STARFIRE® II BASE

StarFire II Bases are a unique combination of ultra-fine, high strength fluorescent pigment dispersed in a rheologically controlled vehicle system. This yields maximum color density and excellent printability. They are available from DayGlo Color Corp. in ten standard fluorescent colors, seven Pantone® 800-series** colors and seven Fresh Colors™ (double bump strength in a single bump).

Available Colors:

STANDARD FLUORESCENT COLORS

SFB-211B	Aurora Pink* (Blue Shade)	SFB-216	Arc Yellow*
SFB-211Y	Aurora Pink* (Yellow Shade)	SFB-217	Saturn Yellow*
SFB-213	Rocket Red*	SFB-221	Corona Magenta*
SFB-214	Fire Orange*	SFB-222	Strong Corona Magenta*
SFB-215	Blaze Orange*	SFB-223	Strong Saturn Yellow*

PANTONE 800-SERIES COLORS

SFB-2801	PANTONE 801 Blue**	SFB-2805	PANTONE 805 Red**
SFB-2802	PANTONE 802 Green**	SFB-2806	PANTONE 806 Pink**
SFB-2803	PANTONE 803 Yellow**	SFB-2807	PANTONE 807 Magenta**
SFB-2804	PANTONE 804 Orange**		

FRESH COLORS

SFB-251	Fresh Color Blue*	SFB-255	Fresh Color Red*
SFB-252	Fresh Color Green*	SFB-256	Fresh Color Pink*
SFB-253	Fresh Color Yellow*	SFB-257	Fresh Color Magenta*
SFB-254	Fresh Color Orange*		

*Trademark of Day-Glo Color Corp.

**Pantone, Inc.'s check-standard trademark of color reproduction and color reproduction materials.

A Signal Green* Base color is not offered as part of the StarFire II Base color line, since many variations in color strength may be desirable and are easily obtainable by the ink formulator. The StarFire II Signal Green Base color may be formulated as follows:

DayGlo Saturn Yellow SFB-217	87.5%
Blue Shade Phthalocyanine Green Flushed Color	12.5%
	100.0%

Features & Benefits:

- Stronger, brighter colors.
- Excellent tack stability.
- Advanced rheology for better press performance.
- Faster setting & drying.
- Non-chalking.
- Ultra low emulsification properties.
- Improved ink transfer characteristics.
- Reduced VOC levels.

Color Stability & Shelf Life:

StarFire II Bases are color stable and will not darken. The minimum shelf life on this product is 36 months from the date of manufacture.

Color Strength, Brightness & Finish:

Innovative vehicle technology has given DayGlo the ability to disperse a high loading of sub-micron fluorescent pigment particles in the StarFire II Bases, and yet maintain a workable rheology. Inks made from the StarFire II Bases will exhibit strong, bright fluorescent colors with a satin or semi-gloss finish.

Fluorescent Color:

The increased color strength from the StarFire II Base has not reduced the color brightness. In fact, an increase in color brightness and color stability is possible with the recommended formulations.

Low Odor:

The StarFire II Bases contain only severely hydrotreated ink oils. They have been formulated to produce low odor on the press, even when using infra-red lamps as a drying assist. The StarFire II Bases can be used to formulate low odor inks for napkins, tablecloths and other items.

Press Performance:

Sheetfed offset inks made from the STARFIRE II Bases have been run on high speed sheetfed presses at 9,000-12,000 impressions per hour and are capable of much higher press speeds with excellent performance characteristics. Excellent tack stability, anti-emulsification properties, faster setting and excellent drying characteristics are to be expected from inks formulated from StarFire II Bases.

Typical Physical Properties:

Laray Viscosity	75-105 Sec @ 90^{o}F (900 Gr. Wt.) (Over 10cm)
Pigment Concentration/Type	>50%/Thermoplastic Dyed Polymer
Vehicle/Type	Proprietary/Resin Modified Alkyd
Weight Per Gallon	9.2 - 9.4 Lbs./Gal.
Volatile Organic Compounds	0.4 – 0.5 Lbs./Gal. (45.0 – 55.0 g/l)

Formulation Considerations:

Extender Varnishes: For optimum results, a gloss quickset vehicle is recommended. Optimum setting characteristics are developed with this varnish as well as optimum color brightness and a satin or semi-gloss finish. Always pretest the ink formulation for drying and adhesion on the stock to be printed.

Rub & Slip Additives: Where maximum setting speed and good rub resistance is required, the use of a high quality dry wax is recommended. Usually 2-3% dry wax is sufficient. This permits the use of additional vehicles, oils, and other modifiers, which will contribute to faster setting speed, and improved printability and finish. Where maximum rub and slip properties are desired, the addition of 0.5% - 1.0% PTFE powder is recommended.

Driers: A combination drier of 1% of 6% cerium, 1% of 12% manganese, and 1% of 6% manganese drier is recommended for sheetfed offset inks made from StarFire II Bases. The addition of cobalt drier will accelerate the drying, but will also darken the color and cause color instability. This condition is accentuated when heat is involved in the printing process or in ink storage.

Tack Reducing Agents: High boiling aliphatic ink oils such as Magiesol 52 or 60 (or equivalent) are recommended as the primary tack reducers. DayGlo VELEX® TR-052, 100% solids tack reducer, is also highly recommended. In addition to reducing tack effectively, the TR-052 will help maintain ink viscosity, improve press stability, add oxidizable solids and enhance blanket release. Drying oils such as tung, oiticica and linseed oil can also be used to reduce tack and add oxidizable solids.

Additives for Water Resistance & Anti-Emulsification Properties: The StarFire II Base colors have been formulated to resist emulsification in most common ink formulations. Additional anti-emulsification additives should not be necessary.

Adding Non-Fluorescent Colors: Small amounts of non-fluorescent color can be used effectively without significantly detracting from color brightness. Increases in color strength will usually compensate for any loss in brilliance. For example, 5% Red Lake C flushed color added to 70-80% SFB-214 in the finished ink will result in a noticeably stronger ink without a significant change in the hue or brightness.

Conversely, small amounts of StarFire II Base colors can be added to conventional colors to help "clean up" the color. This has been found to be particularly effective when printing on uncoated paper stocks where the conventional inks lose color brightness when absorbed into the stock. Clean, bright magenta and yellow process colors can also be formulated with various combinations of SFB-222 and SFB-223 in combination with conventional process rhodamine, rubine and diarylide yellow flushed colors.

Hybrid Inks: StarFire II Bases can be used in UV curable hybrid ink systems. Formulations can vary greatly and should be thoroughly tested for compatibility, stability and printability.

Recommended Starting Formulations:

1. For long printing runs on a wide variety of coated and uncoated paper stock, where maximum press stability, water resistance and sharp halftones are of primary concern.

DayGlo StarFire II Base Color	80.0
Gloss Quickset Vehicle	10.0
Micronized Polyethylene Wax	2.0
Magiesol 52 Ink Oil[1]	5.0
6% Cerium Drier[2]	1.0
6% Manganese Drier[2]	1.0
12% Manganese Drier[3]	1.0
	100.0

Tack = 14-16 @ 1200 RPM, 90°F

2. An economical rhodamine replacement for strong, clean spot colors and process printing:

DayGlo Strong Corona Magenta SFB-222	30.0
Lithol Rubine Flush	30.0
Gloss Quickset Vehicle	29.0
Micronized Polyethylene Wax	2.0
Magiesol 52 or Magiesol 60 Ink Oil[1]	6.0
6% Cerium Drier[2]	1.0
6% Manganese Drier[2]	1.0
12% Manganese Drier[3]	1.0
	100.0

Tack = 16-18 @ 1200 RPM, 90°F

StarFire II Base Colors for Web-Offset Inks: Fast setting, heatset, and non-heatset web offset inks can be formulated from the StarFire II Base colors. DayGlo also offers the HSI-Series of finished inks that have been formulated specifically for heatset printing. The HSI-Series of finished WOHS inks are preferred because they have been specifically formulated for optimum performance on high-speed web presses.

A suggested starting formulation for a low energy web-offset heatset ink using StarFire II Base color is as follows:

DayGlo StarFire II Base Color	70.0
Low Energy Heatset Varnish	23.0
Micronized Polyethylene Wax	2.0
Micronized PTFE Powder	1.0
Magie 500 Ink Oil[1]	4.0
	100.0

Tack = 10-12 @ 1200 RPM, 90°F

[1]Magie Bros. Oil Co.
[2]Shepherd Chemical Co.
[3]OMG, Inc.