

Duraflex DF is a UV curable ink system specifically formulated for flat, pressure sensitive decal applications requiring exterior exposure for five years. Extensive weathering tests have proven Duraflex yields durable decals, which will not edge curl due to ink/vinyl shrinkage or diminish in color intensity. Duraflex has been formulated with lead free, automotive grade pigments producing an extremely opaque, remarkably high gloss, lightfast ink film with minimal chalking characteristic.

Version 1.10.03.2005

Performance Properties

- Suitable for five (5) year exterior exposure
- Exceptional opacity and high gloss
- Extremely flexible for multi-layer applications and die-cutting
- Low shrinkage which diminishes edge curl
- Suitable with pre-mask films for easy application
- Non-blocking, low tack finish for easy handling
- Solvent and abrasion resistant

Printing

Mix well prior to use. While supplied in press ready condition, DF may be reduced up to 10% with DF Thinner for special viscosity adjustments.

Care should be taken to print the ink at optimal temperature 70-90°F (21-27°C). Cool ink will have heavier viscosity and will not flow properly whereas hot ink will be lower in viscosity resulting in poor definition and decreased opacity.

Coverage

3,200 to 3,600 square feet per gallon based on ink deposit of .40-.60 mil dependant on color and printing conditions.

Curing

Ink will cure well when printed through 355 (140cm) plain weave polyester mesh or finer. DF's optimal cure window of 175-200 mJ / 550-650 mW is generally achieved with one 200 watt per inch mercury vapor lamp at belt speeds between 50-60 feet per minute (20-30 m/min). This should provide thorough cure of the product. Cure speeds may vary as thicker material and dark surface colors require more energy.

Adhesion should be a minimum of 95% from curing unit with final adhesion developing within four hours of initial polymerization. Coarser fabrics can be utilized; however, cure parameters may need to be adjusted for increased ink film.

If a loss of gloss or adhesion due to insufficient cure is noticed, the use of 5-10% DF Mixing Clear will increase light penetration and improve cure.

Even though the cured ink film has been engineered to optimize processing and handling, the printer must assume responsibility for pre-testing and qualifying the parameters for stacking printed parts prior to each run.

The intensity of cure, weight or caliper of the material and/ or elevated ambient temperatures and humidity of the printing and storage environments will influence block resistance.

Recommended Substrates

- Pressure Sensitive Vinyl
- Print Treated Polyester
- Electrostatic vinyl
- Polycarbonate (adhesive not recommended)
- PVC
- Vinyl coated magnets
- Polystyrene
- Coated paper
- Many coated metals

Lightfastness

DF is lightfast (3) to five (5) years with a 355/inch or coarser mesh. Weathering tests have been completed on 4-mil vinyl printed with DF Series. The ink withstood 2500 hours of exposure with 4-hour cycle times of light and condensation at elevated temperatures with minimal color change and no shrinkage. However, at approximately 3 years or longer, the surface of the ink film will begin to chalk. This will give the appearance of a dull finish. To maintain a high gloss finish use DF Overprint Clear. The use of DF Solar Shield Clear for (5) year exterior durability is necessary.

Accelerated machine weathering are reference standards and can not precisely reproduce actual outdoor performance. Based on prior correlation of accelerated testing vs. real time exposure, 500 hours is equated to approximately one year, 45° south Florida.

The use of premium grade, long-term vinyl films are recommended for applications intended to weather three (3) years or longer.

Solar Shield Clear

UV absorbers have been incorporated into the DF Solar Shield Overprint clear, which lengthen the graphics life by acting as a sunscreen. This clear requires more energy to cure than the normal Duraflex color range. A minimum of 225-250 mJ is needed.

Pre-Mask

A medium to high tack adhesive is recommended for good adhesion.

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MIX WELL BEFORE USE. Follow any indications on the package, ask for the safety data sheets and always follow the indications contained therein. In case of doubt, please contact our Technical Service department.

Storage

Care should be taken to store ink in tightly closed containers located in a cool (60-80°F/15-27°C) dark place. After long production runs excess ink from the screen should be properly disposed. With suitable conditions, unopened ink is expected to have a shelf life of approximately twelve (12) months from date of manufacture.

Metallics

Use the Metallic Mixing Clear to prepare metallic ink as it's increased viscosity helps insure a good particle suspension and extended shelf life. Recommended mixing ratios, by weight are:

- 28% gold paste
- 12% silver paste

For optimum coverage and opacity, 280-305 (110-120cm) plain weave mesh is recommended. Use DF Overprint Clear for extended weatherability and improved non-tarnishing properties of the product.

Additives

- 1004 Thinner up to 10% as needed
- 1534 Adhesion Promoter, 3-5% as needed

Precautions

Read the material safety data sheet prior to processing. It contains instructions for precautions when handling inks. If ink comes in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent). Wash and rinse the affected area with soap and water.

Process Printing

For superior halftone reproduction, Duraflex halftones are available in a range of density levels. Additional control of density may be achieved with use of DF HT Base. For best results, 380 (150 cm) or finer and a smooth, thin stencil coating should be utilized with process printing.

	Press Ready	High Density	Backlit Density
DF Halftone Yellow	0.90	1.10	1.35
DF Halftone Magenta	1.40	1.75	2.05
DF Halftone Cyan	1.40	1.80	2.20
DF Halftone Black	1.60	2.00	2.25

Color Availability

Duraflex DF is available in twenty opaque standard colors. Custom matches, metallic, fluorescent and transparent colors are obtainable upon request.

DF-101 Primrose Yellow	DF-210 Ultra Blue
DF-111 Lemon Yellow	DF-220 Emerald Green
DF-123 Medium Yellow	DF-225 Forest Green
DF-131 Brilliant Orange	DF-226 Lime Green
DF-135 Vivid Orange	DF-235 Teal
DF-141 Fire Red	DF-240 Purple
DF-151 Scarlet Red	DF-260 Brown
DF-155 Rubine Red	DF-301 Opaque Black
DF-160 Rhodamine Red	DF-311 Opaque White
DF-180 Warm Red	DF-312 Dense Black
DF-190 Process Blue	DF-026 Brilliant White
DF-200 Peacock Blue	DF Overprint Clear
DF-205 Reflex Blue	DF Metallic Mixing Clear

Pantone Matching System® Colors

The nine PANTONE® approved Color Matching System (CMS) shades are used to simulate the PANTONE Color Specifier colors. Formulas were designed for maximum opacity and are available in book or Imaging Color Source Software formats.

DF-064 CMS GS Yellow
DF-066 CMS RS Yellow
DF-114 CMS Orange
DF-121 CMS YS Red
DF-164 CMS BS Red
DF-165 CMS Magenta
DF-127 CMS Violet
DF-230 CMS Blue
DF-325 CMS Green
DF Tinting White
DF Shading Black
DF Mixing Clear

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