

# Product: Monocure™ Multi-Purpose Container Ink

## Series: MPC

**DESCRIPTION:** Monocure™ MPC is a series of single-package, UV-curing screen printing inks specifically formulated for high-speed printing onto the following container substrates:

- Treated polypropylene containers
- Treated PETE containers\*\*\*
- Treated polyethylene containers
- PVC containers\*\*\*
- PETG containers\*\*\*
- Styrene containers

\*\*\***(NOTE):** See *IMPACT RESISTANCE* section, below, for advice on printing onto PVC and PETE/PETG containers)

MPC is especially suitable for fast, multi-color presses fitted with inter-station curing capabilities, and offers the following distinct advantages over most other bottle inks currently available on the market:

- Significantly faster cure speed
- Improved adhesion to polypropylene & polyethylene
- High degree of scuff resistance
- Improved inter-coat adhesion
- Better chemical resistance, specifically to alcohol, water, detergents and oils
- Wider range of adhesion, including treated PETE containers

**CHARACTERISTICS:** MPC Series inks are fast curing and exhibit excellent adhesion and intercoat adhesion even prior to post-curing. The inks also feature optimized rheological properties to allow superb print definition at all print speeds while minimizing “drip-through” during work stoppages.

**COLOR RANGE:** MPC Series inks are available in the SunMatch™ color range consisting of 9 strong, bright, mono-pigmented shades together with white, black & mixing clear form a complete blending system allowing the matching of virtually any shade, including simulations of all Pantone® colors. The SunMatch™ color range is fully compatible with both Formulator and Formulator IDS color-match management systems.

For further information on Pantone® (and other color specification systems) or Formulator ink-room management products, contact your local Sun Chemical representative.

**SUBSTRATES:** MPC Series inks are recommended for use on a wide range of container substrates, particularly where tough, product-resistant decoration is required. Recommended container substrates include: flame-treated polyethylene and polypropylene containers; PETG containers; and styrene containers. MPC can also be printed onto flame-treated PETE containers but are not suitable for printing onto bi-axially orientated, injection blow-molded PETE containers such as those used for carbonated soft drinks.

**NOTE: Pretest all substrates prior to use in production**

\*Pantone, Inc.'s check-standard trademark for color.

**IMPACT RESISTANCE ON PVC and PETE/PETG CONTAINERS:** The use of certain grades of PVC and PETE/PETG and/or unsuitable molding techniques, can contribute to built-in strain and uneven wall thickness on printed containers, causing them to have unacceptably low impact strength and increased susceptibility to breakage during subsequent handling. If MPC is to be used on PVC or PETE/PETG containers, impact strength of printed containers must be assessed and verified prior to commencing a full-scale print run. Further advice regarding selection of PVC or PETE/PETG compounds, blow-molding techniques, and impact modifiers is available from manufacturers of these polymers.

PVC containers are particularly prone to loss of impact strength after printing, and more flexible alternative inks such as FLX Opus and UVN Classic Series are better suited for use on PVC containers. For further advice on the suitability of MPC Series inks for a particular container, please contact your local Sun Chemical representative.

**ADHESION & PRE-TREATMENT:** Since most polyolefins are inert, pre-treatment is required to activate the surface, making the substrate more ink-receptive. This is usually accomplished by flame treatment. It is recommended that printing be carried out immediately after surface treatment to help ensure maximum ink-to-substrate adhesion. MPC Series inks are designed to give adhesion and product-resistance over a range of treatment levels, but best results are achieved at a surface tension of 48-58 dynes/cm.

A number of tests exist for measuring surface tension, the most popular being surface-tension pens. Further information on testing methods can be obtained from your local Sun Chemical representative.

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**NOTE:** Should some substrates prove unreliable for adhesion, ST-373 Adhesion Promoter can be added at 2-3% by weight. Once the Adhesion Promoter has been added, it will remain active for up to 24 hours, after which time a second addition of 2-3% can be made to restore the adhesion-promoting properties for a second 24 hour period. After incorporating ST-373 a second time, successive additions are not recommended.

**INTERCOAT ADHESION:** MPC Series inks exhibit excellent intercoat adhesion, especially on multi-head print lines equipped with inter-station curing units.

On single color lines, long intervals between subsequent ink layers should be avoided if possible. Containers should not be subjected to secondary surface treatment between ink layers as this can cause poor intercoat adhesion. Intercoat adhesion should be thoroughly checked under intended conditions prior to commencing a production run.

**PRODUCT RESISTANCE:** MPC inks offer excellent resistance properties to water, oils, toiletries, detergents and alcohol-based products (including those containing SD alcohol), but are not fully resistant to bleach. Resistance properties can be enhanced by the addition of ST-373 Adhesion Promoter (discussed in further detail in the ADHESION & PRE-TREATMENT section of this Data Sheet).

**CURING:** MPC Series inks will cure at speeds in excess of 5,000 impressions per hour using a conventional 300 watt/inch (120 watt/cm) UV lamp. Higher print speeds are possible if curing units are equipped with higher wattage lamps. The spectral output should be in the 300-400 nm range as delivered by medium-pressure, mercury-vapor, metal-halide and microwave-initiated UV light sources.

Cure speed is affected by a number of factors, including efficiency of the lamps & reflectors, focus of UV light, color of the ink & substrate, container diameter, ink-film deposit, etc. The addition of mixing clear MPC-E50 will increase the cure speed of virtually any color, but opacity will be compromised. Cure should be thoroughly tested prior to commencing a full scale production run.

**SCREEN STABILITY:** MPC Series inks do not cure in the screen under normal conditions. However, it is recommended that the screen be covered during work stoppages to avoid dust contamination.

Exposure to direct sunlight or strong artificial light should be avoided at all times to prevent premature curing of the ink, either in the screen or in open containers.

The rheological properties of MPC Series inks prevents screen “drip-through” during work stoppages and reduces the number of scrap containers at start-up.

All information on this data sheet is based on Sun Chemical laboratory tests and experience in print shops. Procedures and directions for use of Sun Chemical products (including printing and after-treatment) must be considered as recommendations only, with no warranties expressed or implied. The user of the products described herein is solely responsible for determining suitability of any Sun Chemical product for the particular application. Sun Chemical recommends that all products be pre-tested prior to full-scale production use. This data sheet supersedes all previous publications. April 2009

**COVERAGE:** Using a 390/inch (150/cm) mesh, one US gallon of MPC will cover approximately 2,500 square ft (232 square meters).

**MODIFICATION:** MPC inks are supplied press-ready and do not normally require modification. If thinning is desired, up to 5% by weight of ST-350 Viscosity Modifier may be added.

**SCREEN MESH:** Typically 390-420/inch (150-165/cm) mesh is used. Nylon mesh may be used where its greater elongation allows for better conformation to curved container surfaces. **Sun Chemical has the mesh best suited for your particular printing requirements. Contact your local Sun representative for details.**

**SQUEEGEE:** Sharp urethane squeegee of approximately 75-85 durometer. **Sun Chemical has the best squeegee for your particular application. Contact your local Sun representative for recommendations.**

**STORAGE:** When stored at temperatures between 40-90°F (5-32°C), MPC has a shelf-life of 36 months.

**WASH-UP:** MPC Series inks may be cleaned from screens and processing equipment with any suitable screen wash, such as VL Wash. **Sun Chemical has a variety of wash-ups including ECO friendly screen washes available for your particular needs. Contact us for *all* of your pre and post-press chemical requirements.**

**HEALTH AND SAFETY:** As with all inks, gloves and safety goggles should be used when handling this product. For more complete information, refer to the relevant **Material Safety Data Sheets**.

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

SunMatch™ Blending Colors		Standard Products	
MPC-Y34	Primrose	MPC-N70	Super Opaque Black
MPC-Y54	Golden Yellow	MPC-W70	Super Opaque White
MPC-O54	Orange	MPC-W501	Opaque White
MPC-R24	Scarlet	MPC-C50	Overprint Clear
MPC-R54	Red		
MPC-M50	Magenta		
MPC-V50	Violet		
MPC-B50	Blue	<b>Modifiers</b>	
MPC-G50	Green	ST-350	Viscosity Modifier
MPC-N50	Blending Black	ST-373	Adhesion Promoter
MPC-W50	Blending White		
MPC-E50	Mixing Clear		