Technical Data Sheet

Nazdar NSC15 & NSC16 Signature UV Screen Inks

NAZDAR INK TECHNOLOGIES

v 2 EN

Ref: v 1 EN

NSC15 UV Signature White and NSC16 UV Signature Clear are UV screen inks that provide a matte surface suitable for writing onto with most ball-point pens or permanent markers. NSC16 Signature Clear can also be used as overprint clear to provide a matte surface.

Substrates

- Styrene
- Rigid vinyl
- Pressure sensitive vinyl
- Polycarbonate
- Some acrylic
- Coated paper
- Coated cardstock
- Treated Polypropylene
  (See additives section for Treated Polypropylene)

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 tpi (140 tpcm) monofilament polyester mesh with a mesh opening of 22-38 um 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

Estimated 3,000 – 3,500 square feet (275 - 325 square meters) per gallon depending upon ink deposit. Reference www.nazdar.com for examples of coverage calculations.

Printing

NSC15 and NSC16 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.

Cure Parameters

NSC15 and NSC16 cures when exposed to a single medium pressure mercury vapor lamp emitting millijoules (mJ) and milliwatts (mW) of:

80-130 mJ/cm² @ 600+ mW/cm² UVA

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.

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, and ensure proper focus to the substrate.

These guidelines are representative of measurements taken using an EIT® UVICURE® Plus radiometer measuring the UVA bandwidth (320-390 nm). To obtain accurate mW readings with

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the UVICURE® Plus, reduce the belt speed to less than 40 ft/min.

Common Performance Additives

The market specific performance properties of the (Ink Series) 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 RE301 UV Reducer to reduce the viscosity of these inks. Add up to 5% by weight. Over reduction can reduce print definition, film thickness and adversely affect cure.

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

Flexibilizer: Use RE308 UV Reducer to increase the flexibility of these inks. Add up to 10% by weight. The addition of RE308 UV Reducer could show a decrease in block resistance.

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.

NSC15 and NSC16 supplied 1 gallon (4/5 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. For more detail pertaining to the shelf life of Nazdar's ink products, 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 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.

Full adhesion characteristics at proper cure levels are demonstrated within 4 hours.

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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.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Standard Ink Items

Standard ink items listed below are inventoried in gallon containers.

Item Number	Color
NSC15	UV Signature White
NSC16	UV Signature Clear

Additives / Reducers

Item Number	Item Description
RE301	UV Reducer
RE308	UV Reducer
NB80	UV Adhesion Promoter

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®.

Nazdar Ink Technologies Offices

Nazdar Ink Technologies -World Headquarters
8501 Hedge Lane Terrace
Shawnee, KS 66227-3290 USA
Toll Free US: 866-340-3579
Tel: +1 913-422-1888
Fax: +1 913-422-2296
E-mail: custserv@nazdar.com
Technical Support E-mail: InkAnswers@Nazdar.com

Nazdar Limited – EMEA
Battersea Road, Heaton Mersey
Stockport, England SK4 3EE
Tel: + 44 (0)-161-442-2111
Fax: + 44 (0)-161-442-2001
EMEA Technical Service E-mail:
technicalservicesuk@nazdar.com

Nazdar – China
Room 17-04, Silver Centre
1388, North Shan Xi Road
Shanghai 200060 China
Tel: +86-13818301261
E-mail: aspac@nazdar.com

Nazdar – Asia Pacific
10, Changi South Street 3 #01-01
Singapore 486147
Tel: +65-65434920
Fax: +65-65433690
E-mail: aspac@nazdar.com

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