

The UV PSET Vinyl Banner Ink Series is designed for printing on indoor or short term outdoor vinyl banner displays. The PSET Vinyl banner ink has shown good adhesion to vinyl banner material that other UV inks have difficulty adhering to.

## Substrates

- Vinyl Banners

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

355-420 tpi (140-165 tpcm) with a mesh opening of 22-38 um monofilament polyester mesh for most applications.

Coarser mesh counts and/or twill weave result in heavier ink deposit and may require additional cure output.

### Stencil

Use direct emulsions and capillary films which are solvent resistant and UV compatible.

### Squeegee

70-90 durometer polyurethane squeegee.

### Coverage

Estimated 3,000 - 3,600 square feet (280 - 335 square meters) per gallon depending upon ink deposit. Reference [www.nazdar.com](http://www.nazdar.com) for examples of coverage calculations.

### Printing

PSET Vinyl Banner Ink Series is formulated to be press ready. 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.

The ink can be affected by stray UV light. Be aware of skylights, windows and overhead lights curing the ink in the screen; light filters are recommended. Leaving a container uncovered may result in the ink's surface forming a "skin", caused by reaction with ambient lighting. Keep containers covered.

Nazdar does not recommend inter-mixing of PSET Vinyl Banner Ink Series with other inks besides the PSET Vinyl Banner Ink Series.

### Cure Parameters

PSET Vinyl Banner Ink Series cures when exposed to a single medium pressure mercury vapor lamp emitting output millijoules (mJ) and milliwatts (mW) of:

80-100 mJ/cm<sup>2</sup> @ 600+ mW/cm<sup>2</sup>  
*for most colors*

These guidelines are intended only as a starting point for determining cure parameters, which must be determined under actual production conditions. "Undercuring" the ink may result in poor adhesion, lower block resistance, reduced durability, and higher residual odor. "Overcuring" the ink may reduce the flexibility of the printed part and adhesion of subsequent ink layers.

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, and ensure proper focus to the substrate.

These guidelines are representative of measurements taken using an EIT<sup>®</sup> UVICURE<sup>®</sup> Plus radiometer measuring the UVA bandwidth (320-390 nm). To obtain accurate mW readings with the UVICURE<sup>®</sup> Plus, reduce the belt speed to less than 40 ft/min.

# Nazdar UV PSET Vinyl Banner Ink Series

## Clears / Varnishes

**Mixing Clear:** Use PST26 Mixing Clear to reduce the density of colors or PST140 Extender Base when reducing density of halftone colors.

**Overprint Clear:** Use PST27 Overprint Clear to provide added surface protection and increase durability.

## Common Performance Additives

The market specific performance properties of the PSET Vinyl Banner Ink Series should be acceptable for most applications without the need for additives. When required, 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:

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

**Reducer:** Use RE306 UV Reducer to reduce the viscosity of these inks. Add up to 10% by weight. Over reduction can reduce print definition, film thickness and adversely affect cure.

**Flattening Paste:** Use CARE59 UV Satin Paste to reduce gloss and improve slip. Add up to 10% by weight.

**Adhesion Promoter:** Use CARE55 UV Adhesion Promoter to gain additional adhesion performance. Add up to 10% by weight.

## 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 PSET Vinyl Banner Ink Series items supplied in 1 gallon containers or smaller are

useable for a period of at least 2 years from the date of manufacture. Inks packaged in 5 gallon or greater containers may have a significantly reduced shelf life. To obtain the official shelf life letter, Contact Nazdar Technical Service at [InkAnswers@nazdar.com](mailto:InkAnswers@nazdar.com) or see contact listing at the end of this document.

## General Information

### Ink Handling

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 applicable [Safety Data Sheet](#) (SDS / MSDS) for further instructions and warnings.

This ink series is a one-part, 100% solids UV-curable screen printing ink and does not contain N-vinyl-2-pyrrolidone (trade name V-Pyrol®).

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

Even when recommended UV energy output levels are achieved, it is imperative to check the degree of cure on a **cooled down** print:

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.

Full adhesion characteristics at proper cure levels are demonstrated within 4 hours.

## Weathering / Outdoor Durability

At full strength and properly cured, PSET Vinyl Banner Ink Series colors are formulated to provide 6 – 12 months outdoor durability.

Outdoor durability can be affected by many variables including substrate age and quality, geographical location, and the use of a clear coat finish.

## 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.

## Halftone Colors

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

Standard Halftone Colors are formulated with hues and densities common to the graphic industry.

Dense Halftone Colors are formulated with increased densities over the Standard Halftone colors and are designed for printers who want to have the latitude to adjust the density levels.

Medium Tack Rheology (MTR) Halftones can achieve processing speeds for flatbed, clam shell and most in-line presses while maintaining dot quality.

T7 Halftones are formulated to be compliant to the ISO 12647-2 color specifications. These halftones can be printed in any order to achieve ISO 12647-2 L.a.b. tolerances.

## Standard Printing Colors

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

## 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](http://www.nazdar.com) using ColorStar® On-Line.

360 Series Colors: PST360-PST369 colors are formulated to have no white or opaque pigments. This allows the colors to be more vibrant and allows for a better match of intense and darker colors.

## Color Card Materials

The following is a list of available screen printed sample literature representing PSET Vinyl Banner Ink Series.

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

## Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

## Standard Ink Items

Standard ink items listed below are inventoried in gallon containers.

MTR Standard / Dense Halftone Colors  
(Medium Tack Rheology)

Item Number	Color
PST140	Halftone Extender Base
PST141	T7 Halftone Cyan
PST146	T7 Halftone Magenta
PST143	T7 Halftone Yellow
PST144	T7 Halftone Black
PST142	Halftone Magenta
Item Number	Color
PST151	Halftone Cyan Dense
PST152	Halftone Magenta Dense
PST153	Halftone Yellow Dense
PST154	Halftone Black Dense

## Standard Printing Colors

Item Number	Color
PST13	Emerald Green
PST19	Fire Red
PST26	Mixing Clear
PST27	Overprint Clear
PST50	Barrier White
PST78	High Intensity White
PST79	High Intensity Black

UV Screen Ink

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v 3 EN

Ref: v 2 EN

## Pantone Matching System® Base Colors

Item Number	Color
PST358	Tinting White
PST359	Tinting Black
PST360	Orange
PST361	Yellow
PST362	Warm Red
PST363	Rubine Red
PST364	Rhodamine Red
PST365	Purple
PST366	Violet
PST367	Reflex Blue
PST368	Process Blue
PST369	Green

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## Additives / Reducers

Item Number	Item Description
RE306	UV Reducer
CARE59	UV Satin Paste
CARE55	UV Adhesion Promoter

## Cleaners / Clean Up

Item Number	Item Description
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

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