

Nazdar 2400 UV-LED Screen Ink Series

The 2400 Series UV-LED Screen Ink is formulated to cure using a 395 nanometers LED curing lamp-system. The ink is designed for second surface printing on polycarbonate and polyester used as membrane overlays where the lamination of pressure sensitive adhesive directly to the ink film may be necessary. The ink has been formulated to meet the processing requirements of membrane overlay applications such as compatibility with most acrylic adhesives, flexibility for embossing, opacity, ink to ink adhesion and speed of cure.

Substrates

Polycarbonate (PC)

Substrate Material(s) listed below may be Limited in Adhesion (testing highly recommended for each print run)

Top coated / Print treated polyester (PET)

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.

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: 3,200 – 4,200 square feet (295 - 390 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.

UV-LED Curing: cures when exposed to a Phoseon FireLine 4+ watt, 385-405 nm lamp at a distance of .15 to .25 inches (4 to 6 mm). Lamps of similar performance are expected to provide the necessary output to effectively cure the ink.

Processing

Die Cutting, Embossing, Forming: Allow the cured ink film at least a 24 hour post cure prior to post print processing.

Adhesive Lamination: Wait 24 hours after printing before application of transfer adhesive. Laboratory test results indicated the possibility that laminating adhesives may be applied immediately. However, testing was conducted under controlled laboratory environment with thoroughly cured ink film. Since production environments vary, if adhesive needs to be applied immediately after printing and curing; the printer needs to pre-test before production.

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: 24 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.

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.

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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.

RE310 UV Reducer: add up to 10%

Adhesion Promoter

Use the following item(s) to enhance adhesion.

NB80 UV Adhesion Promoter: add up to: 5%. Improved adhesion will be demonstrated within 8-24 hours, with full crosslinking in 4-7 days. Ink mixed with NB80 UV Adhesion Promoter has a 4-8 hour pot life. NB80 is sensitive to humidity and moisture; clean the lid and container thoroughly after each use to prevent fusing of the container.

General Information**Handling**

Refer to the SDS for recommendations on handling.

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.

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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).

Weathering / Outdoor Durability

This Series was formulated for second surface printing on membrane overlays for appliance, automotive and similar applications. The inks are not recommended for long-term outdoor exposure. If the inks are to be used in any type of outdoor application, whether printed first or second surface, the printer has the responsibility to test the inks and substrate to the end use specifications.

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.

Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink. 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.

Standard Color Range

Based on information from our raw material suppliers, these ink products are formulated to contain less than 0.06% lead. If exact heavy metal content is required, independent lab analysis is recommended.

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.

360 Series Colors: These 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.

Toners

Toners can be used as supplied, in color matches, or let down with clear.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Packaging / Availability Product Specific

**Any of the following items noted with an asterisk are not recommended in applications that require high heat during processing.*

Item Type	Item Number	Item (or Color) Description
Standard Colors	2410	Primrose Yellow
Standard Colors	2419*	Fire Red
Clears / Varnishes	2426	Mixing Clear
Standard Colors	2477	Super Opaque Black
Standard Colors	2478	High Intensity White

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Standard Colors	2479	High Intensity Black
Standard Colors	2496	Jet Black
Standard Colors	2498	Bright White
Standard Colors	24PB12	Trans Medium Yellow
Standard Colors	24PB18	Trans Red Bs
Standard Colors	24PB24	Dead Front Black
Standard Colors	24PB60	Trans Red Ys
Mixing Colors	24358	Tinting White
Mixing Colors	24359	Tinting Black
Mixing Colors	24360	Orange
Mixing Colors	24361	Yellow
Mixing Colors	24362*	Warm Red
Mixing Colors	24363	Rubine Red
Mixing Colors	24364	Rhodamine Red
Mixing Colors	24365	Purple
Mixing Colors	24366	Violet
Mixing Colors	24367	Reflex Blue
Mixing Colors	24368	Process Blue
Mixing Colors	24369	Green
Blending Toners / Toners	2480	Yellow Toner
Blending Toners / Toners	2481	Orange Toner
Blending Toners / Toners	2483	Magenta Toner
Blending Toners / Toners	2485	Green Toner
Blending Toners / Toners	2486	Blue Toner Gs
Blending Toners / Toners	2487	Blue Toner Rs
Blending Toners / Toners	2488	Violet Toner
Blending Toners / Toners	2489	Red Toner
Additives	NB80	UV Adhesion Promoter
Cleaners	IMS203	Economy Graphic Screen Wash
Cleaners	IMS301	Premium Graphic Press Wash
Additives	RE310	UV Reducer

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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