

# Product: Coated Metal Ink

## Series: COMETAL™

**DESCRIPTION:** COMETAL is a series of single-package, UV Curable screenprinting inks specifically formulated for use on most polyester and vinyl coated metal substrates. COMETAL inks are very flexible and are suitable for use for when the decorated metal parts will subsequently be bent.

COMETAL inks exhibit good abrasion and chemical resistance and have excellent weather resistance for exterior applications.

**CHARACTERISTICS:** COMETAL Series inks are designed with fast cure-speeds and excellent intercoat adhesion. COMETAL's abrasion and chemical resistance properties meet the stringent demands of most metal decorating applications.

**COLOR RANGE:** COMETAL Series inks are available in the SunMatch™ color range consisting of 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 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.

**For exterior applications where maximum durability is required, replace the standard SunMatch yellows, orange and reds with our XL yellows, orange and reds.**

**SUBSTRATES:** COMETAL inks are suitable for printing on most polyester-coated and vinyl-coated metal substrates.

**NOTE:** The coatings used for metal substrates are based on a variety of chemical types which have various degrees of ink receptivity. Other variables such as baking cycles of the coatings and age of the substrates can also affect ink adhesion. Pre-test all substrates carefully prior to use in a production run.

**NOTE:** COMETAL inks are not suitable for use on powder coated or raw metal substrates.

**EXTERIOR DURABILITY:** COMETAL inks are formulated to withstand exterior exposure up to 5 - 7 years<sup>1</sup> when properly printed and cured.

For best results, it is advisable to print full strength COMETAL at the highest practical ink deposit onto premium coated metal specified for exterior use. Full exterior durability can only be achieved by overprinting with COMETAL-C50 Overprint Clear.

**NOTE:** As a general rule, the exterior durability of blue, green, black and white screen inks surpasses that of yellows, oranges and reds. This is due to inherent differences between various chemical types of exterior-durable pigments. For maximum exterior durability, replace the standard SunMatch yellows, orange and reds with our XL yellows, orange and reds.

<sup>1</sup>-Based on accelerated weathering tests simulating exposure to Northern USA and Middle European temperate climates.

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

• Please refer to the COMETAL *Weathering Statement* for full details of expected outdoor durability.

### PROCESS COLORS:

• COMETAL C135	Process Cyan	1.65 - 1.70 density
• COMETAL Y131	Process Yellow	1.20 - 1.25 density
• COMETAL M140	Process Magenta	1.60 - 1.65 density
• COMETAL K171	Process Black	2.10 - 2.15 density

COMETAL PC Process Clear may be used to adjust the density of COMETAL Process Colors, but under normal circumstances, base should not be needed to achieve color gamut. COMETAL has been designed to be press-ready directly from the container and should only be modified judiciously after appropriate pre-testing.

**NOTE:** Density values were achieved using a 380/32 monofilament polyester mesh. Actual results may vary depending on other printing variables.

**CURING:** Generally, a typical 10-12 micron deposit of a COMETAL color achieved with a 380/in (150/cm) mesh will require UV exposure of approximately 200-300 mJ/cm<sup>2</sup>, as measured with an IL390 International Light Radiometer. Opaque blacks and whites will require significantly more irradiation to successfully cure.

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

**INTERCOAT ADHESION:** COMETAL inks exhibit excellent intercoat adhesion. However, as with all UV inks, intercoat adhesion should be monitored throughout the print run when processing multiple ink layers.

**CHEMICAL RESISTANCE:** COMETAL inks are designed to have excellent gasoline resistance, and have passed 100 wet rub cycles when properly printed and cured.

**MODIFICATION:** COMETAL is a single-package ink which does not require the use of any additives under normal printing conditions. The following additives are available for modification:

- ST-290 Viscosity Modifier - use up to 5% by weight
- ST-370 Cure Accelerator - use 1-5% by weight

**NOTE:** Overdosage of these additives may decrease cure and intercoat adhesion, or cause other processing problems.

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**SCREEN MESH:** 355-420/inch (140-165/cm) monofilament polyester mesh, or finer, is suitable for processing. It is possible to use coarser fabrics; however, the curing parameters must be adjusted for sufficient cross-linking of the increased ink film deposit.

For maximum exterior durability, 305-355/inch mesh is recommended for colors and COMETAL-C50 Overprint Clear.

**Sun Chemical has the mesh best suited for your particular printing requirements. Contact your local Sun representative for details.**

**WASH-UP:** COMETAL 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.

**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.

**METALLIC INKS:** Most Aluminum and Bronze pigments can be used with COMETAL E50 Mixing Clear to produce ink with metallic appearance. Typical levels by weight are 15-20% Bronze paste for gold colors and 5-10% Aluminum paste for silver colors.

**NOTE:** Do not exceed 120°F (49°C) when preparing metallic blends. Any blend of COMETAL E50 with metallic pigment must be considered a two-pack system with less than 24 hours (approximate) pot-life. Only mix sufficient quantities for immediate use.

**NOTE:** Pretest all metallic blends prior to use in production.

**COVERAGE:** When printed through a 380/inch (150/cm) plain-weave mesh, COMETAL covers approx. 3000 ft.<sup>2</sup>/gal, depending on printing variables. Higher coverage can be achieved when finer mesh counts are used.

**STORAGE:** When stored in black polyethylene containers at temperatures between 40-90°F (5-32°C), COMETAL has a shelf-life of 24 months.

**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**.

SunMatch™ Blending Colors:		Process Colors:		SunMatch XL Colors:	
COMETAL-Y30	Primrose	COMETAL-Y131	Process Yellow	COMETAL-Y35	XL Primrose Yellow
COMETAL-Y50	Golden Yellow	COMETAL-C135	Process Cyan	COMETAL-Y55	XL Golden Yellow
COMETAL-O50	Orange	COMETAL-M140	Process Magenta	COMETAL-O55	XL Orange
COMETAL-R20	Scarlet	COMETAL-K171	Process Black	COMETAL-R25	XL Scarlet
COMETAL-R50	Red	COMETAL-PC	Process Clear	COMETAL-R55	XL Red
COMETAL-M50	Magenta	<b>Standard Products:</b>		<b>Modifiers:</b>	
COMETAL-V50	Violet	COMETAL-N70	Opaque Black	ST-290	Viscosity Modifier
COMETAL-B50	Blue	COMETAL-W70	Opaque White	ST-370	Cure Accelerator
COMETAL-G50	Green	COMETAL-C50	Overprint Clear		
COMETAL-N50	Blending Black	In accordance with information received from suppliers, the full COMETAL 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.			
COMETAL-W50	Blending White				
COMETAL-E50	Mixing Clear				

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. Nov. 2008