3900 SERIES
UV FLEXIBLE BANNER SCREEN INK

TECHNICAL DATA SHEET

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, static cling vinyl, low tack vinyl and other flexible vinyls

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	2,000 - 3,500 square feet (185 - 325 square meters) per gallon depending upon ink deposit
PRINTING	3900 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.
CURE PARAMETERS	3900 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: 150-180 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. 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 / Metallic Mixing Clear:* Use 3926 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics. *Overprint Clear:* Use 3927 Overprint Clear to provide added surface protection and to extend the durability.

ADDITIVES	All additives should be thoroughly mixed before each use. Prior to production, test any additive adjustment to the ink. *Reducer:* Use RE309 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight. *Gloss / Flattening Powders / Improved Slip:* Use CARE59 Satin Paste to reduce gloss and improve slip. Add up to 10% by weight. CARE59 Satin Paste should be power mixed into the ink.
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 a temperature 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:* The adhesion and flexibility benefits of 3900 Series ink allow for folding, sewing, and grommeting without the risk of cracking or chipping print designs.

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 3900 Material Safety Data Sheet for further instructions and warnings. 3900 Series 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 will be smooth and slick. 2. Thumb twist – the ink surface will not mar or smudge. 3. Scratch surface – the ink surface will 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.

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. The ColorStar® Color Management System software provides blend formulations using Pantone Matching System® Base Colors. These blend formulations are also available at www.nazdar.com.

60 Series Colors: 3961-3969 colors have a high pigment concentration. These colors are formulated to have some white pigment or opaque pigment in order to increase opacity.

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.

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 3900 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.

Pantone 871c to 877c have been matched in 3900 Series Ink using the Pearlescent Pigments.

COLOR CARD MATERIALS

The following is a list of screen printed samples available.

UV Color Card: shows the Standard Printing Colors, Pantone Matching System® Base Colors, Halftone Colors

Special Effects Color Card: shows Metallic, Pearlescent, Interference, and Multi-Chromatic effects mixed with clear

Non-Metallic Pantone® Simulations sheet: shows representations of the 871c to 877c Pantone® Metallic color matches using pearlescent pigments

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

Stock Number	Standard Printing Colors
3910	Primrose Yellow
3911	Lemon Yellow
3912	Medium Yellow
3919	Fire Red
3920	Brilliant Orange
3921	Peacock Blue
3926	Mixing Clear
3927	Overprint Clear
3950	Barrier White
3952	Super Opaque Black
3978	High Intensity White
3979	High Intensity Black

Stock Number	Pantone Matching System® Base Colors
3958	Tinting White
3959	Tinting Black
3961	Yellow
3962	Warm Red
3963	Rubine Red
3964	Rhodamine Red
3965	Purple
3966	Violet
3967	Reflex Blue
3968	Process Blue
3969	Green

Stock Number	Halftone Colors
3990	Halftone Extender Base
3991	Halftone Cyan
3992	Halftone Magenta
3993	Halftone Yellow
3994	Halftone Black

Stock Number	Halftone Colors
39101	Halftone Cyan Dense
39102	Halftone Magenta Dense
39103	Halftone Yellow Dense
39104	Halftone Black Dense

PACKAGING / AVAILABILTY 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
RE309	UV Reducer
CARE59	UV Satin Paste

Stock Number	Cleaners
IMS203	Economy Graphic Screen Wash
IMS207C	Graphic Recirculating Wash
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.

Nazdar Worldwide Headquarters
8501 Hedge Lane Terrace, Shawnee, KS 66227-3290 USA
Toll Free: 866.340.3579 or Tel: 913.422.1888 Fax: 913.422.2296
e-mail: custserv@nazdar.com

Nazdar Limited
Barton Road, Heaton Mersey, Stockport, England SK4 3EG
Tel: + (44) 0.161.442.2111 Fax: + (44) 0.161.442.2001
e-mail: technicalservicesuk@nazdar.com

http://www.nazdar.com