

## Technical Data Sheet

# Multi King Scratch Off Ink

KOLORCURE'S Scratch Off Inks are UV curable two-part (Base & Paste) screen printing inks which are formulated to provide clean and easy removal with a fingernail or coin. These products will provide excellent opacity which will completely block out printed copy.

### Suggested Uses

- Lottery Games
- Direct Mail Coupons
- Sweepstakes

*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.*

### Directions for Use

Pretest for adhesion to all substrates prior to production printing, as well as, other properties to determine suitability. Mix well prior to each use.

A seal coat should be applied over the graphics prior to printing the scratch off ink to prevent adhesion to the print copy and substrate.

We recommend LUSTERCURE LC-400 for screen application and LUSTERCURE LC-3000L for flexographic or roller coating applications.

Always test on actual substrate prior to production printing and allow at least 24 hours before evaluating product performance.

### Surface

A clean dry surface is preferred for superior adhesion.

### Mesh

For optimal opacity a 305 screen mesh should be used, however a 355 mesh will provide adequate hiding power.

### Stencil

Lacquer proof, most direct or direct/indirect will work well.

### Squeegee

An 80 durometer (Shore A Hardness) polyurethane is recommended. It should be well sharpened.

### Coverage

Using a 390 mesh for seal coat will yield approximately 3200 sq ft per gallon. Using a 305 mesh for scratch off metallic will yield approximately 2300 sq ft per gallon and a 355 will yield 2600 sq ft per gallon.

### Screen Wash Up

A special high flash point wash containing no hydrocarbon solvents should be used, such as KOLORCURE'S UVW-80 Screen Wash.

### Screening equipment

Hand, semi-automatic, or fully automatic presses.

### Additives

When required, additives should be mixed well before each use. Test any additive adjustments to the ink prior to production. Inks containing additives should not be mixed with other inks.

To lower the viscosity which will enhance the transfer of the ink through the screen, use **Scratch Off Thinner**.

To increase curing speeds add **Activator #7 (Sensitizer)**.

### Printing

**\*\*PLEASE NOTE:** When you order Metallic Ink, it is pre-measured with the exact ratio of Paste to Base for the quantity purchased. Therefore, no additional weighing is required.

Metallic inks are supplied in the 2-part form due to the shortened shelf life once mixed. We recommend mixing only the amount needed, not necessarily the complete containers.

Shelf life guarantees are void once the ink has been mixed.

Mix the ink thoroughly prior to printing. Improper mixing can lead to inconsistent color and ink performance.

Ink temperature should be maintained at 65°–90°F (18°–32°C) for optimum print and cure performance. Lower temperatures will increase the ink viscosity which impairs flow and increases film thickness. Elevated temperatures will lower the ink viscosity which reduces print definition and film thickness.

Keep inks away from direct sun light and indirect white light. Be cautious using inks in areas having overhead lights, skylights, or windows as stray UV light can cause the ink to cure in the screen. Light filters are recommended. Ambient lighting may affect uncovered containers of ink, forming a skin on the ink's surface. Keep containers covered.

### Curing

Multi King Scratch Off inks cure in air upon exposure to a single 600+ mW/cm<sup>2</sup> medium pressure mercury vapor lamp. For an optimal cure a 100–180 mJ/cm<sup>2</sup> window is required.

These guidelines are intended only as a starting point for establishing cure parameters, which must be determined under actual production conditions. If a loss of gloss, adhesion, or block resistance occurs due to insufficient cure, the use of mixing base can increase light penetration and improve cure. In addition, faster curing speeds can be achieved by adding 3-5% liquid sensitizer.

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### Suitability

Multi King Scratch Off inks are suitable for the following processes:

### Stacking

Immediate stacking ink to substrate. Degree of cure, weight of the substrate when stacked, and conditions of the printing environment (e.g. heat and humidity) will affect block resistance. Surface hardness of cured ink film has been optimized for handling, however the printer must assume responsibility for pre-testing and qualifying the parameters for stacking prints prior to each production run.

### Cutting

Die-cutting, router cutting, guillotine cutting, and laser cutting.

### Handling

The use of goggles, gloves, and protective clothing is recommended. Avoid prolonged breathing of vapors. Contact of liquid material with the skin may be irritating; wash exposed area thoroughly with soap and water. Contact of ink with the eyes may cause injury – effects may be delayed; flush eyes with large amounts of water for 15 minutes and call a physician. Consult the applicable Safety Data Sheet (SDS) for further instructions and warnings.

### Storage

All KOLORCURE photopolymer inks and coatings should be stored in a cool dry area: 80°F (27°C) or below. Keep these inks and coatings away from direct sun light and indirect white light. Do not use these inks and coatings in areas having fluorescent lights overhead. Keep these inks and coatings away from internal heat sources. When stored under recommended conditions, shelf life is expected to be 30 days from time of mixing.

### Adhesion Testing

Even when using recommended UV energy output levels, it is imperative to check the degree of cure on a completely cooled print.

### Weathering / Outdoor Durability

Outdoor durability cannot be specified exactly. Some color change and loss of gloss is to be expected. Variables affecting a print's durability include:

- Ink film thickness
- Degree of curing
- Color formulation
  - Adding large quantities of mixing base or white to any color
  - Mixing several colors to create a specific color
  - Mixing a small amount of any single color with any other color
- Type and age of substrate. The substrate by itself should provide required durability
- Mounting angle or directional orientation
- Geographical location
- Air pollution
- Exposure to excessive abrasion (e.g. brush car washes)
- Non-clear coated prints will exhibit more color change and loss of gloss

We warrant our products to be free from defects in material and workmanship; but because their use is beyond our control, we accept no responsibility of liability for damages, whether direct, indirect, or consequential, resulting from failure in performance. User bears sole responsibility in selecting the appropriate product for their end-use requirements. User is also responsible for testing to determine the selected product will perform during the printed item's entire life-cycle. In cases where our products are found to be defective in material and workmanship, our liability is limited to the purchase price of the products found to be defective.

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