Technical Data Sheet

Nazdar NSC9000 UV Screen OP Clear

Graphic / POP

v 1 EN

Ref: v 1 EN

NSC9000 UV Screen OP Clear is a unique clear designed to adhere over latex digital inks used in interior and exterior vinyl decals. NSC9000 will provide flexibility, uniform gloss, chemical and weather resistance when printed over latex digital inks.

Substrates

- Pressure Sensitive Vinyl

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

355-380 tpi (140-150 tpcm) with a mesh opening of 22-35 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

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

NSC9000 Series is formulated to be press ready. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent 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 the clear, 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 NSC9000 with other clears or inks.

Cure Parameters

NSC9000 cures when exposed to a single medium pressure mercury vapor lamp emitting output millijoules (mJ) and milliwatts (mW) of:

100-180 mJ/cm² @ 600+ mW/cm²

Additional output may be required when printing over a dark or colored background.

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.

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

Common Performance Additives

The market specific performance properties of the NSC9000 Series should be acceptable for most applications without the need for additives. When required, any additives should be thoroughly

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mixed before each use. Prior to production, test any additive adjustment to this clear.

Reducer: Use RE315 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.

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 product outside of these recommendations may shorten its shelf life. Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink.

NSC9000 supplied in 1 gallon (4/5 kilo) containers or smaller are useable for a period of at least 24 months from the date of manufacture. Ink 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.

Processing

NSC9000 has been formulated to provide a flexibly, uniform, mar resistant ink surface after UV curing.

Stacking: suitable for immediate stacking of ink to substrate. Block resistance is influenced by the degree of cure, the weight of the substrates when stacked, and the heat and humidity of the printing environment. 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.

Cutting: suitable for die-cutting, router cutting, guillotine cutting, and laser cutting.

Use with pre-mask: not suitable for some pre-mask. The printer is responsible to pre-test prior to full production printing.

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.

NSC9000 is a one-part UV Screen OP Clear, 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. Thumb twist – the ink surface should not mar or smudge.
2. Scratch surface – the ink surface should resist scratching.
3. 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

When latex digital inks rated for 3 years durability are printed at full strength and properly cured, NSC9000 UV Screen OP Clear is formulated to provide an additional 12 months outdoor durability on premium vinyl decals when mounted vertically in the Central U.S.A.

Outdoor durability cannot be specified exactly. Some color change and loss of gloss should be expected as prints normally age. Variables affecting

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a printed part's durability include:

- Ink film thickness and degree of drying
- Color:
  - Using digital latex ink colors not rated for 3 year durability.
  - Using digital latex ink colors below recommended color strength.
- Substrate type and age, the substrate should be rated for the required durability
- Mounting angle or directional orientation
- Geographical location
- Air pollution and exposure to excessive abrasion (for example, brush car washes)

Chemical Resistance

Decals printed with NSC9000 will exhibit increased resistance to chemicals such as gasoline and isopropyl alcohol. Test to ensure compliance with specific standards, protocols and performance requirements.

Manufacturer's Product Offering

Based on information from our raw material suppliers, NSC9000 is 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.

Ink Item

NSC9000 OP Clear is inventoried in gallon containers.

Item Number	Item Description
NSC9000	UV Screen OP Clear

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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