

## Product: Vinyl Banner Ink

### Series: VYB™

**BACKGROUND/DESCRIPTION:** The influx of many new grades of vinyl banner stock, some of which are considerably less print receptive than prior generations, presents a major challenge to printers who discover that their ink performs well on some varieties of vinyl banner material and unsatisfactorily on others.

Sun Chemical has solved this problem with the introduction of **VYB Vinyl Banner Ink** – a series of single-package UV screen printing inks formulated specifically to have excellent adhesion on virtually all grades of non-pressure sensitive vinyl banner stock and static cling vinyl, including highly plasticized types which are characterized by poor ink receptivity.

**NOTE:** *Pretest all substrates prior to use in production.*

**PRODUCT RANGE:** VYB inks are available in SunMatch™ blending colors and 4-color process inks, plus black, white & clear.

**PIGMENTS/LIGHTFASTNESS:** Prints made with VYB inks are designed for up to \*5 years outdoor use depending on climatic conditions. Please refer to the *VYB Weathering Statement* for full details of expected outdoor durability

- If blended inks are mixed to contain high contents of white or clear, lightfastness is reduced.

**FLEXIBILITY/EDGE CURL:** VYB inks were formulated to have good flexibility and will exhibit minimal curl on plasticized vinyl banner substrates.

**Note:** As with all inks, care should be taken not to apply an excessive ink film deposit, which reduces flexibility and increases the risk of edge curl.

**CURING:** Generally, a typical 10-12 micron deposit of a VYB color achieved with a 380/in (150/cm) mesh will require UV exposure of approximately 200-300 mJ/cm<sup>2</sup>, as measured with an IL390 International Light Radiometer. Opaque blacks and whites will require significantly more irradiation to successfully cure.

Actual cure speeds will vary, depending on: ink color, mesh, ink film deposit, opacity, number of color components (in a color blend), and type of UV lamps, in addition to a wide range of other processing parameters. Belt speeds of 60-80 ft/min (18-24 m/min), with two lamps at 200 watts/in. (80 watts/cm), can be achieved, dependent on these variables.

Ink adhesion can only be achieved if the UV ink film is adequately cured. Substrates have differing receptivity to UV ink, and on certain grades of substrate it may be necessary to cure ink more effectively to achieve satisfactory adhesion.

When producing double-sided prints, special care must be taken to fully cure the ink film and minimize print temperature before stacking prints to prevent marring.

*\*When overprinted with FLX-C501 Super OP Clear*

**PROCESS COLORS:** VYB process colors are available in SWOP and G7® compliant versions. As with all UV halftone printing, plain-weave mesh and thin stencil coatings should be used to minimize ink deposit and dot gain.

- VYB G7 Compliant Process Colors are balanced for density and L\*a\*b\* values in accordance with ISO 12647-5 and are recommended for use with G7 calibration process methodology.

- VYB-PC Process Clear may be used to adjust the density of VYB G7 Complaint Process Colors, but under normal circumstances, base should not be needed to achieve color gamut. VYB has been designed to be press-ready directly from the container and should only be modified judiciously.

The special rheology of VYB G7 Complaint Process Colors was designed with “LDP” technology, featuring low dot profile and minimal ink transfer pressure, maintaining optimum color balance with negligible shift throughout the print run.

- VYB-TPS Transparent Base is designed for use with the SWOP Process set. The S200 Process Set features high densities that are ideal for use with fine mesh counts and low ink deposits.

#### **RECOMMENDED SEQUENCE FOR 4 COLOR PROCESS PRINTING WHEN USING G7 METHODOLOGY:**

- Yellow, Cyan, Magenta, Black

To meet the ISO color specification for G7 methodology, VYB-Y131 Process Yellow must be printed first. If an alternate print sequence is preferred, use VYB-S231 Process Yellow. However, alternating the recommended print sequence or using VYB-S231 Process Yellow will not meet the ISO color specifications for G7 methodology.

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**MODIFICATION:** VYB is a single-package ink which does not require the use of any additives under normal printing conditions. The following additives are available for modification:

ST-350                      Viscosity Modifier    3-10%

ST-370                      Cure Accelerator      1-5%

**NOTE:** Overdosage of these additives may cause problems during further processing.

**SCREEN MESH:** 305-420/in. (120-165/cm) monofilament polyester mesh, or finer, is suitable for processing. It is possible to use coarser fabrics; however, the curing parameters must be adjusted for sufficient cross-linking of the increased ink film deposit. Sun Chemical has the mesh best suited for your particular printing requirements. Contact your local Sun representative for details.

**SQUEEGEE:** Sharp urethane squeegee of approximately 75-85 durometer. Sun Chemical has the best squeegee for your particular application. Contact your local Sun representative for details.

**OVERPRINTABILITY:** VYB does not normally require overprinting. For applications where maximum exterior durability is required, use FLX-C501 Super Overprint Clear.

**COVERAGE:** When printed through 380/in. (150/cm) mesh, VYB will cover approx. 3000 sq. ft/gallon, depending on printing variables. Higher coverage can be achieved with finer mesh counts.

**STORAGE:** When stored in black polyethylene containers at temperatures between 40-90°F (5-32°C), VYB has a shelf-life of 36 months.

**WASH-UP:** Sun Chemical has a variety of wash-ups including ECO friendly screen washes available for your particular needs. Contact us for *all* of your pre and post-press chemical requirements.

**HEALTH AND SAFETY:** As with all inks, gloves and safety goggles should be used when handling this product. For more complete information, refer to the relevant Material Safety Data Sheets.

SunMatch™ Blending Colors:		G7 Compliant Process Colors:		Modifiers:
VYB-Y30	Primrose	VYB-C135	Process Cyan	ST-350    Viscosity Modifier
VYB-Y50	Golden Yellow	VYB-M140	Process Magenta	ST-370    Cure Accelerator
VYB-O50	Orange	VYB-Y131	Process Yellow	<b>Standard Products:</b>
VYB-R20	Scarlet	VYB-K171	Process Black	VYB-N70    Opaque Black
VYB-R50	Red	VYB-PC	Process Clear	VYB-W70    Opaque White
VYB-M50	Magenta	<b>SWOP Process Colors:</b>		In accordance with information received from suppliers, the full VYB series is formulated without heavy metals and complies with: 16 CFR, Part 1303; ANSI Z66.1-1964; ASTM F 963; CONEG packaging regulations; EC Packaging Waste Directive EC/94/62; EN71, section 3; RoHS 2002/95/EC; WEEE 2002/96/EC; E2003/11/EC.
VYB-V50	Violet	VYB-S231	SWOP Process Yellow	
VYB-B50	Blue	VYB-S235	SWOP Process Cyan	
VYB-G50	Green	VYB-S240	SWOP Process Magenta	
VYB-N50	Blending Black	VYB-S271	Process Black	
VYB-W50	Blending White	VYB-TPS	Short-Flow Transparent Base	
VYB-E50	Mixing Clear			

All information on this data sheet is based on Sun Chemical laboratory tests and experience in print shops. Procedures and directions for use of Sun Chemical products (including printing and after-treatment) must be considered as recommendations only, with no warranties expressed or implied. The user of the products described herein is solely responsible for determining suitability of any Sun Chemical product for the particular application. Sun Chemical recommends that all products be pre-tested prior to full-scale production use. This data sheet supersedes all previous publications. July 2009