Technical Data Sheet

Nazdar 8400 Series CVIM Conventional Insert Mold Decorating Screen Ink

v 17 EN

Ref: v 17 EN

8400 Series CVIM Screen Ink is a solvent-based/conventional screen ink that has been formulated to meet requirements of the insert mold decorating (IMD) process. 8400 has flexibility for forming and post-form trimming, resistance to wash out during the molding process and adhesion to polycarbonate injection mold resin. Overprinting the 8400 with the 8449 Tie-Coat conventional screen ink promotes adhesion to other injection resins such as ABS, PMMA and PVC. 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.

Substrates

- Polycarbonate
- Polycarbonate blends
- Primed / pre-treated polyester
  (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.

User Information

Mesh

8400 inks: 200-305 tpi (79-120 tpcm) monofilament polyester mesh for most applications.

8449 Tie-Coat Clear: 110-200 tpi (43-79 tpcm) monofilament polyester.

Stencil

Use direct emulsions and capillary films which are solvent resistant.

Squeegee

60-80 durometer polyurethane squeegee.

Coverage

8400 inks: 1,200-1,800 square feet (111–167 square meters) per gallon depending upon ink deposit.

8449 Tie-Coat: 600-1,200 square feet (55-111 square meters) per gallon depending upon ink deposit.

Reference www.nazdar.com for examples of coverage calculations.

Catalyst

Polycarbonate Injection Resin: NB72 Catalyst must be added to all 8400 inks. Add 2-4% by weight. This will produce a usable pot life of the ink mixture of 6-8 hours.

ABS, PVC or PMMA Injection Resin: NB80 Adhesion Promoter must be added to all 8400 inks. Add up to 2% by weight. This will produce a usable pot life of 6-8 hours for the ink mixture.

The addition of NB72 or NB80 is not necessary for the 8449 Tie-Coat.

Printing

8400 Series inks and 8449 Tie-Coat are formulated to be press ready. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent color and ink performance.

When utilizing ABS, PVC or PMMA injection resin, print the 8400 colors first, properly drying after each layer, then overprint with the 8449 Tie-Coat. To maintain on screen stability, add additional ink in small increments throughout the print run.

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, curing variables/conditions, forming and molding processing.

Nazdar does not recommend inter-mixing of 8400 Series with other inks besides the 8400 Series.

Solvent-Based Screen Ink

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Drying / Curing Parameters

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 to touch and to start the curing process. Not all the solvent will be removed after this initial drying.

Curing: after all the 8400 inks and 8449 Tie-Coat (if needed) 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.

Clears / Varnishes

Mixing Clear / Overprint Clear: 8426 Mixing Clear is a higher viscosity version of 8427 Mixing/Overprint Clear. Both may be used to reduce the density of colors.

Common Performance Additives

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 RE195 Thinner/Screen Wash to reduce the viscosity of these inks. Add up to 15% by weight. RE195 may also be used to wash ink from the screen.

Retarder: Use RE196 Retarder to slow down drying and increase screen stability. Add up to 15% by weight. RE196 Retarder can be used in combination with RE195 Thinner/Screen Wash up to a total of 15% by weight depending on production environmental conditions. The recommended sequence for adding additives is: thinner and/or retarder first and the catalyst or adhesion promoter last. Mix thoroughly.

Flattening: Use 8448 Flatting Paste to reduce gloss and to improve slip. Add up to 10% by weight. When injecting PC resin, the 8448 Flatting Paste can be added to 8400 inks to help prevent sticking to the mold during forming. 8448 is not needed when injecting ABS, PVC or PMMA because the 8449 Tie-Coat resists sticking to the forming mold.

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 8400 Series items are useable for a period of at least 48 months from the date of manufacture. 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

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.

General Information

Ink Handling

All personnel mixing and handling these products must wear gloves and eye protection. Clean up spills immediately. If ink does come in contact with skin, wipe ink off with a clean, dry, absorbent cloth (do not use solvent or thinner). Wash the affected area with soap and water. Consult the

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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).

Adhesion Testing

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

Cross hatch tape test: 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, wait for 1 minute and rip off at a 180 degree angle. Ink should only come off in actual cut areas.

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.

Standard Printing Colors

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

Single Pigment 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 Toners

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

Halftone Colors

Halftone Base is used to reduce the density of any of the halftone colors.

Halftone Colors are formulated with increased densities in order to have the flexibility to satisfy most process color density requirements.

Halogen-Free Colors

The halogen-free colors are press ready and may also be used to match special colors.

These colors 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/).

Tie Coat

8449 Tie-Coat Clear be printed over 8400 inks, then injection molded with ABS, PVC or PMMA resins.

The 8449 Tie-Coat Clear is not inter-mixable with the 8400 Series inks.

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

The following is a list of available screen printed samples of the 8400 Series.

Conventional Color Card (CARD375): shows the Standard Printing Colors.

Halogen-Free Color Presenter (CARDHF): shows all the halogen-free colors.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Standard Ink Items

Standard ink items listed below are inventoried in 1 kilogram and/or gallon containers.

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Printing Colors

Item Number	Color
8410	Primrose Yellow
8411	Lemon Yellow
8412	Medium Yellow
8413	Emerald Green
8418	Scarlet Red
8419	Fire Red
8420	Brilliant Orange
8421	Peacock Blue
8422	Ultra Blue
8427	Mixing/Overprint Clear
8450	Barrier White
8452	Super Opaque Black

Single Pigment Toners (in 1 kilogram only)

Item Number	Color
8480	Yellow Toner
8481	Orange Toner
8482	Carmine Toner
8483	Magenta Toner
8484	Maroon Toner
8485	Green Toner
8486	Blue Toner (GS)
8487	Blue Toner (RS)
8488	Violet Toner
8489	Red Toner

Transparent Colors (in 1 kilogram only)

Item Number	Color
84PB12	Transparent Medium Yellow
84PB18	Transparent Red
84PB60	Stop Sign Red

Tie-Coat

Item Number	Color
8449	Tie-Coat

Non-Standard Ink Items

Non-Standard ink items listed below are special order, non-inventoried colors which may require additional lead time. These items are available in 1 kilogram and/or gallon containers.

Halogen-Free Colors

Item Number	Color
84200	Halogen-Free Mixing Clear
84201	Halogen-Free Tinting Black
84202	Halogen-Free Tinting White
84205	Halogen-Free Super Opaque Black
84206	Halogen-Free Super Opaque White
84210	Halogen-Free Yellow
84211	Halogen-Free Orange
84212	Halogen-Free Red
84213	Halogen-Free Carmine
84214	Halogen-Free Magenta
84215	Halogen-Free Maroon
84216	Halogen-Free Violet
84217	Halogen-Free Blue RS
84218	Halogen-Free Blue GS
84219	Halogen-Free Green

Halftone Colors

Item Number	Color
84HTEX	Halftone Extender Base
84HTC	Halftone Cyan
84HTM	Halftone Magenta
84HTY	Halftone Yellow
84HTBK	Halftone Black

Non-Conductive Black

Item Number	Color
NSC60	Non-Conductive Black

Additives / Reducers

Item Number	Color
8448	Flatting Paste
NB72	Catalyst
NB80	Adhesion Promoter
RE195	Thinner/Screen Wash
RE196	Retarder

Cleaners / Clean Up

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

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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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