



Coates Screen

Product Data Sheet

REVOLUTION

SERIES REV

DESCRIPTION: REV is a fast curing, multi-purpose UV ink system for use on a wide range of substrates.

PRODUCT FEATURES:

- Suitable for use on a comprehensive range of multi-purpose display substrates
- Excellent outdoor durability
- Optimized for use on in-line presses
- Can be used with Coates' Ink Dispensing Equipment, Formulator Scales, and Screen Match System

SUBSTRATES: REV is suitable for printing on the following substrates: 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, polycarbonate, anodized aluminum, and some coated metals.

*In most cases, REV inks will exhibit good adhesion on corona-treated polyethylene banner material. However, when used for more stringent end-use requirements, under more demanding processing conditions, or with less receptive substrates, it may be necessary to add 3% ST-373 Adhesion Promoter to REV inks before use. It is also recommended that prints made with REV inks be allowed a 24 hour post-cure before sewing or finishing (see *MODIFICATION* section, below, for more details on the use of ST-373 Adhesion Promoter).

Pretest all prints made on polyethylene banner material for flexibility and adhesion prior to commencing a full scale print run.

NOTE: Due to the risk of plasticizer migration, which can accumulate on the surface of the substrate and compromise ink adhesion properties, REV is not recommended for use on highly plasticized vinyl substrates such as static-cling vinyl and reinforced banner vinyl.

NOTE: Pretest all substrates prior to use in production.

PIGMENTS/LIGHTFASTNESS:

- Please refer to the *REV Weathering Statement* for full details of expected outdoor durability.
- For applications that require additional flexibility and/or increased outdoor durability on pressure sensitive vinyl substrates, FLX series inks are recommended. See the FLX Product Data Sheet for more details.

PROCESS COLORS:

- The following 3 sets of REV 4-color process inks are available:
 1. REV process colors matched to SWOP standards
 2. REV process colors matched to EURO standards
 3. REV High Density process colors
- REV-S171 can be used as the process black for SWOP, EURO and High Density process colors.
- REV-TPS Transparent Base may be used to adjust the density of all 3 sets of process colors.
- The special rheology of REV process colors was designed with "LDP" technology, featuring low dot profile and minimal friction drag, maintaining optimum color balance with negligible shift throughout the print run.
- As with all UV halftone printing, plain-weave mesh counts and thin stencil coatings should be used to minimize ink deposit and dot gain.

CURING: Generally, a typical 10-12 micron deposit of a REV color achieved with a 381/in (150/cm) mesh will require UV exposure of approximately 200-300 mJ/cm², 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. Belt speeds of 60-80 ft/min (18-24 m/min), with two lamps at 200 watts/in. (80 watts/cm), can be achieved, dependent on these variables.

Ink adhesion can only be achieved if the UV ink film is adequately cured. Substrates have differing receptivity to UV ink, and on certain rigid and/or colored materials it may be necessary to cure ink more effectively to achieve satisfactory adhesion.

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.

MODIFICATION: REV 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-341 Surface Hardener 5-10% - Under adverse conditions ST-341 can be added to help prevent slight

sticking in stacks of freshly cured REV prints (especially double-sided) on heavy plastic substrates (e.g. polystyrene) that may be retaining heat resulting from the UV curing process.

NOTE: ST-341 should not be added where flexibility is a critical requirement

- **ST-350 Viscosity Modifier** 3-10%
- **ST-370 Cure Accelerator** 1-5%
- **ST-373 Adhesion Promoter** 3% - Improves adhesion and water resistance properties. Once ST-373 has been added, the uncured ink will remain active for up to 24 hours, after which time it will lose its enhanced resistance properties and should be discarded. This will not affect cured ink films, which will retain the enhanced resistance properties indefinitely.

NOTE: Overdosage of these additives may cause problems during further processing.

METALLIC INKS: Most Aluminum and Bronze pigments can be used with REV-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: Care should be taken only to use metallic pigments with a particle size sufficiently small to easily pass through the selected screen mesh.

NOTE: Do not exceed 120°F (49°C) when preparing metallic blends. Any blend of REV-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.

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.

SQUEEGEE: Sharp urethane squeegee of approximately 75-85 durometer.

COVERAGE: When printed through a 381/inch (150/cm) twill-weave mesh, REV covers approx. 3000 ft./gal, depending on printing variables. Higher coverage can be achieved when finer mesh counts are used.

STORAGE: UV inks should be stored in closed, black polyethylene containers at 40-90°F (5-32°C). REV has a minimum shelf-life of 12 months but can remain usable for longer periods, depending on storage conditions.

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.

C-MIX 2000 Blending Colors:		SWOP Process Colors:	
REV-Y30	Primrose	REV-S131	SWOP Process Yellow
REV-Y50	Golden Yellow	REV-S135	SWOP Process Cyan
REV-O50	Orange	REV-S140	SWOP Process Magenta
REV-R20	Scarlet	REV-S171	SWOP Process Black
REV-R50	Red	REV-TPS	Short-Flow Transparent Base
REV-M50	Magenta		
REV-V50	Violet	EURO Process Colors:	
REV-B50	Blue	REV-E180	EURO Process Yellow
REV-G50	Green	REV-E181	EURO Process Magenta
		REV-E182	EURO Process Cyan
REV-N50	Blending Black	High Density Process Colors:	
REV-W50	Blending White	REV-S231	High Density Process Yellow
REV-E50	Mixing Clear	REV-S235	High Density Process Cyan
		REV-S240	High Density Process Magenta
Standard Products:		Modifiers:	
REV-N70	Opaque Black	ST-341	Surface Hardener
REV-W70	Opaque White	ST-350	Viscosity Modifier
REV-C50	Overprint Clear	ST-370	Cure Accelerator
		ST-373	Adhesion Promoter

In accordance with information received from suppliers, the full REV 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 and EN71, section 3.

COATES SCREEN

2445 PRODUCTION DRIVE, ST.CHARLES, IL 60174, USA. Tel: +1 (630) 513-5348 www.coates-screen.com
California • Florida • Illinois • New Jersey • Texas • Brazil

All information on this data sheet is based on Coates Screen laboratory tests and experience in print shops. Procedures and directions for use of Coates Screen products (including printing and after-treatment) must be considered as recommendations only, with no warranties expressed or implied. The printer is solely responsible for determining suitability of any Coates Screen product for the particular application. Coates Screen recommends that all products be pre-tested prior to a production run, particularly when printing on plastics or plastic-coated surfaces. Coates Screen laboratories will perform tests to determine suitability of any Coates Screen product for your application. This data sheet supersedes all previous publications. December, 2003