

Thermoform TF is an extremely flexible UV curable screen printing ink specially formulated for printing plastics used in vacuum forming. Thermoform exhibits outstanding vacuum forming characteristics and ink lengthening while maintaining excellent adhesion and opacity. Additionally, this ink provides ideal characteristics for heat bending and routing acrylic sheets with no chipping or loss of adhesion.

## Performance Properties

- Elevated halftone color strength for backlit prints
- Excellent intercoat adhesion
- Extreme elongation for draw depth, >6" (15cm)
- Flexible for multi-layer applications/die-cutting
- Heavy metal free
- Multiple pass heat bending without chipping

## Recommended Substrates

- Acrylic
- High Impact Polystyrene (HIPS)
- PETG
- Polycarbonate
- Polystyrene
- PVC

## Curing/Processing Guidelines

Ink will cure well when printed through 355 (140cm) plain weave polyester mesh or finer. TF's optimal cure window of 310 – 350 mJ/cm<sup>2</sup> 755 mJ/cm<sup>2</sup>, is generally achieved with one 300 watt per inch mercury vapor lamp at a belt speed of 30 feet per minute (10 m/min). This should provide thorough cure of the product. In applications where specialty inks, high opacity colors, light blocking applications or where coarse meshes are used, TF will require considerably higher mJs (310-350 mJs +) to achieve proper thru cure. Please call Polymeric US tech service for recommendations on such applications.

For maximum opacity retention on deep draws, coarser screen mesh may be used, increase mW output and test for proper cure and adhesion. Excessive film thickness will not impede vacuum forming properties.

Adhesion should be a minimum of 95% from curing unit with the final adhesion developing within four hours of initial polymerization. If a loss of gloss or adhesion due to insufficient cure is noticed, the use of 5 – 10% TF Mixing/Overprint Clear will increase light penetration and improve cure.

## Light Fastness

At full strength and cured properly, TF colors are formulated to withstand up to one year of exterior exposure printing first surface. Factors that will alter the outdoor durability of the ink include but are not limited to: substrate grade/age, poor cure of the ink film, formulas, directional positioning, ink film deposit, exposure to excessive abrasives and air pollutants.

Care should be taken when reducing the mass tone\* colors with clear or tinting white as this could negatively affect the exterior durability of the color. Colors that should not be used for outdoor applications are: CMS 164 BS Red, CMS 114 Orange, 180 Warm Red and 131 Brilliant Orange. Automotive grade color alternative recommendations are available by calling our Technical Services Department.

\*Mass tone: the full product color without dilution.

## Printing

Mix well prior to use. While supplied in press ready condition, TF may be reduced up to 10% with #1458 Thinner. Care should be taken to print the ink at optimal temperature 70 - 90° F (21 - 27° C). Cool ink will heavier viscosity and will not flow properly. 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 .40 - .60 mil dependent on color and printing conditions.

## 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 manufacturer.

## Metallics

Use the Metallic Mixing Clear to prepare metallic ink as its increased viscosity helps insure a good particle suspension.

## Recommended mixing ratios, by weight are:

- 28% gold paste
- 12% silver paste

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

## Additives

- 1458 Thinner - Use up to 10% as needed

## Precautions

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

## Process Printing

For superior halftone reproduction, halftones are available in a range of density levels. Additional control of density may be achieved with use of XR HT Base. For best results, use 380 (140cm) or finer and a smooth, thin stencil coating should be utilized with process printing.

	High Density	Backlit Density
TF Halftone Yellow	1.10	1.35
TF Halftone Magenta	1.75	2.05
TF Halftone Cyan	1.80	2.20
TF Halftone Black	2.00	2.25

### Color Availability

Thermoform TF is available in opaque standard colors. Custom matches, metallic, fluorescent and transparent colors are obtainable upon request.

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

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

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We strongly recommend testing complete construction as per shop conditions prior to full production. MIX WELL BEFORE USE. Follow the directions on the package, ask for the safety data sheets and always follow the directions contained therein.

**Important** – Only the correct use of the product will allow satisfactory results. For this reason, closely related to the product supplied, Polymeric must decline all direct and indirect responsibility for the proper or improper use of the product. Make certain that product is right for the desired use, work according to the instructions given in our technical data sheets. Before use contact our Technical Service in case of doubt.

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### C. A Pretest Prior to Production is Recommended to Ensure Proper Suitability for the Intended Application.