

VersaPrint® 1700 Series UV Screen Ink has been formulated to meet the processing speeds of modern printing equipment. VersaPrint® 1700 Series Ink is for Point-of-Purchase applications on a wide range of flexible banner plastics and rigid substrates for indoor and outdoor advertising.

### SUBSTRATES

Vinyl banner, treated polyethylene banner, polypropylene banner or sheeting, pressure sensitive vinyl, treated corrugated polypropylene, styrene, static cling, cardstock and paper (not recommended for container or nameplate applications)

Polypropylene and polyethylene substrates should be at or above 45 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

2,500-3,500 square feet (230 - 325 square meters) per gallon depending upon ink deposit

### PRINTING

1700 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. Due to variations in plasticized vinyl and related flexible materials, block resistance should be thoroughly tested. It may be required to slip sheet prints when stacking ink-to-ink. 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. Keep containers covered.

### CURE PARAMETERS

1700 Series ink cures when exposed to a medium pressure mercury vapor lamp set at 200-300 watts per inch with millijoules (mJ) and milliwatts (mW) of:

110-150 mJ/cm<sup>2</sup> @ 600+ mW/cm<sup>2</sup> for Halftone Colors

140-180 mJ/cm<sup>2</sup> @ 600+ mW/cm<sup>2</sup> for Standard Printing Colors and Pantone Matching System® Base Colors

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.

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.

### CLEAR / VARNISHES

Mixing Clear / Metallic Mixing Clear: Use 1726 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics and Pearlescents.

Overprint Clear: Use 1727 Overprint Clear to provide added surface protection and extend the durability of colors.

### ADDITIVES

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

Reducer: Use RE317 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight.

Adhesion Promoter: To gain additional adhesion performance to fluted polypropylenes, use NB80 UV Adhesion Promoter. Add up to 5% by weight. Improved adhesion will not be demonstrated for 24 hours, with full cross linking in 4-7 days. Ink mixed with NB80 UV Adhesion Promoter has a 4 hour pot life.

Gloss / Flattening Powders / Improved Slip: Use CARE59 Satin Paste to reduce gloss and improve slip. Add up to 20% 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 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.

## 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 1700 Material Safety Data Sheet for further instructions and warnings.

1700 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 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 and cardstocks 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 24 hours after cure.

### WEATHERING / OUTDOOR DURABILITY

At full strength and properly cured, 1700 Series colors are formulated to provide 2 years outdoor durability when mounted vertically in the Central U.S.A. The use of 1727 Overprint Clear increases the projected outdoor durability.

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
- Exposure to excessive abrasion (for example, brush car washes)
- Non-clear coated prints exhibit more color change and loss of gloss

Exceptions: 1720 Brilliant Orange and the 1700 Economy Halftones have a projected 6 months to 1 year outdoor durability. 1719 Fire Red has a projected 1 to 2 year 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. 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](http://www.nazdar.com).

360 Series Colors: 17360-17369 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 17358 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.

Yellow (RS) Halftone Colors are intended to better facilitate matching redder shades without blending Halftone Magenta into the Halftone Yellow.

High Intensity Halftone Black has been developed to function as a dense halftone and line color in a single pass.

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

Economy Magenta & Economy Yellow Colors are formulated to provide a cost effective alternative to the more durable Magenta and Yellow Halftones. The Economy Halftone Colors have a limited outdoor weatherability.

### 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 1700 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 1700 Series ink using 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

Non-Metallic Pantone® Simulations sheet: 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.

| Stock Number | Standard Printing Colors                             | Stock Number | Pantone Matching System® Base Colors                       |
|--------------|--|--------------|--|
| 1710         | Primrose Yellow                                      | 17358        | Tinting White  |
| 1711         | Lemon Yellow   | 17359        | Tinting Black  |
| 1712         | Medium Yellow  | 17360        | Orange   |
| 1713         | Emerald Green  | 17361        | Yellow   |
| 1719         | Fire Red (ref. weatherability)                       | 17362        | Warm Red   |
| 1720         | Brilliant Orange (ref. weatherability)               | 17363        | Rubine Red   |
| 1726         | Mixing Clear   | 17364        | Rhodamine Red  |
| 1727         | Overprint Clear                                      | 17365        | Purple   |
| 1752         | Super Opaque Black                                   | 17366        | Violet   |
| 1767         | Reflex Blue  | 17367        | Reflex Blue  |
| 1768         | Process Blue   | 17368        | Process Blue   |
| 1775         | Super Opaque White                                   | 17369        | Green  |
| 1778         | High Intensity White                                 |              |  |
| 1779         | High Intensity Black                                 |              |  |
| Stock Number | MTR Standard Halftone Colors (Medium Tack Rheology)  | Stock Number | MTR Dense Halftone Colors (Medium Tack Rheology)           |
| 17140        | Halftone Extender Base (MTR)                         | 17151        | Halftone Cyan Dense (MTR)                                  |
| 17141        | Halftone Cyan (MTR)                                  | 17152        | Economy Halftone Magenta Dense (MTR) (ref. weatherability) |
| 17142        | Economy Halftone Magenta (MTR) (ref. weatherability) | 17153        | Economy Halftone Yellow Dense (MTR) (ref. weatherability)  |
| 17143        | Economy Halftone Yellow (MTR) (ref. weatherability)  | 17154        | Halftone Black Dense (MTR)                                 |
| 17144        | Halftone Black (MTR)                                 | 17155        | Halftone Yellow Dense RS (MTR)                             |
| 17147        | Halftone Yellow (MTR)                                | 17156        | High Intensity Halftone Black (MTR)                        |
| 17148        | Halftone Magenta (MTR)                               | 17157        | Halftone Yellow Dense (MTR)                                |
|              |  | 17158        | Halftone Magenta Dense (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                    |
|--------------|------------------------------------|--------------|-----------------------------|
| RE317        | Reducer                            | IMS203       | Economy Graphic Screen Wash |
| CARE59       | UV Satin Paste                     | IMS207C      | Graphic Recirculating Wash  |
| NB80         | UV Adhesion Promoter (quarts only) | IMS301       | Premium Graphic Press Wash  |

**TECHNICAL DATA SHEET**

*Nazdar<sup>®</sup> stands behind the quality of this product. Nazdar<sup>®</sup> cannot, however, guarantee the finished results because Nazdar<sup>®</sup> 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<sup>®</sup>.*

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](mailto: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](mailto:technicalservicesuk@nazdar.com)

<http://www.nazdar.com>