



BioSphere

(Bio-Based UV Screen Bottle Deco System)

BioSphere is a one –part high-performance, fast-curing, bio-based UV screen printing ink specifically formulated for the needs of the container printer, with the preservation of the environment in mind. **BioSphere** adheres to HDPE, PET, PVC and PP without the use of an adhesion promoter or catalyst, while reducing the petro carbon footprint. The physical properties of **BioSphere** includes a myriad of organic, biogenic, sustainable, degradable and biodegradable components. **BioSphere** was developed for high speed container printing with high internal press temperatures (120F). It's unique rheology prevents drip-through and bleed, as well as static. **BioSphere** also has excellent resistance to chemicals used in health and beauty care products.

Performance Properties

- Cures with hard surfaces for immediate packaging
- Superior opacity for color trapping
- Distinct rheological properties
- Superb water and abrasion resistance
- Unequaled range of adhesion
- Brilliant opaque whites

Printing

Mix ink well prior to use. While supplied in press-ready condition, **BioSphere** may be reduced up to 10% with **BioSphere** Thinner. Care should be taken to print the ink at optimal temperatures 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.

Curing

Ink will cure well when printed through 305- 380 (120-150cm) plain weave polyester mesh or finer. **BioSphere's** optimal cure window of 125-150 mJ / 550-650 mW is generally achieved with one-300 Watt per inch mercury vapor lamp at press speeds up to 70-90 containers per minute. 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 six 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% of **BioSphere** Overprint / Mixing Clear will increase light penetration and improve cure.

Recommended Substrate

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(Flame treatment is recommended)

- HDPE
- Low Density Polyethylene
- Polypropylene

(No Flame is required)

- Polystyrene
- ABS
- Polycarbonate

*Please keep in mind that some of the materials listed above may not be available as or considered Bio friendly. Please consult your material supplier for bio grade materials.

Coverage: 3200 - 3600 square feet per gallon based on .40 - .60 mil ink deposit. *Dependant on color and printing conditions.

Water Resistance: **BioSphere** has passed all laboratory conducted water immersion/wet flex tests. Printed bottles were tested immediately, as well as after a 24 hour post cure period. This period between curing and testing provides the ink film and substrate time to stabilize, thereby improving adhesion properties

Chemical Resistance: Properly cured, **BioSphere** ink successfully withstood chemical testing(50 pass, double rub) with oil/gasoline mixture, ammonia, Windex, bleach and 99% strength of isopropyl alcohol. To determine suitability of the ink for intended use, a chemical test prior to production is recommended.

Metallic's

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) plain weave mesh. Use **BioSphere** overprint clear to improve the scuff and tarnish resistance.

Additives

- **BioSphere** Thinner - up to 10% as needed
- 1534 Adhesion Promoter - 3% - 5% as needed

Precautions

Read the material safety data sheet prior to processing. It contains instructions for precautions to be taken 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.

Pantone Matching System

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 formulas.

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

Tinting White

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 date of manufacture.

Color Availability

BioSphere is available in eight opaque standard colors. Custom matches, metallic, fluorescent*, and transparent colors are obtainable upon request.

Metallic Mixing Clear	210 Ultra Blue
111Lemon Yellow	220 Emerald Green
123 Medium Yellow	205 Reflex Blue
131 Brilliant Orange	Overprint MX Clear
141Fire Red	301 Opaque Black
155 Rubine Red	311 Opaque White
160 Rhodamine Red	312 Dense Black
026 Brilliant White	164 CMS BS Red

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