

# Sun Chemical Screen Printing Inks

## Sync™ Technical Data Sheet

Sync™ is a multi-purpose UV curable screen printing ink system designed for use on a wide range of substrates and on all press types. These 4 color process inks are designed for use with G7 methodology.

### typical characteristics and features

Sync inks are formulated to have the following properties:

- Fast curing
- Weather resistance for exterior applications
- Maximum color gamut over a wide range of substrates with minimal dot gain
- Meet ISO 12647-5 in accordance with G7 methodology

#### Process Colors

Process Colors	Formula Number	SAP Number 1 Gallon
Sync Process Cyan	Sync-C135	90977081
Sync Process Magenta	Sync-M140	90977366
Sync Process Yellow	Sync-Y131	90977367
Sync Process Black	Sync-K171	90977368
Sync Process Clear	Sync-PC	90977365
Sync Process Yellow	Sync-S231	90977600

#### SunMatch™ Blending Colors

SunMatch Blending Colors	Formula Number	SAP Number 1 Gallon
Sync Primrose	Sync-Y30	90899984
Sync Golden Yellow	Sync-Y50	90899985
Sync Orange	Sync-O20	90899987
Sync Scarlet	Sync-R20	90899991
Sync Red	Sync-R50	90899990
Sync Magenta	Sync-M50	90899994
Sync Violet	Sync-V50	90899989
Sync Blue	Sync-B50	90900000
Sync Green	Sync-G50	90899997
Sync Blending Black	Sync-N50	90899998
Sync Blending White	Sync-W50	90899995
Sync Mixing Clear	Sync-E50	90899988

(1) SunMatch™ is a copyrighted color matching system from Sun Chemical that can simulate the universal color references of the Pantone® color guide.

PANTONE® is a registered trademark of Pantone, LLC.

In accordance with information received from suppliers, the full Sync 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.

### technical information and ink handling

#### Pigment selection and color range

Sync inks are available in a range of process colors and the SunMatch™ range of blending colors. These include nine (9) strong, bright, mono-pigmented shades which together with white, black & mixing clear form a complete blending system allowing the matching of virtually any shade including simulations of PANTONE® color. The Sun Match color range is fully compatible with both Formulator and Formulator IDS color-management systems.

#### Standard Colors

Standard Colors	Formula Number	SAP Number 1 Gallon
Sync Opaque Black	Sync-N70	90899996
Sync Opaque White	Sync-W70	90899983
Sync Overprint Clear	Sync-C50	90899999

#### Modifiers

Modifiers	Formula Number	SAP Number 1 Gallon
Surface Hardener	ST 341	90020047
Viscosity Modifier	ST 350	90020049
Cure Accelerator	ST 370	90020060
Adhesion Promoter	ST 373	90020065

### processing parameters

#### Screen Mesh

355 – 420/inch (140 – 165/centimeter) monofilament polyester mesh, or finer, is recommended. It is possible to use coarser fabrics, however, the curing parameters must be adjusted for sufficient cross-linking of the increased ink film deposit.

#### Squeegee

Sharp urethane squeegee of approximately 75 – 85 durometer for use with these inks. If printing 4 color process, an 80 durometer squeegee is recommended.

#### Coverage

When printed through a 355 inches/31 (140 centimeters/31) mesh, Sync inks covers approx. 3000 ft./gallon, depending on printing variables.

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### Modification

Sync inks are designed to be press-ready directly from the container and do not require the use of additives under normal printing conditions. If needed, the following additives are available for modification:

- Sun Chemical ST-341 Surface Hardener - use 5 – 10% by weight
- Sun Chemical ST-370 Cure Accelerator - use 1 – 5% by weight
- Sun Chemical ST-373 Adhesion Promoter - use 3% by weight

Under adverse conditions ST-341 can be added to help prevent slight sticking in stacks of freshly cured Sync prints - especially double-sided on heavy-gauge plastic substrates, for example polystyrene, that may retain heat resulting from the UV curing process. Do not add ST-341 when printing flexible vinyl or other flexible materials. Improves adhesion and water resistance properties.

Once ST-373 has been added, the pot-life of the uncured ink will remain active for up to 24 hours, after which time it will lose its enhanced adhesion and resistance properties and should be discarded.

### Cure parameters

Generally, a typical 5 – 8 micron deposit of a Sync colors achieved with 380 inches/31 (150 centimeters/31) mesh will require UV exposure of approximately 180 – 250 mJ/cm<sup>2</sup>, as measured with an EIT PowerMAP or PowerPUCK. Opaque White and Black will require more UV energy to cure. 350 – 400 mJ/cm<sup>2</sup> is typically required.

Actual cure speeds will vary, depending on ink color; mesh; ink film deposit; opacity; number of color components (in a color blend), substrate type and color type of UV lamps, in addition to a wide range of other processing parameters.

Ink adhesion can only be achieved if the UV ink film is adequately cured. 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.

Note: Prints made with these inks should be allowed a 24 hour post-cure before sewing or finishing.

### Clean-up

Sync inks can be cleaned from screens and processing equipment with any suitable screen wash. Sun Chemical has a variety of wash-ups including eco-friendly screen washes.

This information has been compiled from experience gained in field conditions and detailed laboratory testing. However, the product's performance and its suitability for the customer's purpose depend on the particular conditions of use and the material being printed. We recommend that customers satisfy themselves that each product meets their requirements in all respects before commencing a print run. Since we cannot anticipate or control the conditions under which our products are used it is not possible to guarantee their performance.

All sales are subject to our standard terms and conditions for sale. The information contained in this technical data sheet is only a recommendation and may need to be altered to suit the conditions and efficiency of the equipment employed. Our products are not designed for use in conjunction with those of any other ink maker or similar supplier unless agreed to in writing.

### Substrates

These inks are suitable for printing wide range of substrates including corona-treated polyethylene banner material; styrene; treated or top-coated mylar/polyester; corona-treated coroplast; corona-treated high density polyethylene sheet; coated paper & board; rigid vinyl; pressure-sensitive vinyl; ABS; PETG; acrylic; and polycarbonate.

Sync screen printing inks are not recommended for use on highly plasticized vinyl substrates such as static-cling vinyl and reinforced banner vinyl. Please use Sun Chemical's VYB series for these substrate applications.

For maximum resistance to edge curl on pressure-sensitive vinyl, Sun Chemical's VYB and FLX ink series are recommended. Please refer to the technical data sheets for these products or contact Sun Chemical Screen Technical Service for more information.

Note: Pretest all substrates, process and finishing conditions prior to use in production.

### Color Process Printing

Sync 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.

The recommended sequence for 4 color process printing is:

- Yellow, Cyan, Magenta, Black

To meet the ISO color specification for G7 methodology, Sync-Y131 process yellow must be printed first. If an alternate print sequence is preferred, use Sync-S231 process yellow. Alternating the recommended print sequence or using Sync-S231 process yellow will not meet the ISO color specifications.

### Storage considerations

When stored in black polyethylene containers at temperatures between 40 – 90°F (5 – 32°C), these inks have a shelf-life of up to 36 months.

### Safety, health and environment

Sun Chemical Sync screen printing inks are to be used in accordance with normal standards of industrial hygiene and good manufacturing practice. Please refer to the Material Data Safety Sheet for specific information. Material Safety Data Sheets will be supplied. Printing inks, coatings and printing residues should be disposed of in accordance with local and national regulations.

