Nazdar S2 Series System-2 Gloss Vinyl Screen Ink

System-2 Series ink is a high gloss, solvent-based screen ink formulated for optimum performance on pressure-sensitive vinyl and top coated polyesters used for decal applications.

Substrates

- Pressure-Sensitive Vinyl
- Print Treated Polyester

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

230 - 305 tpi (90 - 120 tpcm) monofilament polyester mesh for most applications.

Stencil

Use direct emulsions and capillary films which are solvent resistant.

Squeegee

70 - 80 durometer polyurethane squeegee.

Coverage

Estimated 1200 - 1800 square feet (112 - 162 square meters) per gallon depending upon ink deposit. Reference www.nazdar.com for examples of coverage calculations.

Printing

Nazdar's S2 Series must be thinned approximately 10% by weight prior to printing. 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.

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 of S2 Series with other inks besides the S2 Series.

Drying

Nazdar's S2 Series Ink dries by solvent evaporation. S2 jet dries in an industrial oven at temperatures of 120 - 150°F (46 - 66°C) in approximately 40 seconds. Good air circulation is necessary to remove the vaporized solvents. Multiple layers of ink may require longer drying times than a single layer.

Clears

Mixing Clear: Use S226 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics.

Overprint Clear: Use S227 Overprint Clear to provide added surface protection and increase durability. Use 223900RP Part A Urethane Clear / 223790RP Part-B Catalyst (See separate Technical Data Sheet) to extend outdoor durability.

Common Performance Additives

All additives should be thoroughly mixed into the ink 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:

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

Thinner: Use S230 Thinner to reduce the viscosity of these inks. Add up to 20% by weight.

Retarder: Use S231 Retarder to improve screen stability during hot climate conditions or for slower drying. Add up to 20% by weight. CARE53 Gel Retarder can be used to improve screen stability without lowering the viscosity or when printing fine line details. Add up to 10% by weight. Reduction with retarders slows drying and can result in blocking.

Note: CARE 53 is not recommended for backlit applications.

Solvent-Based Screen Ink

Nazdar S2 Series System-2 Gloss Vinyl Screen Ink

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 S2 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.

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 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

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.

Weathering / Outdoor Durability

At full strength and properly cured, S2 Series colors are formulated to provide 3 years outdoor durability when mounted vertically in the Central U.S.A. and printed on durable materials, such as premium cast vinyl. The use of 223900RP Part-A Urethane Clear /223790RP Part-B Catalyst (See separate Technical Data Sheet) increases the projected outdoor durability (refer to weathering table below).

Exceptions: S250 Barrier White, S258 Tinting White, S275 Super Opaque White can chalk during outdoor exposure. To achieve the best outdoor durability, always apply an overprint clear such as 223900RP/223790RP.

Outdoor durability cannot be specified exactly. Slight color change and loss of gloss should be expected. Variables affecting a printed part's durability include:

- Ink film thickness and degree of drying
- Color formulation:
  - o Large amounts of mixing clear or white
  - o Mixing several colors into one match
  - o Mixing a small quantity of any single color
- Substrate type and age
- Mounting angle and directional orientation
- Geographical location
- Degree of air pollution
- Excessive abrasion
- Non-clear coated prints exhibit more color change and loss of gloss

Solvent-Based Screen Ink

Nazdar S2 Series System-2 Gloss Vinyl Screen Ink

Weathering Table

Stock Number	Standard Printing Color	Est. Durability Central USA Without Clear Coating (Years)	Estimated Durability Central USA With 223900RP/23790RP Clear Coating (Years)
S2LF11	Lemon Yellow	3	4
S2LF12	Medium Yellow	3	4
S2LF20	Brilliant Orange	3	4
S219	Fire Red	2	4
S224	Black	3	4
S275	Super Opaque White	2*	4
S250	Barrier White	2*	4

Stock Number	Pantone Matching System Base Colors	Est. Durability Central USA Without Clear Coating (Years)	Estimated Durability Central USA With 223900RP/23790RP Clear Coating (Years)
S226	Mixing Clear	NA	NA
S258	Tinting White	2*	4
S259	Tinting Black	3	4
S260	Orange	3	4
S261	Yellow	3	4
S262	Warm Red	3	4
S263	Rubine Red	3	4
S264	Rhodamine Red	3	4
S265	Purple	3	4
S266	Violet	3	4
S267	Reflex Blue	3	4
S268	Process Blue	3	4
S269	Green	3	4

Stock Number	Halftone Colors	Est. Durability Central USA Without Clear Coating (Years)	Estimated Durability Central USA With 223900RP/23790RP Clear Coating (Years)
S2HTEX	Halftone Extender Base	NA	NA
S2HTB	Halftone Blue	3	4
S2HTR	Halftone Red	3	4
S2HTY	Halftone Yellow	3	4
S2HTBK	Halftone Black	3	4

*Colors Chalk When Not Overprinted

Solvent-Based Screen Ink

v 9 EN

Ref: v 8 EN

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.

Pantone Matching System® Base Colors

Pantone Matching System Base Colors are used to simulate the Pantone® Formulation Guide. These inks are press ready, can be used in matches to achieve Pantone color simulations, or let down with mixing clear. ColorStar® Color Management System software uses Pantone Matching System Base Colors to match Pantone colors. Blend formulations are also available at www.nazdar.com using ColorStar On-Line.

60 Series Colors: S260-S269 colors have a high pigment concentration. These colors are formulated to have some white pigment or opaque pigment to increase opacity.

Halftone Colors

S2HTEX Halftone Extender 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.

Special Effect Pigments

When inks are to be printed with a special effect color, all ink layers must be evaluated for intercoat adhesion before proceeding with the production run. Pigments may settle in the container; prior to printing, thoroughly mix the ink.

The following special effect pigments may be added to S2 Series. Contact Nazdar for the item number(s) and availability of special effect products. Technical Data Sheets for each of the following special effect pigments can be found at www.nazdar.com.

Metallic Silver (aluminum): Add up to 8% by weight.

Metallic Gold (bronze): Add up to 15% by weight.

Chemical reactions in metallic inks may result in viscosity, color and printability changes over time; due to this, mix only enough metallic ink to be used the same day.

Pearlescent / Interference: Add up to 20% by weight.

Multi-Chromatic: Add up to 10% by weight.

Phosphorescent: Add up to 30% by weight.

Fluorescents: Add up to 30% by weight. Fluorescent colors fade quickly with exposure to ultraviolet light.

Color Card Materials

The following is a list of available screen printed samples of the S2 Series.

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

Specialty Effects Color Card (CARDSPL): shows Metallic, Pearlescent, Interference, and Multi-Chromatic effects mixed with clear.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Standard Ink Items

Standard ink items listed below are inventoried in gallon containers.

Printing Colors

Item Number	Color
S2LF11	Lemon Yellow
S2LF12	Medium Yellow
S2LF20	Brilliant Orange
S219	Fire Red
S224	Black
S275	Super Opaque White
S250	Barrier White
S227	Overprint Clear
223900RP	2-Part Overprint Clear

Solvent-Based Screen Ink

Nazdar S2 Series System-2 Gloss Vinyl Screen Ink

Halftone Colors

Item Number	Color
S2HTEX	Halftone Extender Base
S2HTB	Halftone Blue
S2HTR	Halftone Red
S2HTY	Halftone Yellow
S2HTBK	Halftone Black

Pantone Matching System® Base Colors

Item Number	Color
S226	Mixing Clear
S258	Tinting White
S259	Tinting Black
S260	Orange
S261	Yellow
S262	Warm Red
S263	Rubine Red
S264	Rhodamine Red
S265	Purple
S266	Violet
S267	Reflex Blue
S268	Process Blue
S269	Green

Additives / Thinners

Item Number	Color
S248	Flatting Paste
S230	Thinner
S231	Retarder
CARE53	Gel Retarder (quarts available)

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

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 Worldwide

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: NazdarOrders@nazdar.com
Technical Support E-mail: InkAnswers@nazdar.com

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

Nazdar – Asia Pacific
11 Changi North Street 1 #03-03/04
Singapore 498823
Tel: +65-63854611
Fax: +65-65433690
E-mail: aspac@nazdar.com

Solvent-Based Screen Ink