# Mastering Mounting: Handling Digitals

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West Coast Art & Frame, Las Vegas 2025



Shown on metal, canvas, paper.



## Inkjet as Art

Originally used as prepress,
Aqueous inkjet and dye sublimation
fit into the fine art category.
Shown on metal, canvas, paper.

## Inkjet as Textiles

Inkjet textile printing on assorted woven fabrics, often polyester, is everywhere:

- Hanging Signage
- Backlit Signage
- Draped on Buildings
- Double-Sided Flags
- Banners
- Tents and Awnings
- Home Soft Goods
- Home Furnishings
- Personalized Products
- Fabrics and Apparel





Dye Sublimation Inkjet on flexible fabric for home and wall décor.





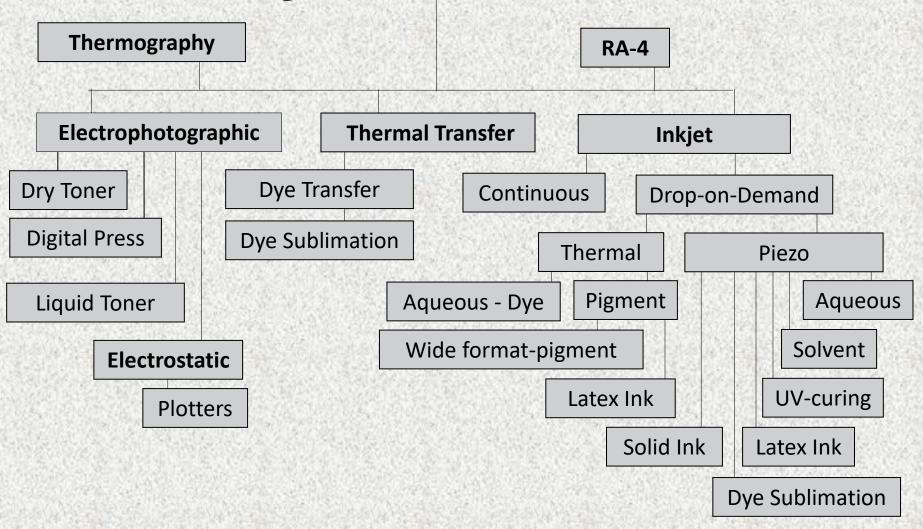
## Art as Vehicle Wrap Solvent, UV Curing, or Latex Inkjet

Wrapped bus ad for Copenhagen Zoo





Mural installation 65'x49' digital graphic applied to wall using wheatpaste and course bristle brush on residential building in Berlin.



## Thermography – Typographic Method

#### **Direct Thermal**

Relies on heat to create the letters & images on paper.

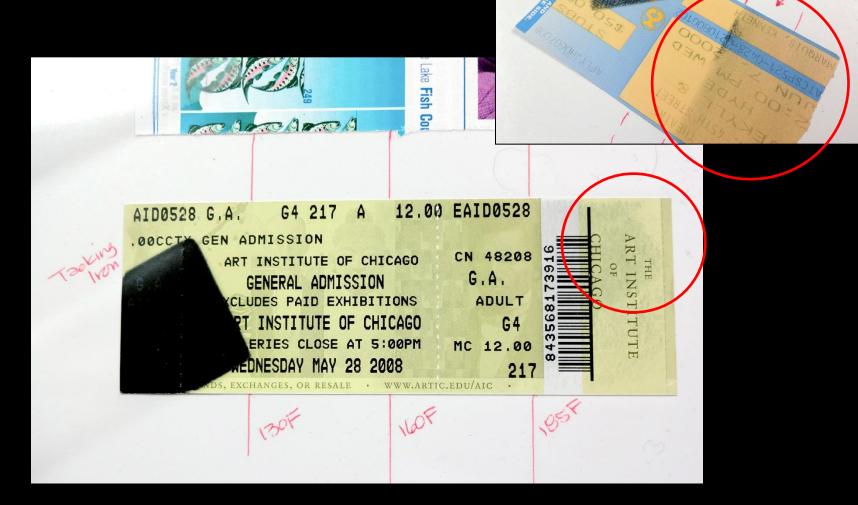
- Paper coated to change color
- No ribbon or ink transfer
- Original FAX machines and Sales Registers
- Still used for barcodes

#### **Raised Print Process**

Post print process achieved using traditional printing in a three-step process:

- 1. Applies plastic resin thermographic embossing powder to the substrate.
- 1. Vacuums extract powder from non-inked areas.
- 2. Heat-sets at 90°F to 130°F.

## Thermography





#### Electrophotographic

#### **Dry Toner**

Copiers - 8-1/2"x11" thin 20-22# plain paper B&W Laser - Monochrome toner Brother, Canon, HP, Lexmark, Xerox

Color Laser - Toner Brother, Canon, HP, Lexmark, Xerox, Ricoh

Imaging technology that takes a digital file and using a photoreceptor, light source, electrostatic principles, and toner produces a print.



Electrophotographic Color Copies – dry toner



Electrophotographic four color toner copies and heat damage

#### **Electrophotographic (xerographic)**

#### **Liquid Toner**

Color Digital Presses – Photographs , Book Printing

• HP Indigo





Electrophotographic liquid toner – HP Indigo



Digital press toner lifts ink from paper when laminate is lifted to realign



Heidelberg Digital Press – changed color under heat and laminate

HP DesignJet T630

#### **Electrostatic**

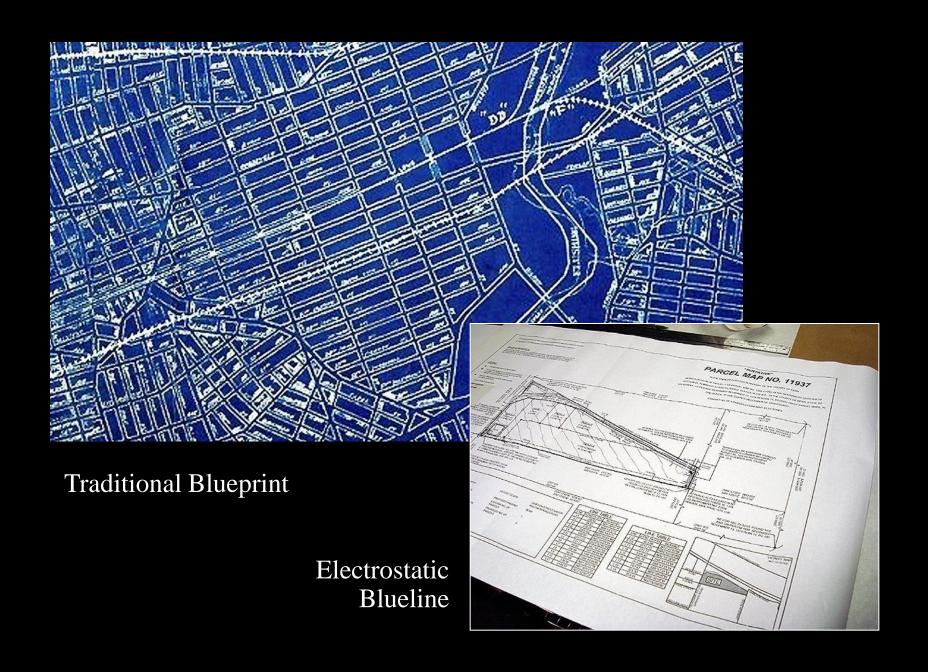
Large-format Printers/Plotters

- Bluelines & Maps, Labels, Textiles
- Monoprints and Color Prints
- HP, Roland, Epson



A static electricity charges the surface of a photosensitive drum. The image is projected onto the sensitized surface then dry toner powder is attracted to the image, resulting in a visible image onto paper.

Since 1967.





Electrostatic Dry Toner Plotter - Blueline



Blueline mounted and laminated with lifters

#### **Thermal Transfer**

#### **Dye Transfer**

#### **Transfer Printers**

- Photo Kiosks (discontinued)
- Brother, Epson, Zebra

A photo printing process
1920s-1950s of CMY dye used
to print Technicolor films
and color prints.

#### **Dye Sublimation**

#### **Photo Printing**

- Uses a ribbon of solid ink that sublimes to a gaseous state and embeds to paper.
- Epson SureColor, HP

#### Dye Sub Inkjet

- Liquid inkjet
- To textile, ceramic, aluminum...



Mitsubishi Electric dye sublimation kiosk prints



Cropped and bordered photos are an indicator of thermal transfer kiosks



Dye sublimation technology is common for photos at weddings, sports and special events

## Digital Inkjet **Continuous Flow Thermal** Piezo Aqueous-dye Aqueous-pigment Wide format-pigment Wide format-pigment Solid Ink **Phase Change** Solvent **UV-curing Dye Sublimation UV** Gel Latex

## What is Inkjet?

Inkjet printing is a type of computer printing that creates a digital image by propelling droplets of ink onto paper.

It used to be all about the <u>process</u>: <u>Thermal vs. Piezo</u>.

Current definitions are all about the equipment:

Format - Rollfed vs. Flatbed

Size - Desktop - A4 for home and office Large-format - 18" to 36" wide Wide-format - 36" to 10' wide Grand format - over 10'

Ink - <u>Aqueous</u>, <u>Solvent/Eco-Solvent</u>, <u>UV Curing</u>, <u>UV Gel</u>, <u>Latex</u>, <u>Resin-Latex</u>, <u>Solid</u>, and <u>Dye Sublimation</u>,



Fuji Acuity Rollfed and Flatbed UV printers



#### **Printer Size**

Desktop = up to 11x17"

Large Format = 18" to 36"

Wide Format = 18" to 10'

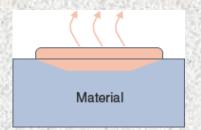
Grand Format = over 10' wide

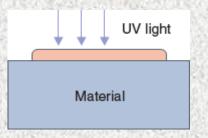
Grand-Format building wrap in Philippines

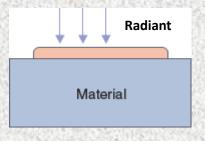
## Comparison of Four Basic Inkjet Printers

Acceptance layer

Material







#### **Aqueous Ink**

has less odor and rich color, for indoor use of poster and fine art. The ink penetrates the media during drying, making compatible substrates limited.

#### Solvent Ink

dries quickly by
heat and
evaporation.
Great for outdoor
commercial use as
they do not need
special coatings,
are waterproof,
durable and
resistant to
UV light.

#### **UV Curable Ink**

cures by UV light instantly onto the substrate without the ink seeping into the surface, so they may be used with materials without special preparation.



dries by internal radiant heaters with forced airflow to cure and produce dry prints inside the printer.





# Inkjet vs. Giclée

### Giclée are inkjet, but not all inkjet are giclée.

**Inkjet** generically refers to small format desktop printing to plain paper from word processing.

**Giclée** is an individually produced, high-resolution, high-fidelity, high-tech reproduction (CMYK) done on special large format <u>pigment ink printers</u> using only high-gamut, moisture-resistant, <u>archival inks</u>.

Iris, Roland, Canon, HP, Epson

# **Archival Inks**

#### Dye-base Ink

- Excellent color gamut
- Molecularly soluble in its vehicle (water)

#### Pigment Ink

- Excellent permanence
- Not molecularly soluble
- Embed into receiving layer making them water-resistant
- Less susceptible to destructive environmental elements

Many digital papers have coatings which enhance gamut, making them susceptible to scuffing and scratching which diminishes the archival properties of the print.

# Is Solvent Inkjet Giclée Quality?

The biggest question is not giclée or not, but rather will solvent inkjet have long term stability and lightfastness.

Today many publishers use solvent, eco-solvent, UV, latex, and dye sublimation printers to produce canvases, gallery wraps and wall décor.

## Digital Inkjet **Continuous Flow Thermal** Piezo Aqueous-dye Aqueous-pigment Wide format-pigment Wide format-pigment Solid Ink Phase Change Solvent **UV-curing Dye Sublimation** Latex

# Digital Inkjet

#### **Continuous Flow**

#### Giclée Fine Art Images

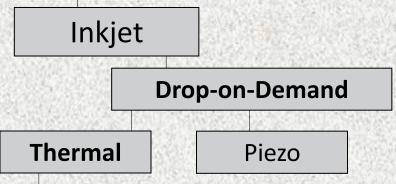
Digital, color calibrated, large-format Print to Fine art paper, silk, canvas, bamboo, acrylic, aluminum

- IRIS (1984)
  - Designed as a digital prepress for proofing colors Piezoelectric technology
- Epson large-format printers replaced IRIS by 2010



Continuous flow fine art inkjet





## Aqueous Dye Inkjet



**Desktop** -Plain paper, photo paper, light coated paper

• HP, Canon

#### **Large Format – Pigment Ink**

- Canvas, photo, film, Tyvek, textured & coated paper
- HP, Canon

#### Wide Format – Pigment Ink

• HP Z-series, Canon imagePROGRAF



Thermal Inkjet desktop prints



Thermal Wide-format Canon imagePROGRAF paper and canvas



Thermal inkjet photo printer papers - clockwise HP Matte Litho-realistic Paper (HP Z3100); HP Hahnemühle Smooth Fine Art Paper on Z2100; HP Professional Satin Photo Paper and HP Collector Satin Canvas on Z3100

Inkjet

**Continuous Flow** 

Drop-on-Demand

Thermal

Piezo



## Aqueous Pigment Inkjet

#### **Desktop – Pigment Ink**

- Also called Piezoelectric
- Epson, Brother



#### Large Format – Giclée quality

• Epson, LexJet, Ricoh

#### **Wide Format - Commercial Use**

Epson, LexJet, Ricoh, Roland, Mimaki



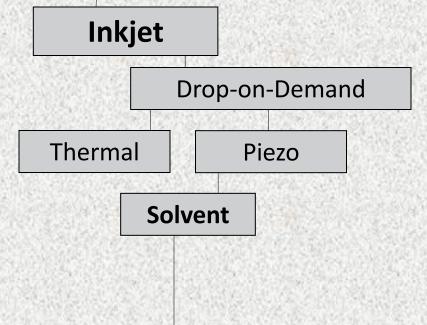
Surface sensitivity of Epson desktop inkjet printer on porous paper



HP Z-series Heat tolerant Epson Wide-format Heat tolerant Heidelberg Press NOT heat tolerant



Epson SC-S60670 Eco-Solvent





## Solvent Inkjet - Wide Format

Eco-solvent inks = waterproof, durable and resistant to UV Digitally printing up to 10' wide

For commercial use and signage

Interior and exterior with no special coatings

• Epson, Roland, Mutoh



Roland VersaCAMM solvent inkjet 56" wide format



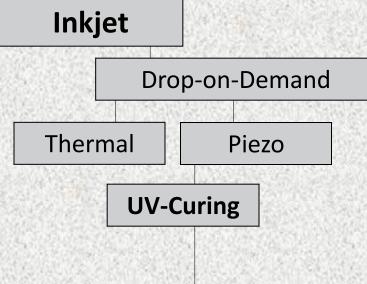


Mounted plaques on Railroad Museum Timeline



## Mimaki UJV55-320 UV Curable Rollfed

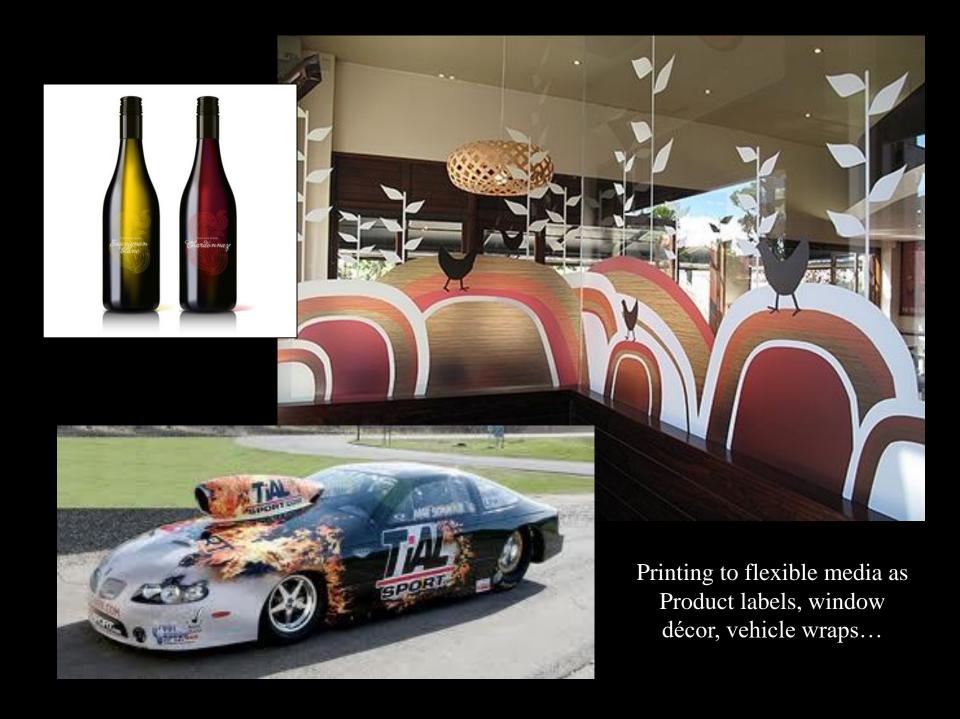


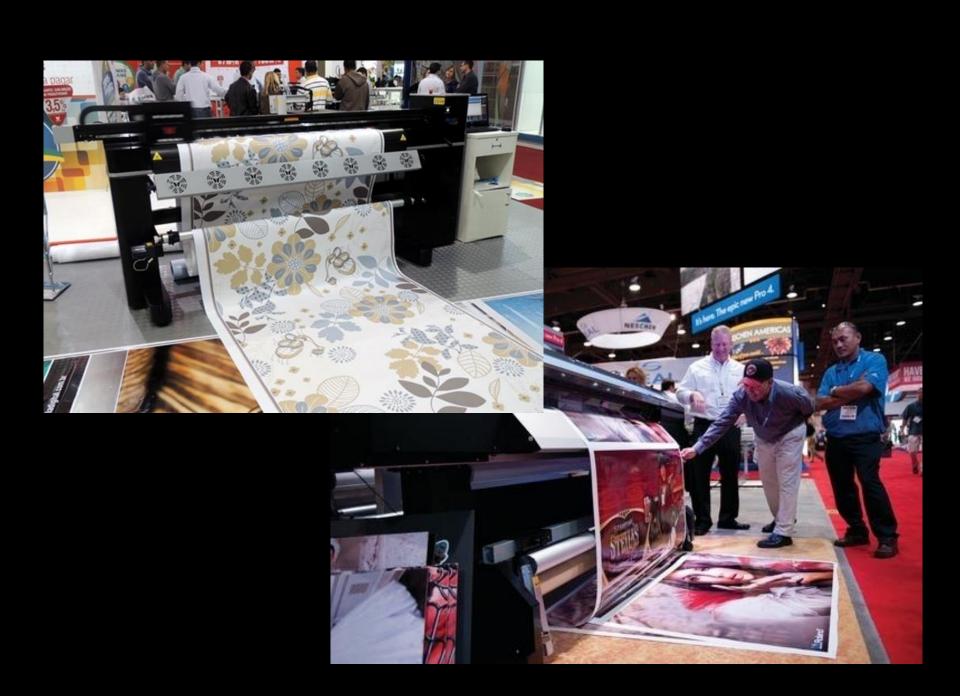




## **UV-Curing Inkjet**

- UV light instantly cures ink, coating, adhesive
- Environmentally friendly
- For glass, acrylic, honeycomb, polycarbonate, ACM
- Canon, LexJet, HP, Ricoh







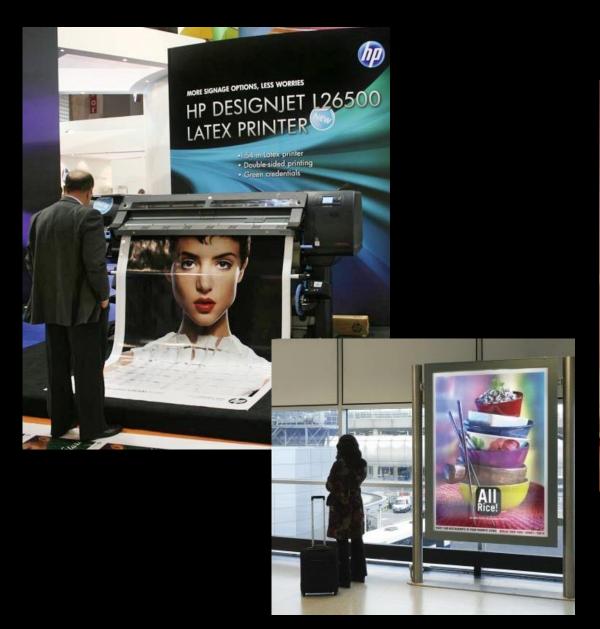
#### Latex Ink - Large Format



- Aqueous pigment ink, lightfast
- Scratch, smudge & water resistant, indoor/outdoor
- Forced airflow to cure under radiant heaters, ready-to-use
- HP, Ricoh

#### Resin/Latex

- Designed for vinyl and flexible signage (Tyvek)
- Roland, Epson

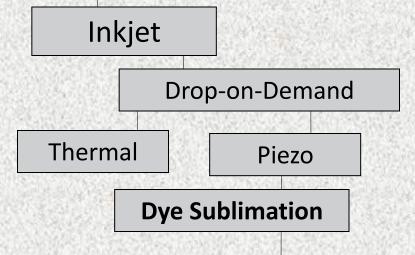




Lightbox, wall décor...







RolandTexartRT-640



## Dye Sublimation Inkjet

- Direct printing process (replaces screen printing)
- Requires heat setting
- Permanent and washable for polyester textiles
- Epson, Mimaki, Mutoh, Roland

### **Direct Printing**

- Uses dye inks for silk, cotton, wool
- Requires pre-treatment, washing & post-treatment

#### Grand Format Dye Sublimation

Printing on cotton and polyester-based fabrics with Pigment-based dye sublimation and direct-disperse inks is growing in wall decor.



#### Dye Sublimation on Metal Plate

Sentry West, 24" x 48"
Anita Jesse, artist





Dye Sublimation on Canvas

Solitude, 24" x 24"

Anita Jesse, artist



#### **PPFA PRINT 2017-18**

#### Sun Dappled II

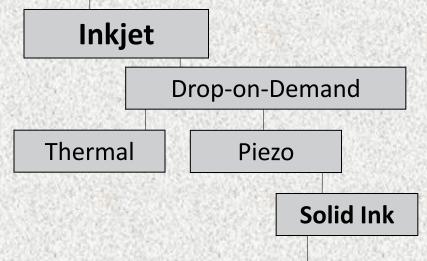
Created by Wild Apple Studio Published by Wild Apple Graphics

- Metal plate 6x6"
- High gloss finish on Chromalux
- Epson dye sublimation printer
- Dye inks transfer image to paper
- Applied to the Chromalux panel
- Treated to receive the dyes
- Put flat into a heat press @ 400°F
- 80 psi for 2 minutes
- Printed by Northwest Art + Frame





Xerox Versalink C620



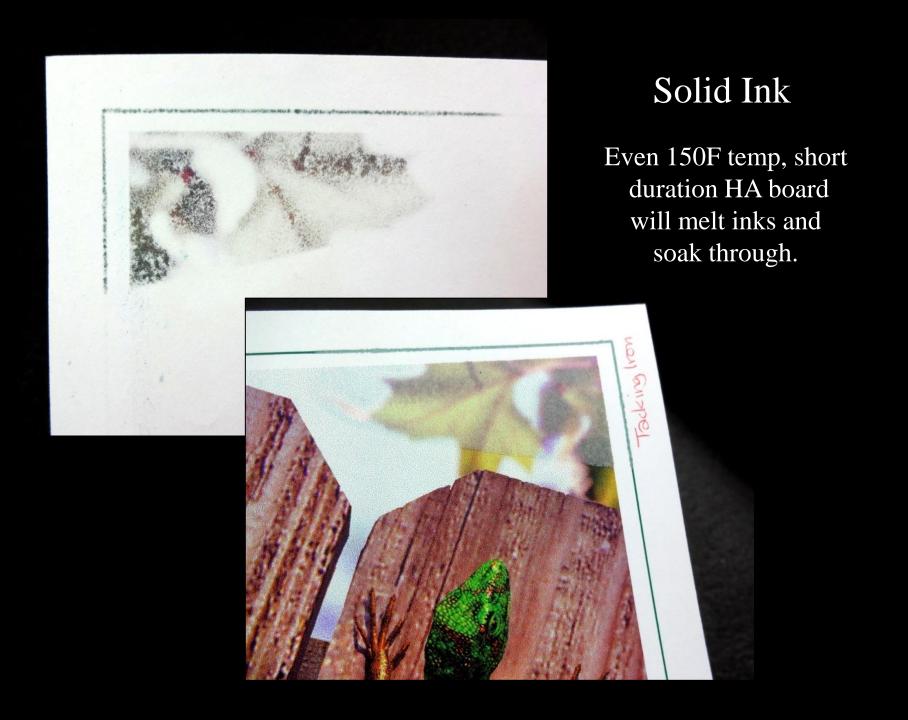
#### Solid Ink/Phase Change Inkjet (1962)

- Wax based ink sticks, 150°F+ melts ink
- Feel the edges of the ink, may soak through
- Commercial graphics, brochures
- Being phased out of use
- Xerox





Solid Ink – Phase Change Inkjet Note faint image transfer on release paper





Solid Ink – Phase Change Inkjet

Major image melt and transfer from transparency to release paper

# Mounting Digitally Printed Items



Tear strength should be aggressive enough to rip the surface paper or mount when pulled

Better bond, but not aggressive enough for true tear strength.



# Mounting Digital Canvas and Photos

- 1) Avoid heat and pressure damage.
- 2) 150°F is too hot for some digitals.

#### Gilman MountCor/MountCor Canvas

- 130°F lowest temperature available
- Safe for <u>ALL</u> digitals

### **High Tack P-S with Roller Laminator**

- Commercial PSA boards or In-house boards
- Drytac, D&K, Coda, Neschen Gudy...

# **HA Board Comparisons**

High Temperature = 180°F
Bainbridge HAF

Medium Temperature = 150°F-160°F SpeedMount, KoolTack, Gilman InSite

Low Temperature = 130°F
Gilman MountCor
MountCor Canvas

**Reversible Board** = 150°F-160°F KoolTack Preserve (100% Reversible Board)

## When in doubt...Go Cold

Cold Mount Materials
Manual PSAs

Low Medium High tack

Roller Laminators
High tack PSAs
Any substrate



Drytac JM26

#### **HA-PSA-Film-Wet Adhesives and Comparisons 2024-2025**

Board		Types of Art											Digitals													В	oard	Inf	D				
This chart is a combination of manufacturers' suggestions, claims and tested mounting results between 2006-2008. Not all new release products since 2011 have been tested.  Copyright © 2011 Chris A. Paschke, CPF GCF Updated Copyright © 2014 Chris A Paschke, CPF GCF Updated Copyright © 2024 Chris A Paschke, CPF GCF	Lightweight Porous Paper	Coated Paper-mechanical	Coated Paper-vacuum	Asian Papers	Heavy Watercolor Paper	Original Art	Polyester Encapsulate	RC Photo-vacuum	RA-4 Photographs	Creative Applications	Fabrics / Textiles	Digital Canvas	Elecrtrophotographic Copy	Flectrostatic / Laser Copy	Dye Sublimation	Thermal Transfer	Thermal (dye) Inkjet	Thermal (pigment) Inkjet	Piezo Inkjet	Time – after draw (actual)		Temperature	Permanent	Removable	Reversible / Preservation	Cure or Cool under weight	Neutral pH or stable & inert	Orange peel	High Density Oversized Mounts	Manual	Rollers - cold	Roller - hot	Heulalical
Heat Activated Film & HA Boards													N	N	ı		N					2411											
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ACM Competition Plate			XX					X		П						X		Χ			5s F	160-165		Χ		Χ		х				ХХ	
Pressure-Sensitive (P-S) Boards		NA			NA	NA	N.	A NA	1				Î							LT	нт	R											T
Bainbridge SA Foamboard	X				П				Х	П		Х	X	Х	X	Х	Х	Χ	F	X		X	X		Х	Х			×	X	Х		
Crescent PerfectMount Foam	X			Х	П				X	П		_	X						X F	Х	$\vdash$	X	X		Χ		$\neg$			X			
Drytac PS Gatorfoam	Х		Х	X			х	T	X	П	X >	X	X		X			_	ХХ	_	X		X		X			XX		X			
Foam Board	Х			X	П		Х		X		X >										X		Х		Χ			XX		X			
Gilman High Tack Foam	X		Х	X					X										X F		Х		Х		Х					X			
Gilman Resilient Align	Х		Х	X			X		Х		FF	F	X	X	X	X	Х	Х	<b>X</b> F	X		Х	X				Χ				Х		
Resilient Mount Soft Touch Graphics Board	Х		Х	Α		2	X		Х		FF								X F		X		Х			Χ	X		X	X	X		
Kool Tack InstaMount	Х	Х	x X	X			X		X				X	X	X	X	X	X	X F		X		X			Χ				X		>	( X
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Gudy 870/Gudy O (rolled, no carrier)	X			X					X	П									XX		X		Х	-		Х				_	Х		
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Decor All Purpose Mounting Glue #980 (paste)	х			X	_		-		Х	-	X >		_						X >			X	Х		$\neg$		Х	$\top$		X			
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Decor Vacuum Mount Adhesive #3649 (veg starch)	X			X			-		Х	$\rightarrow$		X							X >			X	Х			$\neg$	Х	$\top$	Х	_			
Frank's Fabric Glue (PVA)	X			X			-			х		_	→					_	x >	_	X		X			_	Х	$\top$		X		>	( X

# chris@DesignsInkArt.com 661.821.2188

https://www.designsinkart.com/library.shtml

See you next year!!



Chris A. Paschke, CPF GCF Designs Ink

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