

3200 Series UV Screen Ink has been formulated to meet the processing speeds of the most modern printing equipment, while curing at low levels of ultraviolet energy, reducing costs and substrate heat exposure. This ink is for Point-of-Sale applications on a wide range of plastics, coated papers and coated boards that will be used for indoor and outdoor advertising. 3200 Series ink cures to a glossy finish that resists blocking in two sided print applications on rigid plastics.

**SUBSTRATES** Styrene, rigid PVC, vinyls, acrylics, some coated papers and some coated cardstocks

### 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 -3,800 square feet (232 - 353 square meters) per gallon depending upon ink deposit

**PRINTING** 3200 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 ink 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. Light filters are recommended.

**CURE PARAMETERS** 3200 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:

80-100 mJ/cm<sup>2</sup> @ 600+ mW/cm<sup>2</sup> for most colors  
100-130 mJ/cm<sup>2</sup> @ 600+ mW/cm<sup>2</sup> for 3278, 3279, 3298, 32136, 32356

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.

Note: Porous substrates can allow ink to dive below the surface requiring a more thorough cure to overcome the added ink thickness.

### CLEAR / VARNISHES

Mixing Clear / Metallic Mixing Clear: Use 3226 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics.

Overprint Clear: Use 3227 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 RE302 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight.

Adhesion Promoter: Use NB80 UV Adhesion Promoter to further increase adhesion on rigid high density polyethylene and treated fluted polypropylene substrates. 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 4-8 hour pot life.

Gloss / Flattening Powders / Improved Slip: Use CARE59 UV Satin Paste to reduce gloss and improve slip. Add up to 20%. Use CARE63 Anti-Blocking Additive to reduce the potential for blocking, reduce gloss, and improve slip. Add up to 10%. CARE59 UV Satin Paste and CARE63 Anti-Blocking Additive 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

Inks react to light and temperature. 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 3200 Material Safety Data Sheet for further instructions and warnings.

3200 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 and card stocks 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, 3200 colors are formulated to provide 2 years outdoor durability when mounted vertically in the Central U.S.A. The use of 3227 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
- Exposure to excessive abrasion (for example, brush car washes)
- Non-clear coated prints exhibit more color change and loss of gloss

Exceptions: 3220 Brilliant Orange and 3262 Warm Red have a projected 6 months outdoor durability. 3219 Fire Red has a projected 1 year outdoor durability. 3278 and 3298 have a projected 1 year outdoor durability due to significant loss of gloss.

Fluorescent colors fade quickly with exposure to UV light and are not rated for 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).

60 Series Colors: 3261-3269 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.

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.

### FLUORESCENT COLORS

These colors require special considerations due to their high pigment contents. Best results are achieved when printed through a mesh that offers more open area, such as a 305-355 (120-140 cm) mesh. Cured ink has a satin finish.

These inks have the tendency to settle; so high speed mixing is required prior to printing.

Fluorescent colors fade with exposure to ultraviolet light. This includes outdoor exposure as well as UV reactor exposure. It is therefore recommended to adjust art so these colors are the final colors printed on any image.

### 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 3200 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: shows the Standard Printing Colors, Pantone Matching System® Base Colors, Halftone Colors, Fluorescent 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 / 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
3210	Primrose Yellow	3258	Tinting White
3211	Lemon Yellow	3259	Tinting Black
3212	Medium Yellow	3261	Yellow
3219	Fire Red ( <i>see Weatherability</i> )	3262	Warm Red ( <i>see Weatherability</i> )
3220	Brilliant Orange ( <i>see Weatherability</i> )	3263	Rubine Red
3221	Peacock Blue	3264	Rhodamine Red
3226	Mixing Clear	3265	Purple
3227	Overprint Clear	3266	Violet
3252	Super Opaque Black	3267	Reflex Blue
3275	Super Opaque White ( <i>see Weatherability</i> )	3268	Process Blue
3278	High Intensity White ( <i>see Weatherability</i> )	3269	Green
3279	High Intensity Black		
3298	Bright White ( <i>see Weatherability</i> )		
Stock Number	Fluorescent Colors ( <i>see Weatherability</i> )	Stock Number	MTR Standard/Dense Halftone Colors (Medium Tack Rheology)
32510	Fluorescent Chartreuse	3290	Halftone Extender Base
32520	Fluorescent Orange / Yellow	3291	Halftone Cyan
32530	Fluorescent Orange	3292	Halftone Magenta
32540	Fluorescent Orange / Red	3293	Halftone Yellow
32550	Fluorescent Red	3294	Halftone Black
32560	Fluorescent Cerise	32101	Halftone Cyan Dense
32570	Fluorescent Pink	32102	Halftone Magenta Dense
32580	Fluorescent Blue	32103	Halftone Yellow Dense
32590	Fluorescent Green	32104	Halftone Black Dense
32600	Fluorescent Magenta	32356	Halftone High Intensity Black

**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	Cleaners
RE302	UV 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
CARE63	Anti-Blocking Additive		

*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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