

3500 Series UV Screen Ink has been formulated for use on premium pressure sensitive vinyl films intended for exterior applications. It exhibits superior flexibility and elongation, allowing for stretching the printed vinyl film over rivets for fleet graphic applications. The 3500 Series has excellent weatherability and chemical resistance, and may be used on decals that will be thermal diecut and pre-masked.

SUBSTRATES Premium pressure sensitive vinyls

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 for most applications

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 3500 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 3500 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:

225-300 mJ/cm² @ 600 mW/cm² for colors and metallics
275-350 mJ/cm² @ 600 mW/cm² for 3529 Overprint Clear

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 3536 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics.

Overprint Clear: 3529 Overprint Clear is required 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 RE305 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight.

CLEAN UP

Screen Wash (Prior to Reclaim): Use IMS207C Graphic Recirculating 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.

PROCESSING

Finishing: To assure optimum performance with relation to die cutting, pre-masking or chemical resistance, allow 4 – 8 hours for the ink and substrate to stabilize after curing.

Pre-masking: It is important to evaluate the ink with specific pre-masks as well as application methods prior to using in production. The use of a medium to high tack adhesive is recommended for most application methods.

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 3500 Material Safety Data Sheet for further instructions and warnings.

The 3500 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 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

3500 Series colors **must** be printed at full strength and properly cured, and overprinted with 3529 Overprint Clear to provide 5 years outdoor durability when mounted vertically in the Central U.S.A.

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)

Aluminum colors prepared according to the Special Additives section below **must** be overprinted with 3529 Overprint Clear and properly cured to provide 3 years outdoor durability when mounted vertically in the Central U.S.A.

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

PRODUCT OFFERING

STANDARD PRINTING COLORS

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

HALFTONE COLORS

Halftone Extender Base 35HTEX 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 mixing clear.

MATCHING OFF WHITE OR PASTEL COLORS

The matching of durable pastel colors in the red or yellow shades requires the specific use of very lightfast pigmented inks: it is recommended that 35161 Primrose, 3533 Permanent Yellow (RS) and 3543 Permanent Red be used when small quantities of red and yellow are required for tinting white into off-white or pastel colors.

SPECIAL ADDITIVES

When inks are to be printed over a special effect colors, 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 3500 Series. These pigments are available in 1-pound containers. Contact Nazdar® for the 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)

Recommended mesh for printing aluminum pigments is 355 tpi (140 tpcm) plain weave monofilament polyester:

Using the above recommended aluminums with 3536 metallic mixing clear, will result in a minimum of 6 month shelf life. Using any other metallics 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% by weight in 3536 metallic mixing clear.

Pearlescent Pigment Load: The maximum recommended pearlescent load is 20% by weight in 3536 metallic mixing clear.

Mixing aluminums and pearlescents with colors will lower the allowable concentration 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 aluminum and pearlescent pigments. For a reference of aluminum and pearlescent pigments see the Specialty Effects Color Card.

Note: It is important to check adhesion of the 3529 Overprint Clear when printing over aluminum or pearlescent colors.

COLOR CARD MATERIALS

The following is a list of screen printed samples available.

CARD35 Color Card: shows the Standard Printing Colors, Blending Toners, Halftone Colors

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

PACKAGING All items listed below are available in gallon containers.

Stock Number	Blending Toners	Stock Number	Blending Toners
35159	Trans Orange	35170	Maroon
35160	Trans YS Red	35171	Violet
35161	Primrose	35172	Green (YS)
35162	Yellow (GS)	35173	Green (BS)
35163	Yellow (RS)	35174	Blue (GS)
35164	Medium Yellow	35175	Blue (RS)
35165	Permanent Orange	3558	Tinting White
35166	Red (YS)	3559	Tinting Black
35167	Deep Red	3536	Metallic Mixing Clear
35168	Carmine	3533	Permanent Yellow (RS)
35169	Magenta	3543	Permanent Red
Stock Number	Standard Printing Colors	Stock Number	Halftone Colors
3529	Overprint Clear	35HTEX	Halftone Extender Base
3567	Reflex Blue	35HTC	Halftone Cyan
3568	Process Blue	35HTM	Halftone Magenta
35176	Super Opaque White	35HTY	Halftone Yellow
35177	Super Opaque Black	35HTBK	Halftone Black
35178	High Intensity White		
35179	High Intensity Black		

PACKAGING Reducer is available in gallon containers.
Cleaners are available in gallon, 5 gallon and 55 gallon containers.

Stock Number	Reducer	Stock Number	Cleaners
RE305	UV Reducer	IMS207C	Graphic Recirculating 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.

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