

VinylFlex VLF Series

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Fast-curing, tack-free vinyl banner UV ink. VinylFlex VLF has high cure speeds to minimize shrinkage and offers exceptional flexibility for sewing, folding, or heat-sealing multiple color overlays. The most significant attribute of VinylFlex VLF is its ease of processing. VLF cures tack-free on highly plasticized vinyl, which allows printed material to be stacked face-to-face without rewetting or picking. The VLF series also demonstrates excellent adhesion and flexibility on electrostatic vinyl film, flexible vinyl, and French Calf vinyl.

Performance Properties

- Fast, tack-free cure
- Allows double-face printing without rewetting or picking
- Extremely flexible for sewing and folding
- Excellent adhesion properties to plasticized material
- Large range of opaque colors
- Exterior durability and light fastness

Printing

Mix ink well prior to use. Although VLF has been supplied in press-ready condition, this system may be reduced up to 10% with VLF Thinner for special viscosity adjustments. Care should be taken to print the ink at optimal temperature of 70-90°F (21-27°C). Cool ink will have a heavier viscosity and will not flow properly. Hot ink will be lower in viscosity, resulting in poor definition and decreased opacity.

Coverage

3,200 to 3,600 square feet per gallon based on ink deposit of .10-.60 mil, dependent on color and printing.

Squeegee

A 70-90 durometer polyurethane blade is recommended.

Curing

Ink will cure well when printed through 390 (150cm) plain weave polyester mesh or finer. VLF's optimal cure window of 175-200 mJ / 550-650 mW is generally achieved with one-200 Watt per inch mercury vapor lamp at belt speeds between 60-70 feet per minute (20-30 m/min). This should provide thorough cure of the product including opaque colors. Cure speeds may vary as thicker material and dark surface colors require more energy.

Adhesion should be a minimum of 95% from the curing unit with final adhesion developing within four hours of initial polymerization. Coarser fabrics can be utilized; however, cure parameters may need to be adjusted for increased ink film.

If a loss of gloss or adhesion due to insufficient cure is noticed, the use of 5-10% VLF Overprint / Mixing Clear will increase light penetration and improve cure.

The VLF series, when properly cured, develops an extremely versatile high gloss, water-resistant ink film.

Even though the cured ink film has been engineered to optimize processing and handling, the printer must assume responsibility for

pre-testing and qualifying the parameters for stacking printed parts prior to each run.

The intensity of cure, weight or caliper of the material and/or elevated ambient temperatures and humidity of the printing and storage environments will influence block resistance.

Under curing the VLF series can radically affect the physical properties of the inks. Do not expose stacks of printed materials to environments that may introduce high levels of moisture and water. Printed materials must be stored in a dry area. It is also recommended that additional precautions be made for shipping by truck as temperatures in trailers can exceed 160°F / 70°C.

Recommended Substrates

- Vinyl Banner
- Electrostatic Vinyl
- Expanded Foam PVC (Sintra®, Celtec®)
- Tyvek
- Pressure Sensitive Vinyl
- Unsupported Vinyl
- Rigid Vinyls

When working with highly plasticized vinyl material, VinylFlex VLF is recommended over all other products. To determine suitability of the product for the intended use, a pre-test prior to production is advised.

* A minimum of 40 Dynes of surface energy is recommended for all Polyethylene and Polyolefin stocks. Always check adhesion immediately and overnight to ensure the print meets the end use requirements prior to production runs.

Light Fastness

At full strength and cured properly, VLF colors are formulated to withstand 12 months of exterior exposure. The use of VLF Overprint / Mixing Clear increases the duration of outdoor durability. Factors which will alter the outdoor durability of the ink include, but are not limited to: substrate grade / age, poor cure of ink film, formulas, directional positioning, ink film deposit, exposure to excessive abrasives and air pollutants. Under no circumstances should colors requiring long-term durability have mixing clear or white added to the formula. In addition, we do not recommend using less than 5% of any color in a blended formula for outdoor applications.

Colors that should not be used for outdoor applications are CMS 164 Red BS, CMS 114 Orange, 180 Warm Red, and 131 Brilliant Orange.

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MIX INK WELL BEFORE USE. Follow any indications on the package, ask for the safety data sheets and always follow the indications contained therein. In case of doubt, please contact our Technical Service department.

Light Fastness (Continued)

For very light-fast applications requiring orange, blue-shade red, green-shade yellow, and / or medium-shade yellow, we recommend using VLF BS Red Toner, VLF GS Yellow Toner, VLF 111 Lemon Yellow, and VLF Orange Toner when small quantities of red, yellow, and orange are required for tinting white for pastel shades. The Polymeric color match system in many cases is not recommended for long-term exterior exposure due to many pastels and transparencies in the system. When using the color match system, contact Polymeric Imaging Inc. directly for possible color match recommendations.

Metallics

Use the Metallic Mixing Clear to prepare metallic ink as its increased viscosity helps insure a good particle suspension and extended shelf life.

Recommended mixing ratios by weight are:

- 28% Gold Paste
- 12% Silver Paste

For optimum coverage and opacity, use 280-305 (110-120cm) monofilament mesh is recommended. Use VLF Overprint / Mixing Clear for extended weatherability and improved non-tarnishing properties of the product.

Additives

- Thinner - Up to 10% as needed
- Adhesion Promoter - 3-5% as needed

Precautions

Read the material safety data sheet prior to processing. It contains instructions for precautions when handling inks. If ink comes in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent). Wash and rinse the affected area with soap and water.

Process Printing

For superior halftone reproduction, halftones are available in a range of density levels. Additional control of density may be achieved with use of VLF MV HT Base. For best results, 355 (140cm) plain weave mesh or finer and a smooth, thin stencil coating should be utilized with process printing.

	Press Ready	High Density	Backlit Density
Halftone Yellow	0.90	1.10	1.35
Halftone Magenta	1.40	1.75	2.05
Halftone Cyan	1.40	1.80	2.20
Halftone Black	1.60	2.00	2.25

Storage

Care should be taken to store ink in tightly-closed containers located in a cool (60 - 80°F / 15 - 27°C), dark place. After long production runs, excess ink from the screen should be properly disposed. With suitable conditions, unopened ink is expected to have a shelf life of approximately twelve (12) months from the gate of manufacture.

Color Availability

VinylFlex VLF is available in twenty opaque standard colors. Custom matches, metallic, fluorescent*, and transparent colors are obtainable upon request.

101 Primrose Yellow	210 Ultra Blue
111Lemon Yellow	220 Emerald Green
123 Medium Yellow	225 Forest Green
131 Brilliant Orange	226 Lime Green
135 Vivid Orange	235 Teal
141 Fire Red	240 Purple
151 Scarlet Red	260 Brown
155 Rubine Red	301 Opaque Black
160 Rhodamine Red	311 Opaque White
180 Warm Red	312 Dense Black
190 Process Blue	026 Brilliant White
200 Peacock Blue	Overprint / Mixing Clear
205 Reflex Blue	Metallic Mixing Clear
Bs Red Toner	GS Yellow Toner
Orange Toner	

* Fluorescents are not included in statements detailing light fastness.

Pantone Matching System® Colors

The nine Pantone® approved Color Matching System (CMS) shades are used to simulate the Pantone® Color Specified colors. Formulas were designed for maximum opacity and are available in book or Imaging Color Source Software formats.

064 CMS GS Yellow	164 CMS BS Red
066 CMS RS Yellow	165 CMS Magenta
114 CMS Orange	230 CMS Blue
121 CMS YS Red	325 CMS Green
127 CMS Violet	Overprint / Mixing Clear
Tinting White	Shading Black

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MIX INK WELL BEFORE USE. Follow any indications on the package, ask for the safety data sheets and always follow the indications contained therein. In case of doubt, please contact our Technical Service department.