

Nazdar NSC UV Air Texture Clear Screen Inks

Membrane Overlay / Nameplate

UV Air Texture Screen Inks are designed to give a decorative, first surface texture effect on polycarbonate and some pre-treated polyester films used for membrane overlay applications. Textures are available from very fine to very coarse. Most of the UV Air Texture screen inks may be inter-mixed with each other to achieve a custom texture. A nitrogen atmosphere curing unit is not necessary for Nazdar UV Air Texture Screen Inks.

Substrates

- Polycarbonate
- Some Pre-Treated Polyester
(Pre-test ink adhesion on hard coated films)

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

Mesh counts must be selected for the coarsest texture used when inter-mixing products. Coarser mesh counts than recommended and/or twill weave result in heavier ink deposit requiring additional cure output. Finer mesh counts can result in filtering of the texture agent and can result in the ink increasing in viscosity over longer print runs.

NSC40 UV Air Texture Clear Fine:

156-230 tpi (61-90 tpcm)

NSC41 UV Air Texture Clear:

156-255 tpi (61-100 tpcm)

NSC47 UV Air Texture Very Fine:

195 -355 tpi (77-140 tpcm)

NSC48 UV Air Texture Medium:

195 -305 tpi (77-120 tpcm)

NSC49 UV Air Texture Coarse:

156-255 tpi (61-100 tpcm)

NSC50 UV Air Texture Very Coarse:

156-230 tpi (61-90 tpcm)

NSC51 UV Air Texture Clear:

110-420 tpi (43-165 tpcm) *Varying the mesh count will vary the texture's coarseness; the lower the mesh count, the coarser the texture.*

Stencil

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

Squeegee

70-90 durometer polyurethane squeegee.

Coverage

Estimated 1,500 – 3,000 square feet (140 – 280 square meters) per gallon depending upon ink deposit. Reference www.nazdar.com for examples of coverage calculations.

Printing

UV Air Texture Screen Inks are formulated to be press ready. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent textured effect 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 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 NSC51 UV Air Texture Clear with other inks.

Nazdar recommends only inter-mixing the following items together: NSC40, NSC41, NSC47, NSC48, NSC49, and NSC50; they should not be inter-mixed with any other inks.

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Cure Parameters

UV Air Texture Screen Inks cure when exposed to a single medium pressure mercury vapor lamp emitting output millijoules (mJ) and milliwatts (mW) of:

$$200 \text{ mJ/cm}^2 @ 600+ \text{ mW/cm}^2$$

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, 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 UV Air Texture Screen Inks 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:

$$100\text{g ink} + 8\text{g additive} = 108\text{g total}$$

Reducer: Use RE301 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.

There is no reducer recommended for the NSC51.

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

Store closed containers at temperatures between 65°-78°F (18°-25°C). Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink.

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 UV Air Texture Screen Inks Material Safety Data Sheets (MSDS) for further instructions and warnings. Obtain MSDS from www.nazdar.com.

UV Air Texture Screen Inks are one-part, 100% solids UV-curable screen printing inks and do not contain N-vinyl-2-pyrrolidone (trade name V-Pyrol®).

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 dry to the touch.
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 24 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.

Halogen-Free

UV Air Texture Screen Inks and their reducers are free of the halogens chlorine and bromine based on supplier information and in compliance with the electronics industry standard, IEC 61249-2-21 (<http://www.iec.ch/>).

Color Card Materials

The following is a list of available screen printed sample literature representing UV Air Texture Screen Inks.

UV Texture Clears Color Card (CARDTC): shows UV Air Texture Clears. In addition, the NSC51 has several examples of the texture clear printed through a range of mesh counts.

NSC UV Air Texture Clears Color Presenter (LIT0217): shows the UV Air Texture Clears only.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Standard Ink Items

Items listed below are inventoried in gallon containers.

UV Air Texture Clears

Item Number	Color
NSC40	UV Air Texture Clear Fine
NSC41	UV Air Texture Clear
NSC47	UV Air Texture Clear Very Fine
NSC48	UV Air Texture Clear Medium
NSC49	UV Air Texture Clear Coarse
NSC50	UV Air Texture Clear Very Coarse
NSC51	UV Air Texture Clear

Additives / Reducers

Item Number	Item Description
RE301	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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UV Screen Ink