Technical Data Sheet

Nazdar 2600 LED Graphic Screen Ink

NAZDAR INK TECHNOLOGIES

v 4 EN

Ref: v 3 EN

2600 Series LED Graphic Screen Ink is formulated to cure using a LED output source at the 395 nanometers. This ink is for point of sale / point of purchase graphic applications on a wide range of substrates used for indoor and outdoor advertising.

The use of LED curing systems rather than traditional mercury vapor curing units reduces energy costs, reduces heat within the curing process, and provides significantly longer lamp life.

Substrates

- Styrene
- Most rigid and flexible vinyl
- Static cling vinyl
- Rigid and flexible treated polyethylene
- Rigid and flexible treated polypropylene
- Treated fluted polypropylene
- PETG
- Coated paper
- Coated card stock
- Some acrylic

(The surface tension for polyethylene and polypropylene should be at or above 44 dynes/cm)

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.

User Information

Mesh

355-420 tpi (140-165 tpcm) with a mesh opening of 22-38 um monofilament polyester mesh for most applications.

305-355 tpi (120-140 tpcm) monofilament polyester mesh can be used for specialty applications with the mesh opening appropriate to the effect *(i.e. pearlescents, aluminums, etc.).*

Coarser mesh counts and/or twill weave result in heavier ink deposit and may require additional cure output.

Stencil

Use direct emulsions and capillary films which are solvent resistant and UV compatible.

Squeegee

70-90 durometer polyurethane squeegee.

Coverage

Estimated 3,200 - 4,200 square feet (295 - 390 square meters) per gallon depending upon ink deposit. Reference www.nazdar.com for examples of coverage calculations.

Printing

2600 Series LED Graphic Screen Ink is 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 of 2600 Series LED Graphic Screen Ink with other inks besides the 2600 Series LED Graphic Screen Ink.

Cure Parameters

2600 Series LED Graphic Screen Ink cures when exposed to an LED curing unit. Requirements:

- 4 w/cm2 or higher cure unit
- 395 nanometer wavelength
- At or less than 4mm distance from substrate to cure unit
- Belt speed at or less than 50-100 ft/min (15-30 m/min) depending on color

UV Screen Ink

It is suggested to expose the print to heat for 1-2 seconds prior to curing to increase the speed of curing.

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, and higher residual odor.

Clears / Varnishes

Mixing Clear: Use 2626 Mixing Clear to reduce the density of colors.

Overprint Clear: Use 2627 Overprint Clear to provide added surface protection and increase durability.

Common Performance Additives

The market specific performance properties of the 2600 Series LED Graphic Screen Ink 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.

Example for additives: Ink at 100g with 8% of an additive is calculated as:

100g ink + 8g additive = 108g total

Reducer: Use RE315 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight. Over reduction can reduce print definition, film thickness and adversely affect cure.

Adhesion Promoter: Use NB80 UV Adhesion Promoter to enhance adhesion. Add up to 5% by weight. Improved adhesion will be demonstrated within 8-24 hours, with full cross linking in 4-7 days. Ink mixed with NB80 UV Adhesion Promoter has a 4-8 hour pot life.

Cleanup

Screen Wash (Prior to Reclaim): Use IMS201 Premium Graphic Screen Wash, IMS203 Economy Graphic Screen Wash, or IMS206 Graphic Auto Screen Wash.

Press Wash (On Press): Use IMS301 Premium Graphic Press Wash.

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.

Standard 2600 Series LED Graphic Screen Inks supplied 1 gallon (4 to 5 kilo) containers or smaller are useable for a period of at least 24 months from the date of manufacture. Inks packaged in 5 gallon or greater (20 kilo or greater) containers may have a significantly reduced shelf life. To obtain the official shelf life letter, Contact Nazdar Technical Service at InkAnswers@nazdar.com or see contact listing at the end of this document.

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 applicable Safety Data Sheet (SDS / MSDS) for further instructions and warnings.

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).

Adhesion Testing

Even when recommended UV-LED energy output levels are achieved, it is imperative to check the degree of cure on a **cooled down** print:

1. Touch of ink surface – the ink surface should be smooth.
2. Thumb twist – the ink surface should not mar or smudge.
3. Scratch surface – the ink surface should resist scratching.

4. 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.

Weathering / Outdoor Durability

At full strength and properly cured, 2600 Series LED Graphic Screen Ink colors are formulated to provide 2 years outdoor durability when mounted vertically in the Central U.S.A. The use of 2627 Overprint Clear increases 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:
  - Large amounts of mixing clear or white
  - Mixing several colors into one match
  - Mixing a small quantity of any single color
- Substrate type and age
- Mounting angle and directional orientation
- Geographical location
- Degree of air pollution
- Excessive abrasion
- Non-clear coated prints exhibit more color change and loss of gloss

Manufacturer's Product Offering

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.

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 common to the graphic industry.

Standard Printing Colors

Standard Printing Colors have excellent opacity and flow characteristics. These colors are intended to work as supplied.

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 match Pantone colors. Blend formulations are also available at www.nazdar.com using ColorStar On-Line.

360 Series Colors: 26360-26369 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.

Special Effect Pigments

When inks are to be printed with a special effect color, all ink layers 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 2600 Series LED Graphic Screen Ink. Contact Nazdar for the item number(s) and availability of special effect products. Technical Data Sheets for each of the following special effect pigments can be found at www.nazdar.com.

Metallic Silver (aluminum): Add up to 8% by weight.

Metallic Gold (bronze): Add up to 15% by weight.

Chemical reactions in metallic inks may result in viscosity, color and printability changes over time; due to this, mix only enough metallic ink to be used the same day.

Pearlescent / Interference: Add up to 20% by weight.

Multi-Chromatic: Add up to 10% by weight.

Phosphorescent: Add up to 30% by weight.

Fluorescent: Add up to 30% by weight. Fluorescent colors fade quickly with exposure to ultraviolet light. This includes outdoor exposure as well as UV reactor exposure.

Color Card Materials

The following is a list of available screen printed sample literature representing 2600 Series LED Graphic Screen Ink.

UV Color Card (CARDUV): shows the Standard Printing Colors, Pantone Matching System Base Colors, and Halftone Colors.

Special Effects Color Card (CARDSPL): shows various special effect pigments mixed with clear.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Standard Ink Items

Standard ink items listed below are inventoried in gallon containers.

Standard Halftone Colors

Item Number	Color
26HTEX	Halftone Extender Base
26HTC	Halftone Cyan
26HTM	Halftone Magenta
26HTY	Halftone Yellow
26HTBK	Halftone Black

Standard Printing Colors

Item Number	Color
2610	Primrose Yellow
2619	Fire Red
2626	Mixing Clear
2627	Overprint Clear
2678	High Intensity White
2679	High Intensity Black

Pantone Matching System® Base Colors

Item Number	Color
26358	Tinting White
26359	Tinting Black
26360	Orange
26361	Yellow
26362	Warm Red
26363	Rubine Red
26364	Rhodamine Red
26365	Purple
26366	Violet
26367	Reflex Blue
26368	Process Blue
26369	Green

Additives / Reducers

Item Number	Item Description
RE315	UV Reducer

Cleaners / Clean Up

Item Number	Item Description
IMS201	Premium Graphic Screen Wash
IMS203	Economy Graphic Screen Wash
IMS206	Graphic Auto Screen Wash
IMS301	Premium Graphic Press Wash

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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