

1500 Series UV Flexiform Screen Ink is designed for three-dimensional vacuum or thermal forming on a wide variety of substrates. 1500 Series exhibits excellent adhesion, as well as superior flexibility for forming applications in point of purchase and specialty markets such as three-dimensional signs, game boards, beverage panels, recreational helmets and specialty displays.

SUBSTRATES Styrene, Polycarbonate, ABS, Acrylic, PETG, PVC

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

PRINTING 1500 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.

CURE PARAMETERS 1500 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:

175-250 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.

CLEAR / VARNISHES Mixing Clear / Metallic Mixing Clear: Use 1526 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics.

Overprint Clear: Use 1527 Overprint Clear to provide added surface protection.

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 RE315 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight.

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

1500 Series has been formulated to provide a hard ink surface after a two step curing process. The first process is curing with UV light providing a touchable surface with extreme flexibility required for thermoforming. The second process of exposure heat during forming produces the harder, mar resistant surface. If the 1500 Series ink is not exposed to high heat after initial curing with UV light, the surface may remain soft.

Stacking: 1500 Series ink develops a very flexible elastic ink film after UV light curing. Although surface hardness of the cured ink film has been optimized for handling, the printer must assume responsibility for pre-testing and qualifying the parameters for stacking prints prior to each production run. Block resistance is influenced by the level of cure, the weight or gauge of the substrates and/or the heat and humidity of the printing environment. It is Nazdar's recommendation to individually rack cured prints prior to vacuum or thermal forming.

It is not recommended to stack pre-formed prints face-to-face.

Forming: The adhesion and flexibility of the ink allows for three dimensional thermal or vacuum forming. 1500 Series ink can be formed when printed with multiple coats on a first surface or second surface application. The 1500 Series ink can be formed under extreme heat (300°-380°F) without cracking, blistering, bleeding or fading.

Heat Bending: When heat bent, only the print area exposed to heat provides the immediate harder surface. Areas not exposed to high heat may retain a soft ink surface and require special handling.

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 1500 Material Safety Data Sheet for further instructions and warnings.

1500 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

Because the 1500 Series ink is highly formable, the cured ink film will appear softer than traditional point of sale UV inks.

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

- 1 - Touch of ink surface – The cured ink should be a smooth, soft surface. This ink surface should feel dry to the touch.
- 2 - Scratch surface – The ink should resist very mild scratching when cooled. Gouging at the cured ink surface could abrade the ink film from the substrate.
- 3 - Tape test – Use 3M #600 clear tape on the surface, rub down and rip away from the surface of the ink. In a tape test, very minor ink removal should be observed.

Full adhesion and scratch resistant characteristics will be demonstrated after forming is complete.

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: 15360-15369 colors are formulated to have no white or opaque pigments. This allows the colors to be more vibrant.

HALFTONE COLORS

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

Dense Halftone Colors are designed for printers that want to have the latitude to adjust the density levels of their halftone inks.

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

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

Pantone[®] 871c to 877c colors have been matched in 1500 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.

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 1500 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	Pantone Matching System® Base Colors
1519	Fire Red	15358	Tinting White
1526	Mixing Clear	15359	Tinting Black
1527	Overprint Clear	15360	Orange
1578	High Intensity White	15361	Yellow
1575	Super Opaque White	15362	Warm Red
1579	High Intensity Black	15363	Rubine Red
		15364	Rhodamine Red
		15365	Purple
		15366	Violet
		15367	Reflex Blue
		15368	Process Blue
		15369	Green
Stock Number	Halftone Colors		
1590	Halftone Extender Base		
15101	Halftone Cyan Dense		
15102	Halftone Magenta Dense (BS)		
15103	Halftone Yellow Dense (GS)		
15104	Halftone Black Dense		
15106	Halftone Hi Intensity Black		

PACKAGING / AVAILABILITY

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

Item Number	Non-Inventoried Colors	Item Number	Non-Inventoried Colors
1510	Primrose Yellow	67332215	SPL 15 871C Pearl Gold
1511	Lemon Yellow	67332315	SPL 15 872C Pearl Gold
1512	Medium Yellow	67332415	SPL 15 873C Pearl Gold
1520	Brilliant Orange	67332515	SPL 15 874C Pearl Gold
1567	Opaque Reflex Blue	67332615	SPL 15 875C Pearl Gold
1568	Opaque Process Blue	67332715	SPL 15 876C Pearl Gold
15105	Halftone Yellow Dense (RS)	67332815	SPL 15 877C Pearl Silver

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
RE315	UV Reducer	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.

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