet (SDS / MSDS) for further instructions and warnings.

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

For assistance on a wide range of important regulatory issues, consult the following Regulatory Compliance Department link at <http://www.nazdar.com> or contact Nazdar Ink Technologies - World Headquarters (see contact listing at the end of this document).

Storage / Shelf Life

Store closed containers at temperatures between 65°-78°F (18°-25°C). Storing products outside of these recommendations may shorten their shelf life.

Standard items supplied in 1-gallon (4/5 kilo) containers or smaller. Useable for a period of at least **24 months** from the date of manufacture.

Shelf life above applies to the standard ink items listed on this TDS. To obtain the shelf life for special inks and additives, contact Nazdar Customer Service or Nazdar Technical Service. See contact listing at the end of this document.

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 common to the graphic industry.

Dense Halftone Colors are formulated with increased densities over the Standard Halftone colors and are designed for printers who want to have the latitude to adjust the density levels.

Standard Printing Colors

Standard Printing Colors have excellent opacity and flow characteristics. These colors are intended to work as supplied.

Pantone Base Colors

Pantone Matching System Base Colors are used to simulate the Pantone® Formulation Guide when printed on a white substrate. 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 match Pantone colors. Blend formulations are also available at www.nazdar.com using ColorStar On-Line.

60 Series Colors: 61-69 colors have a high pigment concentration. These colors are formulated to have some white pigment or opaque pigment to increase opacity.

Special Effect Pigments

When inks are to be printed with a special effect color, all ink layers 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 the ink. Contact Nazdar for the item number(s) and availability of special effect products or they can be found at www.nazdar.com.

Metallic Silver (aluminum), add up to: 8%

Metallic Gold (bronze), add up to: 15%

Chemical reactions in metallic inks may result in viscosity, color and printability changes over time; due to this, mix only enough metallic ink to be used the same day.

Pearlescent / Interference, add up to: 20%

Multi-Chromatic, add up to: 10%

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Color Card Materials

The following is a list of available literature representing this ink series.

- UV Color Card (CARDUV): shows the Standard Printing Colors, Pantone Matching System Base Colors, and Halftone Colors
- Special Effects Color Card (CARDSPL): shows various special effect pigments mixed with clear

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Item Type	Item Number	Item (or Color) Description
Halftone Colors	3990	Halftone Extender Base
Halftone Colors	3991	Halftone Cyan
Halftone Colors	3992	Halftone Magenta
Halftone Colors	3993	Halftone Yellow
Halftone Colors	39101	Halftone Cyan Dense
Halftone Colors	39102	Halftone Magenta Dense
Halftone Colors	39103	Halftone Yellow Dense
Halftone Colors	39104	Halftone Black Dense
Halftone Colors	39356	Halftone Black Dense
Standard Colors	3910	Primrose Yellow
Standard Colors	3911	Lemon Yellow
Standard Colors	3919	Fire Red
Standard Colors	3926	Mixing Clear
Standard Colors	3927	Overprint Clear
Standard Colors	3950	Barrier White
Standard Colors	3952	Super Opaque Black
Standard Colors	3975	Super Opaque White
Standard Colors	3978	High Intensity White
Standard Colors	3998	Bright White
Mixing Colors	3958	Tinting White
Mixing Colors	3959	Tinting Black
Mixing Colors	3961	Yellow
Mixing Colors	3962	Warm Red
Mixing Colors	3963	Rubine Red
Mixing Colors	3964	Rhodamine Red
Mixing Colors	3965	Purple
Mixing Colors	3966	Violet
Mixing Colors	3967	Reflex Blue
Mixing Colors	3968	Process Blue
Mixing Colors	3969	Green
Additives	RE309	UV Reducer
Additives	CARE118	UV Satin Paste
Cleaners	IMS201	Premium Graphic Screen Wash
Cleaners	IMS203	Economy Graphic Screen Wash
Cleaners	IMS301	Premium Graphic Press Wash

Nazdar Quality Statement

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®.

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