Nazdar 8400 Series Screen Ink

Insert Mold Decorating Applications

8400 Series Screen Ink is a polyester solvent-based/conventional screen ink which meets the requirements of various industrial and specialty print applications including, the insert mold decorating (IMD) process. The dried ink film exhibits good gloss and flexibility for forming, post-form trimming, resistance to wash out during the molding process, and adhesion to polycarbonate injection mold-resin. 8400 Series ink is for second surface printing on polycarbonate, polycarbonate blend, or pre-treated polyester films, which will be formed then molded in the insert mold decorating process. The addition of NB72 Catalyst or NB80 Adhesion Promoter is necessary for in-mold decorating applications.

Specific Use

Resin Types

Polycarbonate (PC) Injection Resin: NB72 Catalyst must be added to all 8400 inks. Add 2-4% by weight.
ABS, PVC or PMMA Injection Resin: NB80 Adhesion Promoter must be added to all 8400 inks. Add up to 2% by weight.

Substrates

Untreated polyester (PET)
Polyester (PET) coated surfaces
Polycarbonate (PC)
Polycarbonate blends (PC)

Substrate Material(s) listed below may be Limited in Adhesion *(testing highly recommended for each print run)*
Top coated / Print treated polyester (PET)

Notes & Cautions Substrates specific for insert mold decorating

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

For 8400 Inks:
200-305 tpi (78-120 tpcm) monofilament polyester mesh or stainless steel mesh for most applications.

Stencil

Use direct emulsions and capillary films which are solvent resistant.

Squeegee

60-80 durometer polyurethane squeegee.

Coverage

For 8400 Inks: 1,200-1,800 square feet (111-167 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.

Add only enough ink to the screen to be able to print for 5-10 minutes. Add additional ink in small increments throughout the print run to maintain screen stability. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent color and ink performance.

NOTE: When utilizing ABS, PVC or PMMA injection resin, print the 8400 colors first, properly drying after each layer, then overprint with a tie-coat.

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.

Nazdar does not recommend inter-mixing this ink series with other inks or series.

Drying / Curing Parameters

The following are starting point guidelines to determine temperature and times to achieve a crosslinked ink film.
Drying: the 8400 ink must be dried with heat immediately after printing. The ink film must be dry to touch before subsequent layers are printed and dried.
Use conveyorized dryers set at temperatures of 150°F- 195°F (66°C-90°C) to initially dry each layer of ink and to start the curing process. Not all the solvent will be removed after this initial drying.

Curing: after all the 8400 inks have been printed, the finished prints must be baked for 1 hour at 195°F (90°C) with approximately 50% RH before further processing (forming and molding). This additional bake completes solvent removal and curing. Good air circulation and fresh air intake in dryers and ovens is necessary to remove the solvent.

Ink film that is not thoroughly dried and cured may transfer onto the mold during the forming process.
The 8400 block resistance should be carefully tested before stacking printed pieces.

Processing

Printed parts that have been thoroughly dried and cured may be formed, die or laser cut and molded. Some films absorb atmospheric moisture; consult with the film supplier for information whether the printed films need to be dried prior to forming.

Adhesion Testing

It is imperative to check adhesion on a fully cured print:
- 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.

Cleanup

For screen cleaning, similar products to those listed below may be used.

Screen Wash (Prior to Reclaim): Use RE195 Thinner/Screen Wash or 9637 Screen Wash.
Press Wash (On Press): IMS301 Premium Graphic Press Wash.

Ink Modifications

Clears / Varnishes

Mixing Clear / Overprint Clear: Use to reduce the density of colors and to provide added surface protection.

Additives

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
The recommended sequence for adding additives is: thinner and/or retarder first and the catalyst or adhesion promoter last. Mix thoroughly.

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.
RE195 Thinner/Screen Wash: add up to 15%. RE195 may also be used to wash ink from the screen.

Fast Thinner:
Use RE197 Thinner to reduce the viscosity of the ink. RE197 is a faster evaporating, more aggressive thinner than the RE195. RE197 has shown improved adhesion to some plastics without the need of a catalyst/adhesion promoter.

Retarder
Use RE196 Retarder to slow down drying and increase screen stability. Add up to 15%. RE196 Retarder can be used in combination with RE195 Thinner/Screen Wash up to a total of 15%, depending on production environmental conditions.

Catalyst
Shelf life of catalyzed ink is approximately 6 to 8 hours.
- Polycarbonate Injection Resin: Use NB72 Catalyst. Add up 2-4% must be added to all 8400 inks.
- ABS, PVC or PMMA Injection Resin: Use NB80 Adhesion Promoter. Add up to 2%.

Gloss / Flattening Powders / Improved Slip
Use 8448 Flatting Paste to reduce gloss and to improve slip. Add up to 10%. When injecting PC resin, the 8448 Flatting Paste can be added to 8400 inks to help prevent sticking to the mold during forming.

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.
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).

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.
Standard items useable for a period of at least **48 months** from the date of manufacture.

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 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.

Toners
Single Pigment Toners produce clean and vibrant colors. Single Pigment Toners can be used as supplied, in color matches or let down with mixing clear.
Transparent Colors produce very good transparency and depth of color. Transparent Toners can be used as supplied, in color matches or let down with mixing clear.

Series Specific

Non-Conductive Black
NSC60 Non-Conductive Black is formulated to minimize conductivity in situations where static discharge is possible to occur during post print processing. To minimize or prevent electrostatic discharge (ESD) the NSC60 must be used in place of the 8452 Super Opaque Black. Process NSC60 as outlined for the 8400 Series.

Color Card Materials
- Conventional Color Card (CARD375): shows the Standard Colors, Pantone Matching System Base Colors, and Halftone Colors.

Packaging / Availability
Contact your Nazdar distributor for product availability and offering.

Item Type	Item Number	Item (or Color) Description
Standard Colors	8410	Primrose Yellow
Standard Colors	8411	Lemon Yellow
Standard Colors	8412	Medium Yellow
Standard Colors	8413	Emerald Green
Standard Colors	8418	Scarlet Red
Standard Colors	8419	Fire Red
Standard Colors	8420	Brilliant Orange
Standard Colors	8421	Peacock Blue
Standard Colors	8422	Ultra Blue
Standard Colors	8424	Gloss Black
Clears / Varnishes	8427	Mixing/Overprint Clear
Standard Colors	8450	Barrier White
Standard Colors	8452	Super Opaque Black
Standard Colors	8478	High Intensity White
Blending Toners / Toners	8480	Yellow Toner
Blending Toners / Toners	8481	Orange Toner
Blending Toners / Toners	8482	Carmine Toner
Blending Toners / Toners	8483	Magenta Toner
Blending Toners / Toners	8484	Maroon Toner
Blending Toners / Toners	8485	Green Toner
Blending Toners / Toners	8486	Blue Toner (GS)
Blending Toners / Toners	8487	Blue Toner (RS)
Blending Toners / Toners	8488	Violet Toner
Blending Toners / Toners	8489	Red Toner
Transparent Colors	84PB12	Transparent Medium Yellow
Transparent Colors	84PB18	Transparent Red
Transparent Colors	84PB60	Stop Sign Red
Series Specific Item	NSC60	Non-Conductive Black
Additives	8448	Flatting Paste
Additives	NB72	Catalyst
Additives	NB80	Adhesion Promoter
Cleaners	RE195	Thinner/Screen Wash
Cleaners	9637	Screen Wash
Cleaners	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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