PolyMembrane PCM Series

PolyMembrane PCM is a UV curable ink specifically formulated for multi-colored sub surface applications, such as, membrane switches, nameplates, counter mats, and instrument panel overlays. PCM has an excellent tolerance to pressure sensitive adhesives applied directly to the ink film. This ink has demonstrated remarkable flexibility for embossing, die-cutting and mechanical life cycling.

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Performance Properties
- Unmatched adhesion range on polycarbonate and polyester films
- Extremely flexible for multi-layer applications and embossing
- Meets GE's test specifications for acceptance on GE Lexan® and Valox® PTX print treated films
- Suitable with high tack pressure sensitive adhesive application
- Mechanical life cycle actuation tested

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

Curing
PCM was designed to cure in an oxygen environment and does not require nitrogen inerting for thorough cure.

PCM will cure well when printed through 355 (140cm) plain weave polyester mesh or finer. PCM's optimal cure window of 150 - 175 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). Special super opaque products like Backing White and Barrier Black are often printed through a 305 (120cm) plain weave mesh and may require at least 300 mJs for complete cure.

Adhesion should be a minimum of 90% from 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% PCM Mixing Clear will increase light penetration and improve cure.

Recommended Substrates
- Polycarbonate
- Many Polyester Materials
- Polycarbonate/Polyester blends
- PVC
- Rigid Vinyl
- Tedlar®

Lightfastness
PCM is lightfast up to three (3) year with a 355/inch or coarser mesh. Weathering tests have been completed and the ink withstood 1,500 hours of exposure with 4-hour cycle times of light and condensation at elevated temperatures with minimal color change and no shrinkage.

Accelerated machine weathering's are reference standards and can not precisely reproduce actual outdoor performance. Based on prior correlation of accelerated testing vs. real time exposure, 500 hours is equated to approximately one year, 45° south Florida.

Water resistance is required for most outdoor applications, tests should be conducted at a minimum of 24 hours after curing. If additional water resistance is required, use 3% - 5% of #2153 adhesion promoter.

Coverage
3,200 to 3,600 square feet per gallon based on ink deposit of .40 – .60 mil dependant on color and printing conditions.

Adhesives
Lamination or mounting contact adhesives to printed parts should be done after a 24 hour "post cure" period. This period, between curing and adhesive lamination, provides the ink film and substrate time to stabilize, improving adhesion properties. Pressure sensitive adhesives are known to contain materials which migrate through the under-cured ink films and weaken the bond between ink and substrate. A properly cured ink film will pass a cross-hatch tape test (ASTM D3359-93). Please test each print layer in multiple places throughout the run.

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 date of manufacture.

Metallic's
Use the Metallic Mixing Clear to prepare metallic ink as it's 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, 280 - 305 (110 - 120cm) plain weave mesh is recommended. Use PCM Overprint Clear for extended weatherability and improved non-tarnishing properties of the product.

Additives

- 4318 PCM Thinner up to 10% 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.

Process Printing
For superior halftone reproduction, PolyMembrane PCM halftones are available in a range of density levels. Additional control of density may be achieved with use of PCM HT Base. For best results, 380 (150 cm) or finer and a smooth, thin stencil coating should be utilized with process printing.

	Press Ready	High Density	Backlit Density
PCM Halftone Yellow	0 .90	1.10	1.35
PCM Halftone Magenta	1.40	1.75	2.05
PCM Halftone Cyan	1.40	1.80	2.20
PCM Halftone Black	1.60	2.00	2.25

Color Availability
PolyMembrane PCM is available in twenty opaque standard colors. Custom matches, metallic, fluorescent and transparent colors are obtainable upon request.

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

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

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

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

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