3600 SERIES
UV DECAL SCREEN INK

TECHNICAL DATA SHEET

3600 Series UV Screen Ink has been formulated for applications on pressure-sensitive decals requiring exceptional performance. 3600 UV Decal Series exhibits excellent exterior durability and chemical resistance. The inks will thermal die cut and accept pre-mask.

SUBSTRATES	Pressure-sensitive vinyls and print treated polyesters

USER INFORMATION

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. See full disclaimer at the end of the document.

MESH	355-390 tpi (140-153 tpcm) monofilament polyester mesh is recommended for most applications. 305-420 tpi (120-165 tpcm) monofilament polyester can be used for specialty applications. (i.e. pearlescents, aluminums, etc.)
STENCIL	Solvent resistant, UV ink compatible direct emulsions and capillary films
SQUEEGEE	70-90 durometer polyurethane squeegee
COVERAGE	2500-3500 square feet (232 – 325 square meters) per gallon depending upon ink deposit
PRINTING	3600 Series ink is formulated to be press ready. Thoroughly mix the ink prior to printing. Maintain ink temperature at 65°-90°F (18°-32°C) for optimum print and cure performance. Lower temperatures increase the ink viscosity, impairing both flow and cure. Elevated temperatures lower the ink viscosity, reducing print definition, film thickness and opacity. Pretest to determine optimum printing performance for a particular set of ink, substrate, screen, press, and curing variables/conditions. The ink can be affected by stray UV light in and around a printing facility. Be aware of skylights, windows and overhead lights curing the ink in the screen. Light filters are recommended.
CURE PARAMETERS	The 3600 Series ink cures when exposed to a medium pressure mercury vapor lamp set at 200 watts per inch with millijoules (mJ) and milliwatts (mW) of: 90-100 mJ/cm² @ 600 mW/cm² for (Pantone® Base Colors, Standard Printing Colors, Halftone Colors, and Blending Toners) 100-130 mJ/cm² @ 600 mW/cm² for (3678, 3679, 3698) These guidelines are intended only as a starting point for determining cure parameters, which must be determined under actual production conditions. 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 condition and focus to the substrate. The values mentioned above 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.

CLEARS / VARNISHES	*Mixing Clear / Metallic Mixing Clear:* Use 3626 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics. *Overprint Clear:* Use 3627 Overprint Clear to provide added surface protection and extend the weatherability and outdoor durability of colors.
ADDITIVES	All additives should be thoroughly mixed into the ink before each use. Prior to production, test any additive adjustment to the ink. *Reducer:* Use RE306 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight. *Flexibilizer:* Use RE308 UV Reducer to increase the flexibility of these inks. Add up to 5% by weight. There is no pot life; however, the addition of RE308 could show a decrease in block resistance. *Adhesion Promoter:* To gain additional adhesion performance on top coated polyester, use NB80. Add up to 5% by weight. Improved adhesion will not be demonstrated for 24 hours, with full cross linking in 4-7 days. Ink mixed with NB80 has a 6-8 hour pot life. *Gloss / Flattening Powders / Improved Slip:* Use CARE59 Satin Paste to reduce gloss and improve slip. Add up to 10% by weight. CARE59 should be power mixed into 3600 Series ink.
CLEAN UP	*Screen Wash (Prior to Reclaim):* Use IMS207C Graphic Recirculating Screen Wash *Press Wash (On Press):* Use IMS301 Premium Graphic Press Wash
STORAGE	Store tightly covered at temperatures between 65°-90°F (18°-32°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	Direct skin contact to UV inks is the primary route of exposure and irritation. Therefore, it is recommended that all personnel handling these products 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 3600 Material Safety Data Sheet for further instructions and warnings. The 3600 is a one-part, 100% solids UV-curable screen printing ink and does 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 adhesion on a **cooled down** print:

1. Touch of ink surface – the ink surface will be smooth and slick.
2. Thumb twist – the ink surface will not mar or smudge.
3. Scratch surface – the ink surface will resist scratching. Some soft vinyls scratch easily, so use magnification to determine if scratches are ink only or ink and top layer of substrate.
4. 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.

Full adhesion characteristics are demonstrated within 24 hours after cure.

WEATHERING / OUTDOOR DURABILITY

At full strength and properly cured, 3600 Series colors are formulated to provide outdoor durability when mounted vertically in the Central U.S.A. (See estimated durability table listed under product offering). The use of 3627 Overprint Clear increases the projected outdoor durability.

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 curing
- Color formulation:
  - Adding large amounts of mixing clear or white to any color
  - Mixing several colors to achieve a specific color
  - Mixing a small quantity of any single color with any other color
- Substrate type and age
- Mounting angle or directional orientation
- Geographic location
- Air pollution
- Exposure to excessive abrasion (for example, brush car washes)
- Non-clear coated prints exhibit more color change and loss of gloss

Fluorescent colors fade quickly with exposure to UV light and are not recommended for outdoor durability.

PRODUCT OFFERING

STANDARD PRINTING COLORS

The Standard Printing Colors have excellent opacity, flow characteristics, and are intended to work well from the container.

PANTONE MATCHING SYSTEM® BASE COLORS

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

HALFTONE COLORS

Halftone Extender Base 36HTEX Halftone Extender Base is used to reduce the density of any of the halftone colors.

Halftone Colors are formulated with hues and densities matched to the high end of the SWOP standards.

BLENDING TONERS

The Blending Toners can be used in color matches or let down with 3626 mixing clear.

SPECIAL ADDITIVES

When inks are to be printed over a special effect color, the overprinting ink(s) must be evaluated for intercoat adhesion before proceeding with the production run. To maximize intercoat adhesion, specialty colors should be printed as late as possible in the print sequence. Pigments may settle in the container; prior to printing, thoroughly mix the ink.

The following special effect pigments may be added to 3600 Series. These pigments are available in 1-pound containers. Contact Nazdar® for the item number(s) and availability of special effect products.

Recommended Aluminum Pigments:
SIPM571 313 Aluminum Paste (Coarse Aluminum)
SIPM606 Aluminum 6600 (Medium Aluminum)
SIPM573 2871 Aluminum Pigment (Fine Aluminum)

Using the above recommended aluminums with 3626 Mixing Clear, will result in a minimum of 6 month shelf life. Using any other aluminum pigments may cause the mixed ink to have shorter shelf life and may affect exterior durability

Aluminum Pigment Load: The maximum recommended aluminum load is 15% in 3626 mixing clear. Mixing aluminum with colors will lower the allowable concentration of metallic in a formulation. The allowable concentration will depend on ink deposit and curing parameters. Care should be taken to ensure proper cure and adhesion.
Exceeding these recommendations may lead to degradation of the ink's overall performance, including flexibility, adhesion, intercoat adhesion and exterior durability.

Gold and Bronze Powders: Gold and bronze powders are not recommended due to poor exterior durability. To achieve gold and bronze colors use pearlescent and aluminum pigments. For reference of pearlescent and aluminum pigments see the Specialty Effects Color Card.

Pearlescent / Interference / Multi-Chromatic: Pearlescent and Interference pigments add up to 20% by weight.

Multi-Chromatic pigments add up to 10% by weight.

See the Pearlescent, Interference, and Multi-Chromatic Technical Data Sheets for more information.

Pantone® 871c to 877c have been matched in 3600 Series Ink using Pearlescent Pigments.

Note: *It is important to check adhesion of the 3627 Overprint Clear when printing over aluminum or pearlescent colors.*

COLOR CARD MATERIALS

The following is a list of screen printed samples available.

UV Color Card: shows the Standard Printing Colors, Pantone Matching System® Base Colors, Halftone Colors

60/360 Color Card: shows the 60 Series Pantone Matching System® Base Colors

Specialty Effects Color Card: shows Metallic and Pearlescent mixed with clear

Non-Metallic Pantone® Simulations sheet: shows representations of the 871c to 877c Pantone® Metallic color matches using pearlescent pigments

PACKAGING

All items listed below are available in gallon containers.

Stock Number	Standard Printing Colors	Estimated Durability Without Clear Coating (Years) *Chalks	Estimated Durability With 3627 Clear Coating (Years)
3610	Primrose Yellow	2	3
3611	Lemon Yellow	4	5
3612	Medium Yellow	4	5
3619	Fire Red	2	3
3621	Peacock Blue	4	5
3652	Super Opaque Black	4	5
3675	Super Opaque White	4*	5
3678	High Intensity White	4*	5
3679	High Intensity Black	4	5
3698	Bright White	4*	5
3627	Overprint Clear	5	N/A

Stock Number	Pantone® Matching System Base Colors	Estimated Durability Without Clear Coating (Years) * Chalks	Estimated Durability With 3627 Clear Coating (Years)
3626	Mixing Clear	4	N/A
3658	Tinting White	4*	5
3659	Tinting Black	4	5
3661	Yellow	4	5
3662	Warm Red	4	5
3663	Rubine Red	4	5
3664	Rhodamine Red	4	5
3665	Purple	4	5
3666	Violet	4	5
3667	Reflex Blue	4	5
3668	Process Blue	4	5
3669	Green	4	5

Stock Number	+ Blending Toners	Estimated Durability Without Clear Coating (Years)	Estimated Durability With 3627 Clear Coating (Years)
3680	Yellow Toner	4	5
3681	Orange Toner	4	5
3682	Carmine Toner	3	5
3683	Magenta Toner	4	5
3684	Maroon Toner	4	5
3685	Green Toner	4	5
3686	Blue Toner (GS)	4	5
3687	Blue Toner (RS)	4	5
3688	Violet Toner	4	5
3689	Red Toner	4	5

Stock Number	Halftone Colors	Estimated Durability Without Clear Coating (Years)	Estimated Durability With 3627 Clear Coating (Years)
36HTC	Halftone Cyan	4	5
36HTM	Halftone Magenta	4	5
36HTY	Halftone Yellow	4	5
36HTBK	Halftone Black	4	5
36HTEX	Halftone Extender Base	4	5

PACKAGING

Additives/Reducers are available in quarts and/or gallon containers.
Cleaners are available in gallon, 5 gallon and 55 gallon containers.

Stock Number	Additives/Reducers
RE306	UV Reducer
RE308	UV Reducer (Flexibilizer)
CARE 59	UV Satin Paste
NB 80	UV Adhesion Promoter (quarts only)

Stock Number	Cleaners
IMS207C	Graphic Recirculating Screen Wash
IMS301	Premium Graphic Press Wash

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®.

Based on information from our raw material suppliers, these products are formulated to contain less than 0.06% lead.
If exact heavy metal content is required, independent lab analysis is recommended.

Nazdar Worldwide Headquarters
8501 Hedge Lane Terrace, Shawnee, KS 66227-3290 USA
Toll Free: 866.340.3579 or Tel: 913.422.1888 Fax: 913.422.2296
e-mail: custserv@nazdar.com

Nazdar Limited
Barton Road, Heaton Mersey, Stockport, England SK4 3EG
Tel: + (44) 0.161.442.2111 Fax: + (44) 0.161.442.2001
e-mail: technicalservicesuk@nazdar.com

http://www.nazdar.com