



“Every package you’ve ever picked up off a shelf — every color that caught your eye, every logo that made you stop — that started with someone who knew exactly what we’re going to talk about today.

Prepress. Color. Print. It sounds technical, but here’s the truth: you are the first person in the entire manufacturing chain. Before the press runs, before the ink hits the substrate, before that box gets packed and shipped — it all starts with the decisions you make.

Get it right, and millions of people interact with your work every single day without ever knowing your name. Get it wrong, and a whole production run gets thrown in the trash.

No pressure.

Welcome to flexographic prepress — where design meets the real world, and the real world doesn’t have an undo button.”

impact
IMAGING GROUP

Flexo Proofing & Prepress

July 30th, 4:30 pm – 5:30 pm

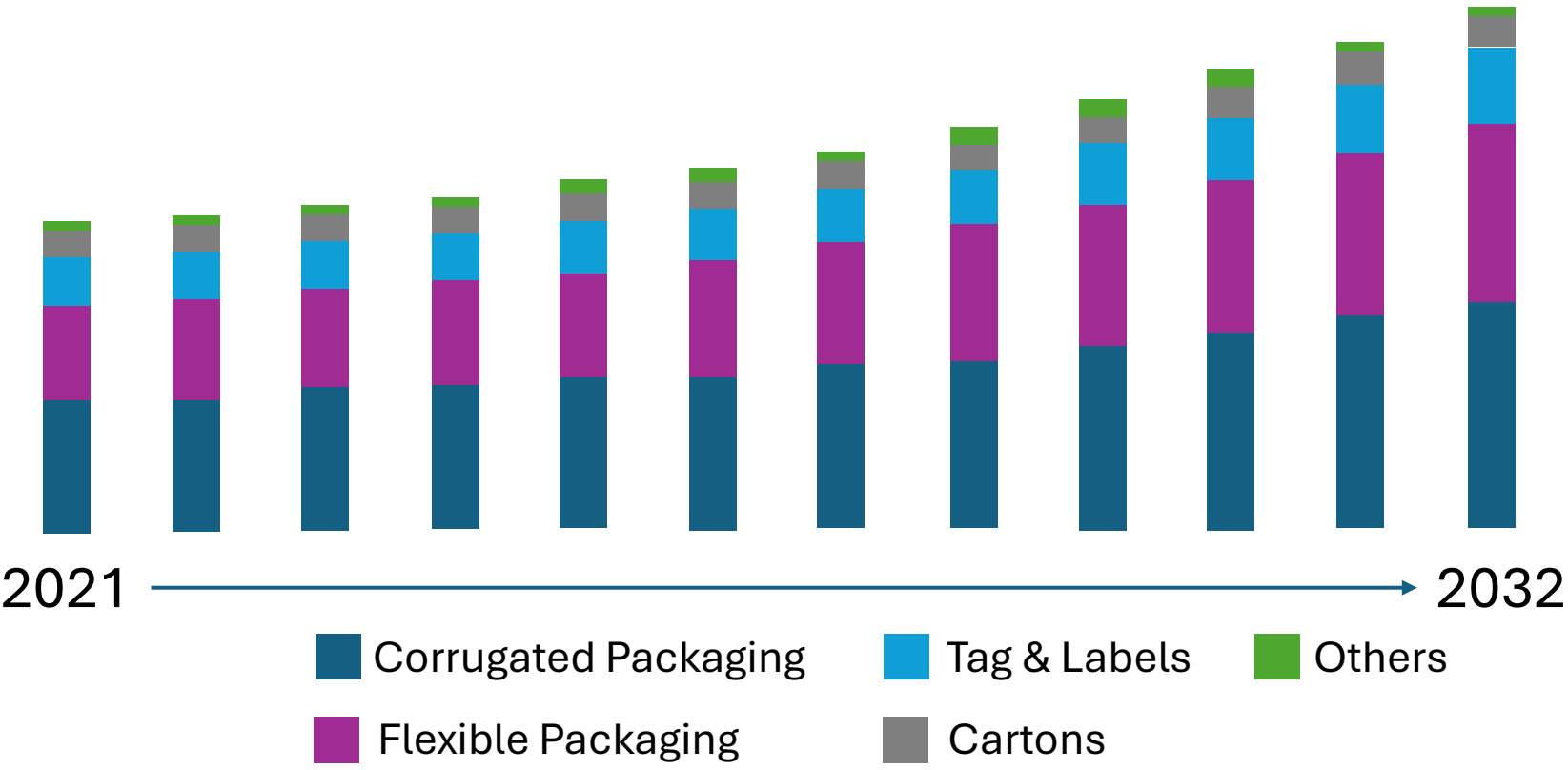
Tony Prozzi – Owner

tprozzi@impactimagingllc.com

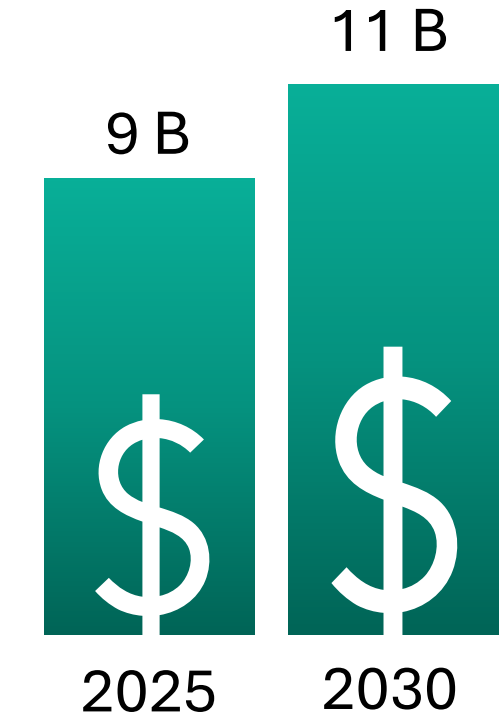
704-651-9759



The Flexographic Market Today



**Flexographic
Printing Market**
CAGR 3.56%



www.mordorintelligence.com

www.gmiinsights.com

How Did We Get Here?

Corrugated

Flex Pack

Tag & Label

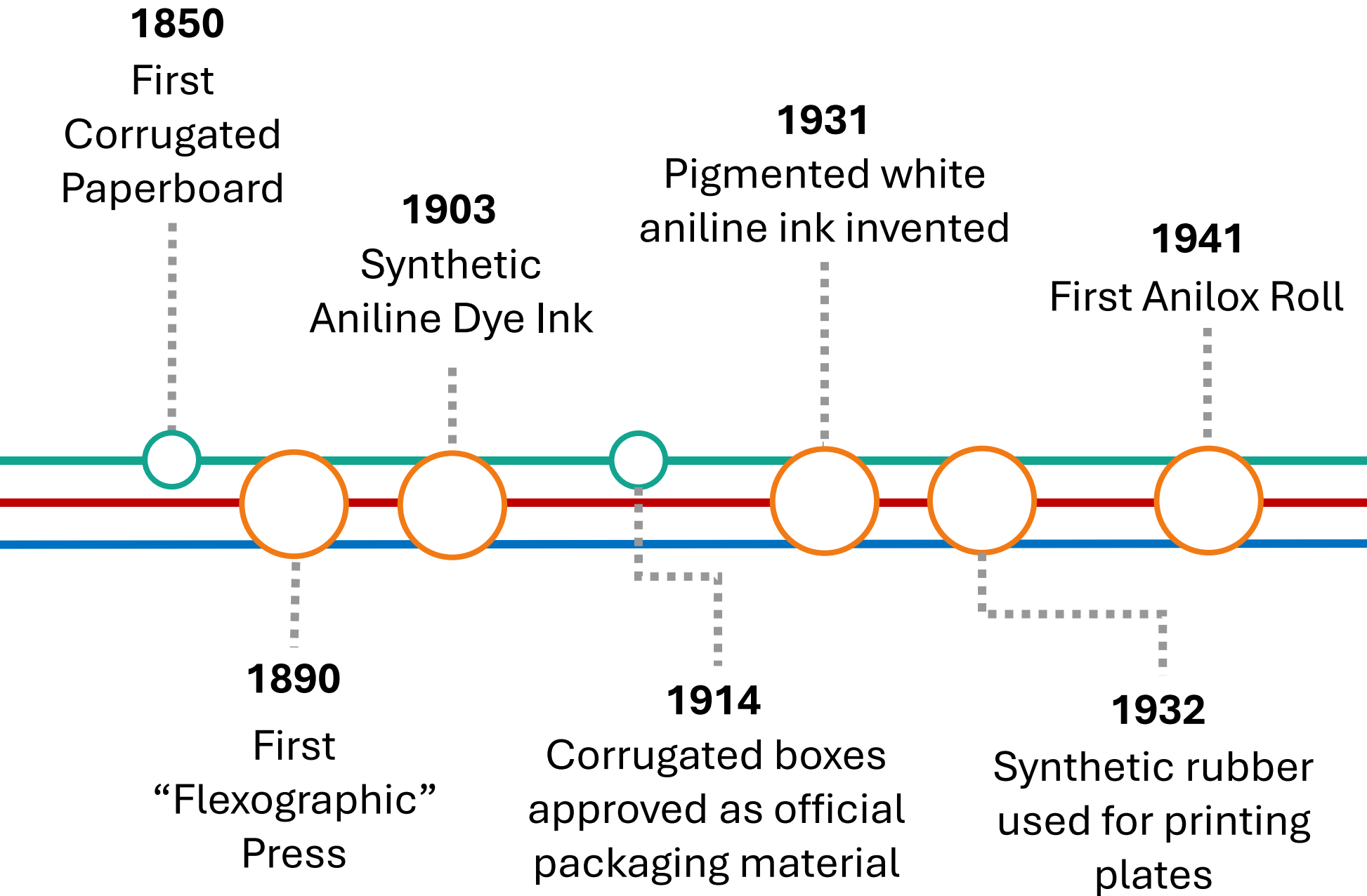
Printinghistory.org/timeline

Flexopedia.net/inception-and-early-developments-of-flexo-printing

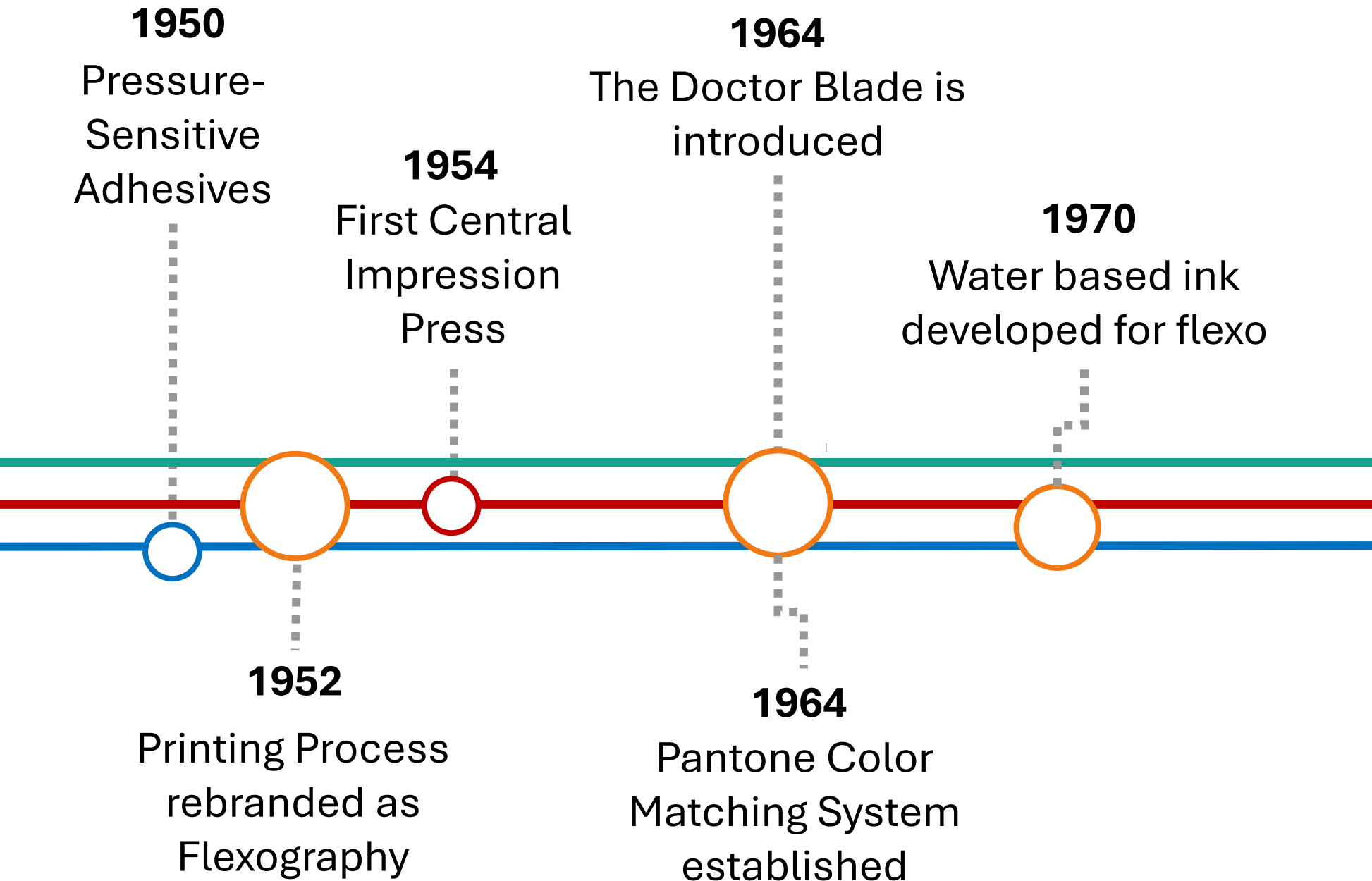
Flexopedia.net/innovations-and-digitalization-of-flexo-printing

Dupont.com/news/Cyrel50Years

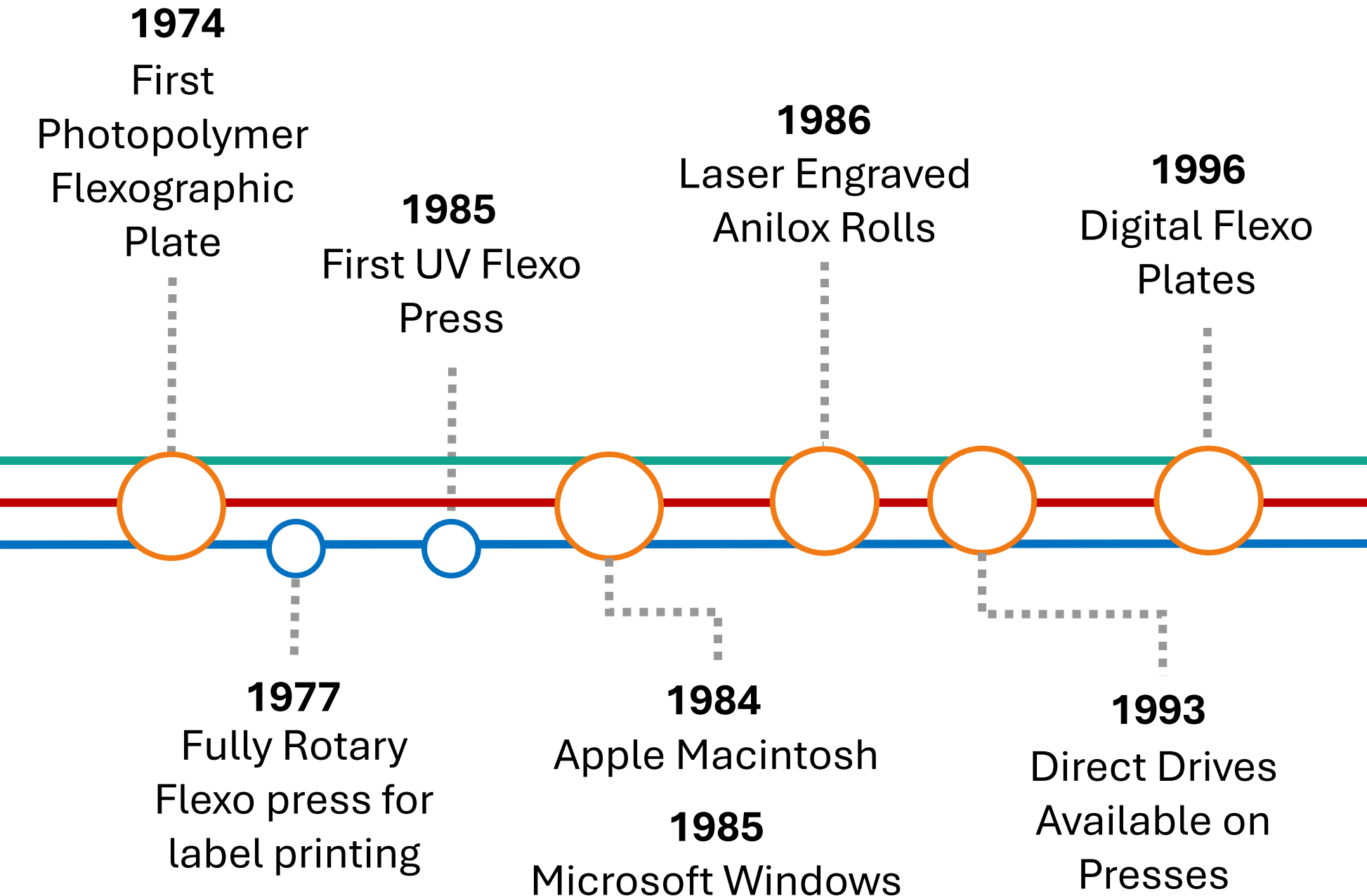
Nilpeter.com/news/40-years-of-flexo-excerpt-from-labels-labeling



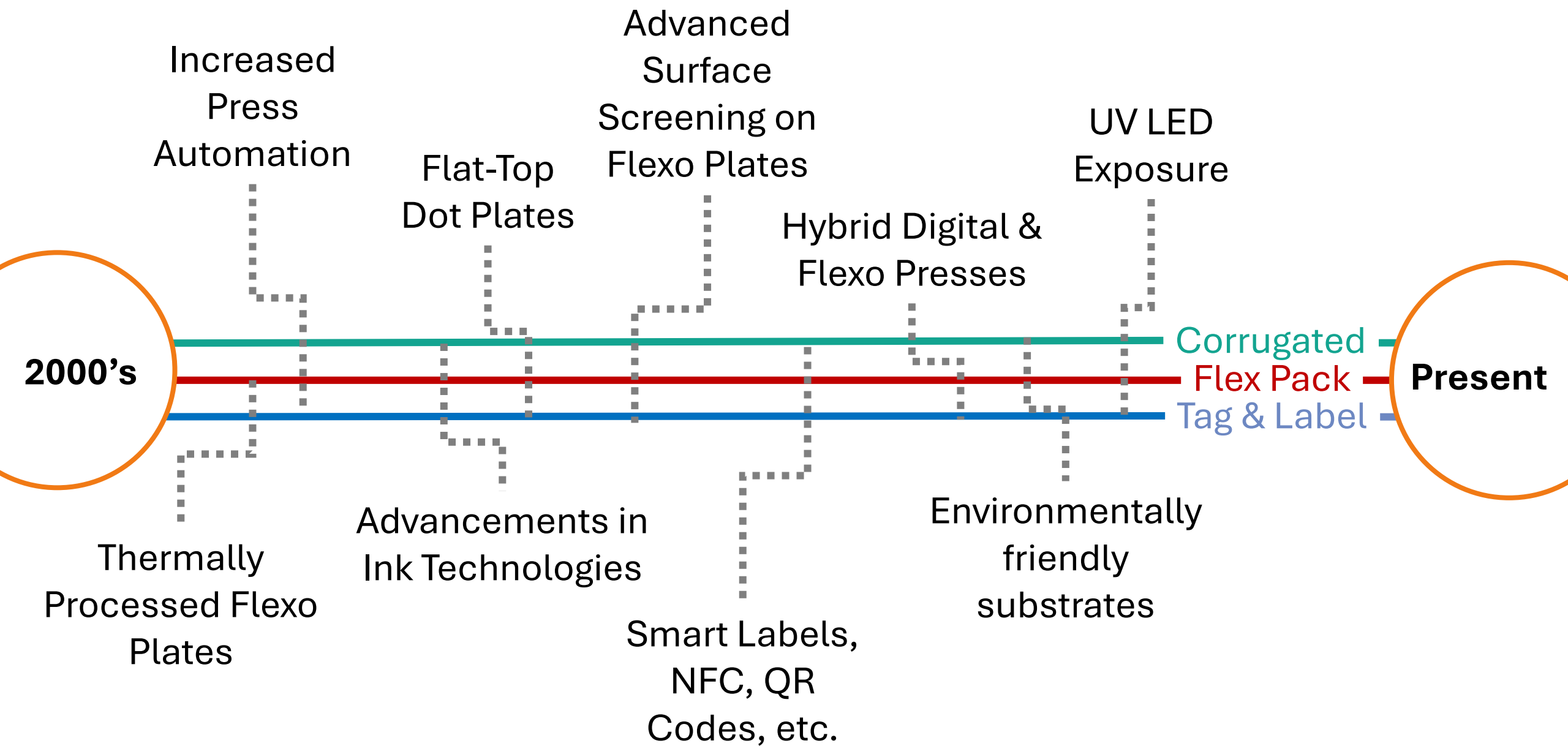
Interchemical Corporation revolutionized consistency of ink transfer by introducing the first mechanically engraved anilox roll



*Offered a safer
alternative for
food packaging*



Flexographic plates go fully digital with CDI imager, moving away from analog workflow



Print Quality and Dot Gain



85 LPI Image



300 LPI Image

Print Quality and dot gain



85 LPI Image



300 LPI Image

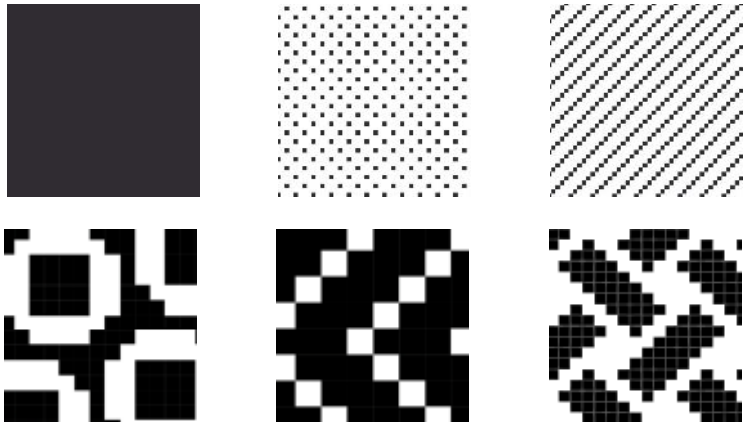
Ink- Laydown, Transfer, and Density

- Advancements in narrow web inks
- Higher densities
- Low maintenance
- Better adhesion
- Faster drying/cure



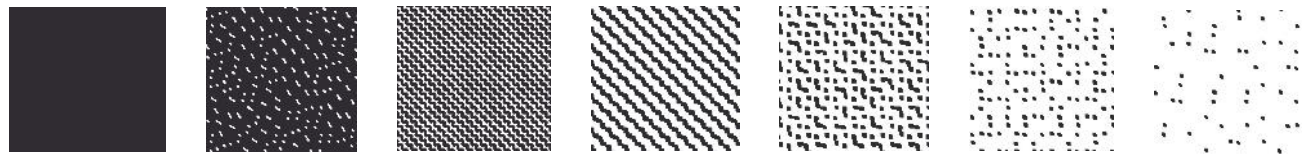
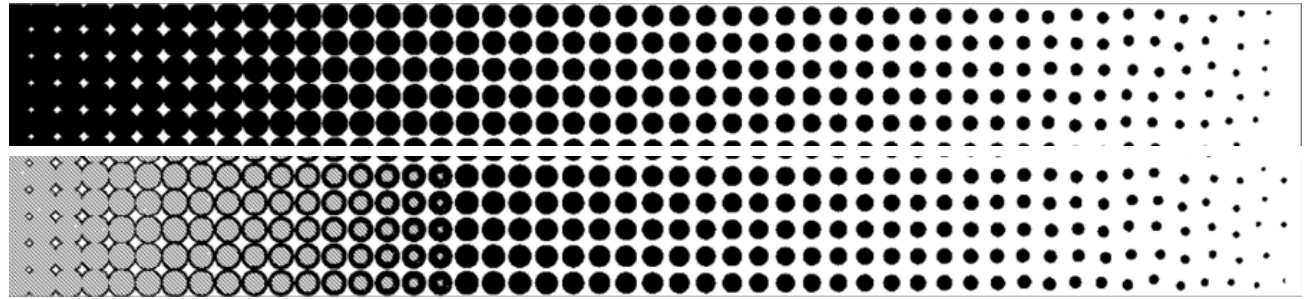
Ink- Laydown, Transfer, and Density

- New advanced screening technologies
 - Traditional AM
 - FM/Stochastic
 - Hybrid, and others



Solid Screening Examples

Halftone Screening Examples



Downtime and Change Overs

- Expanded Color Gamut or ECG
- Higher percentage of the PMS book
- Brighter colors
- Fewer cleanup



Bridging the Gap Between Flexographic Market Segments

- Challenges in corrugated printing
- Why plates, anilox, and ink matter
- Technologies and practices to improve quality
- Recent advances in the Flexo post-print market
- Advantages of surface patterns
- Color gamut and improvements from technology
- Continue to close the gap between market segments

Why ink, plates and anilox matter



ISSUE - Number of Stations



7 COLOR



4 COLOR

CI Press



W&H Miraflex 10 COLOR

Limited Number of Print Stations

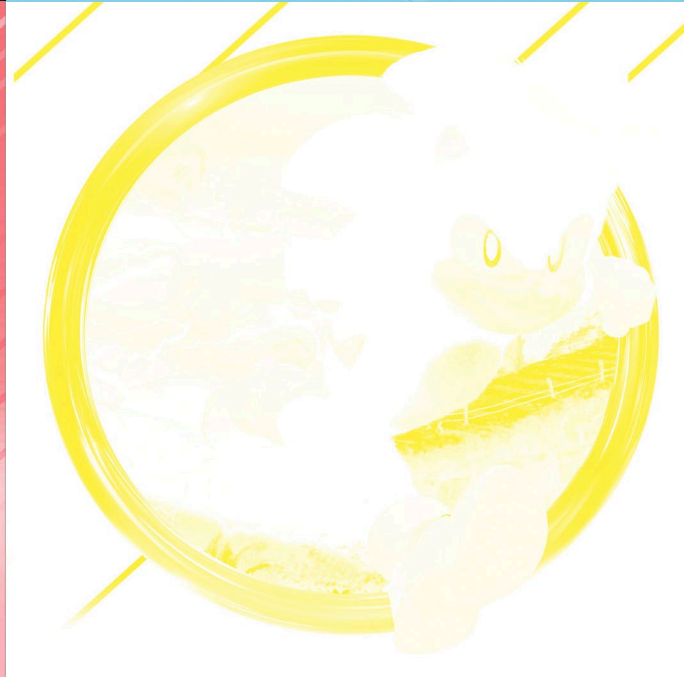
Supplied
as
CMYK



Built with
modified
process









65 LPI



85 LPI

m

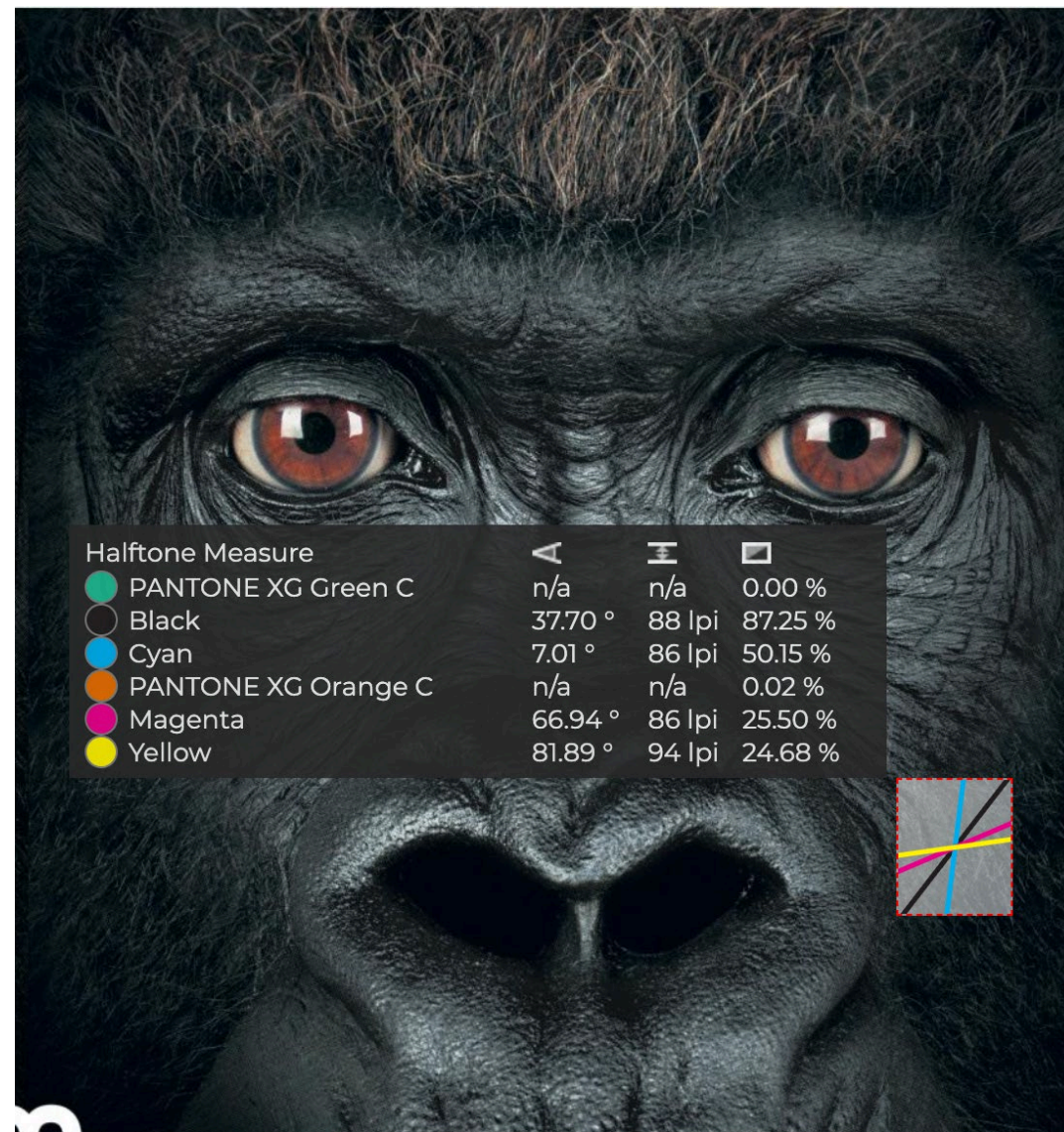
100 LPI



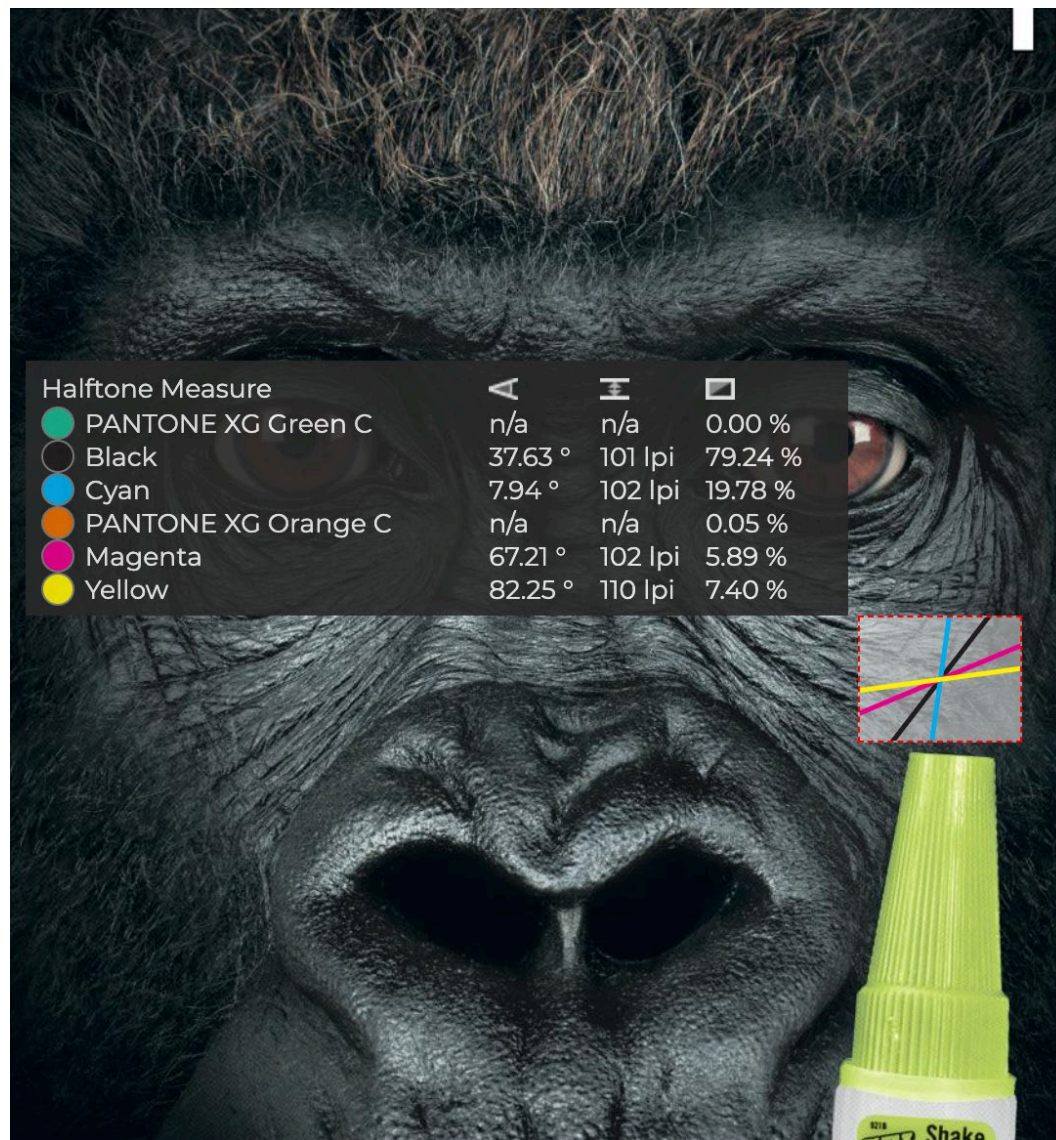
120 LPI



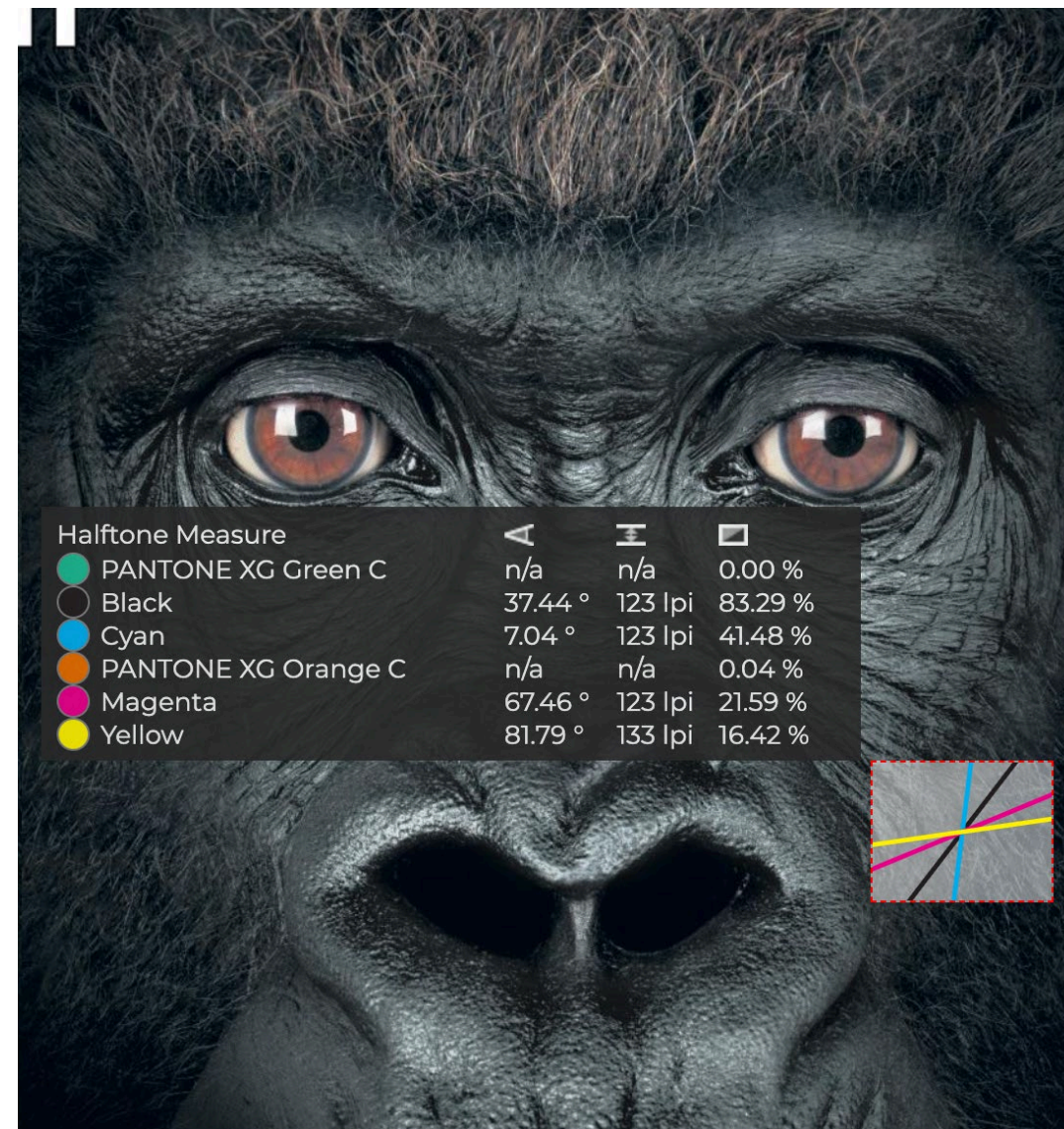
65 LPI



85 LPI

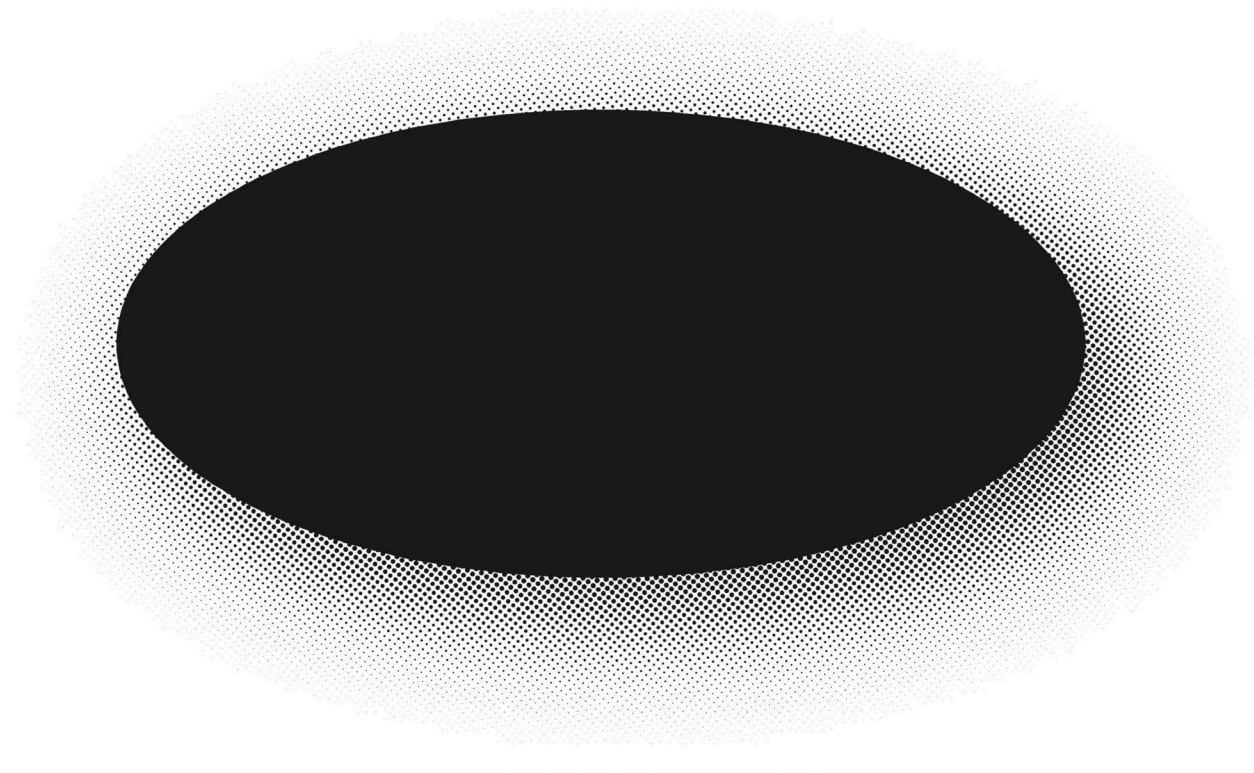


100 LPI

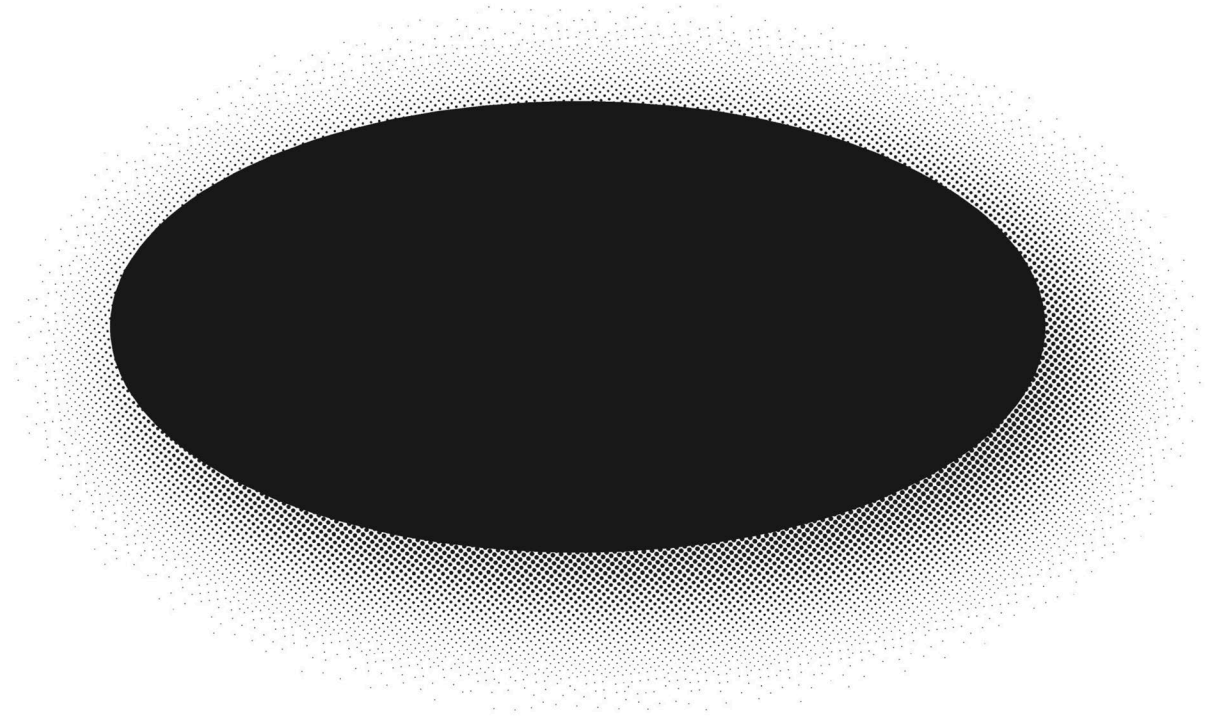


120 LPI

How Dot Shape Affects Printing

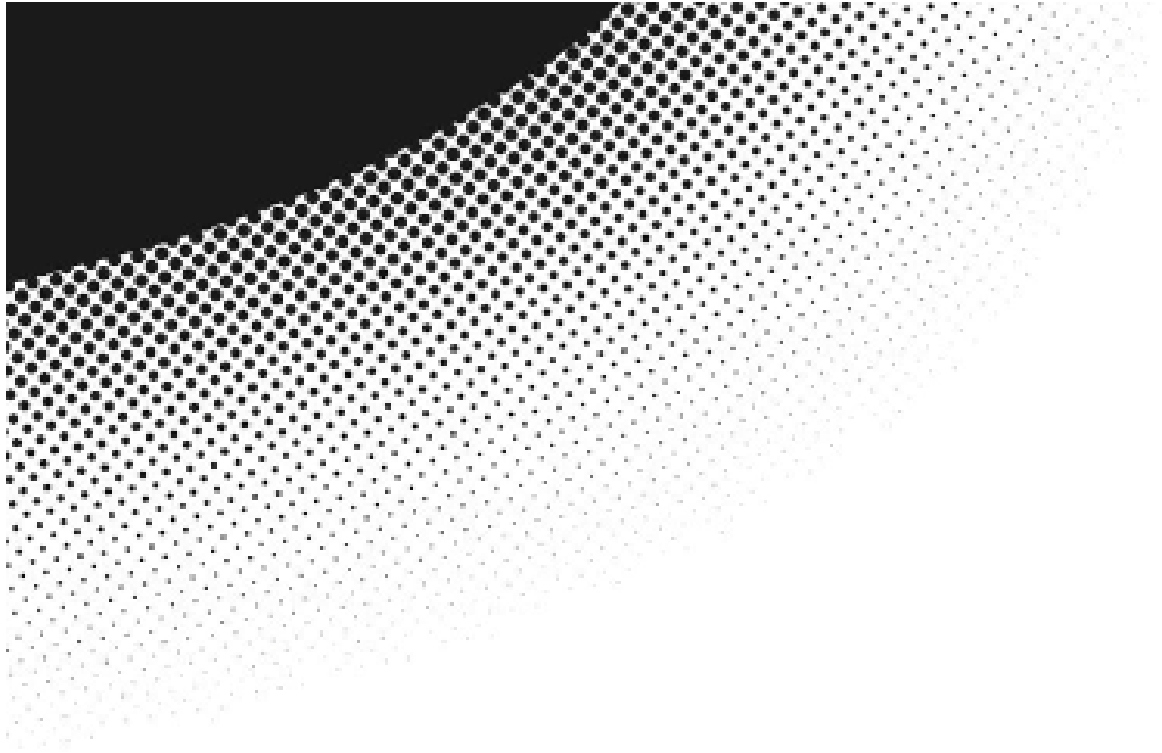


Round Dot (AM screen)

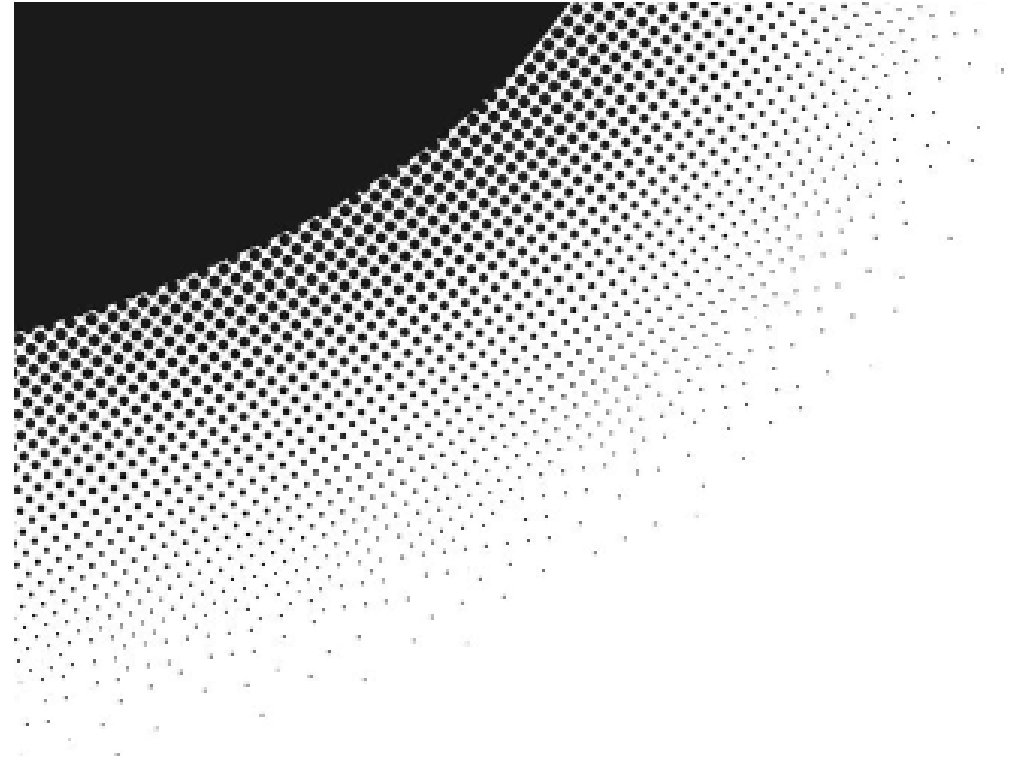


Velvet Screening

How Dot Shape Affects Printing



Round Dot (AM screen)

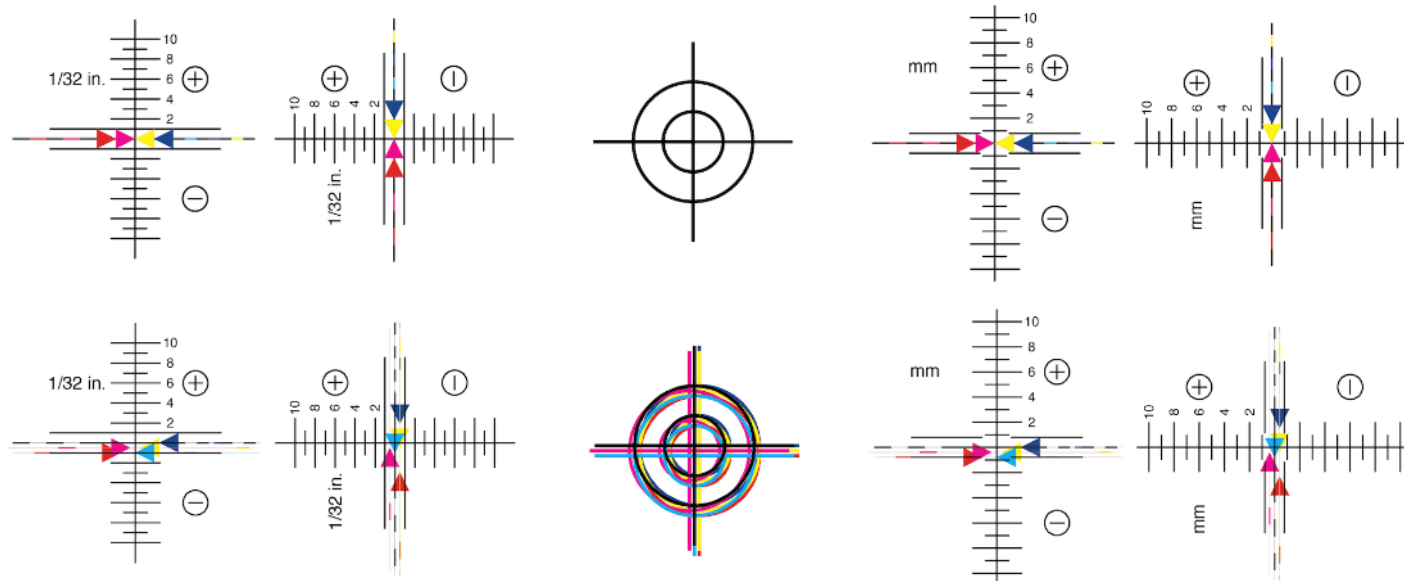


Velvet Screening

Key Challenges

Substrate Unevenness: Flutes and valleys. Inconsistent ink laydown, too much ink on flute tips and too little in the valleys, leading to a mottled or washed-out appearance.

REGISTRATION



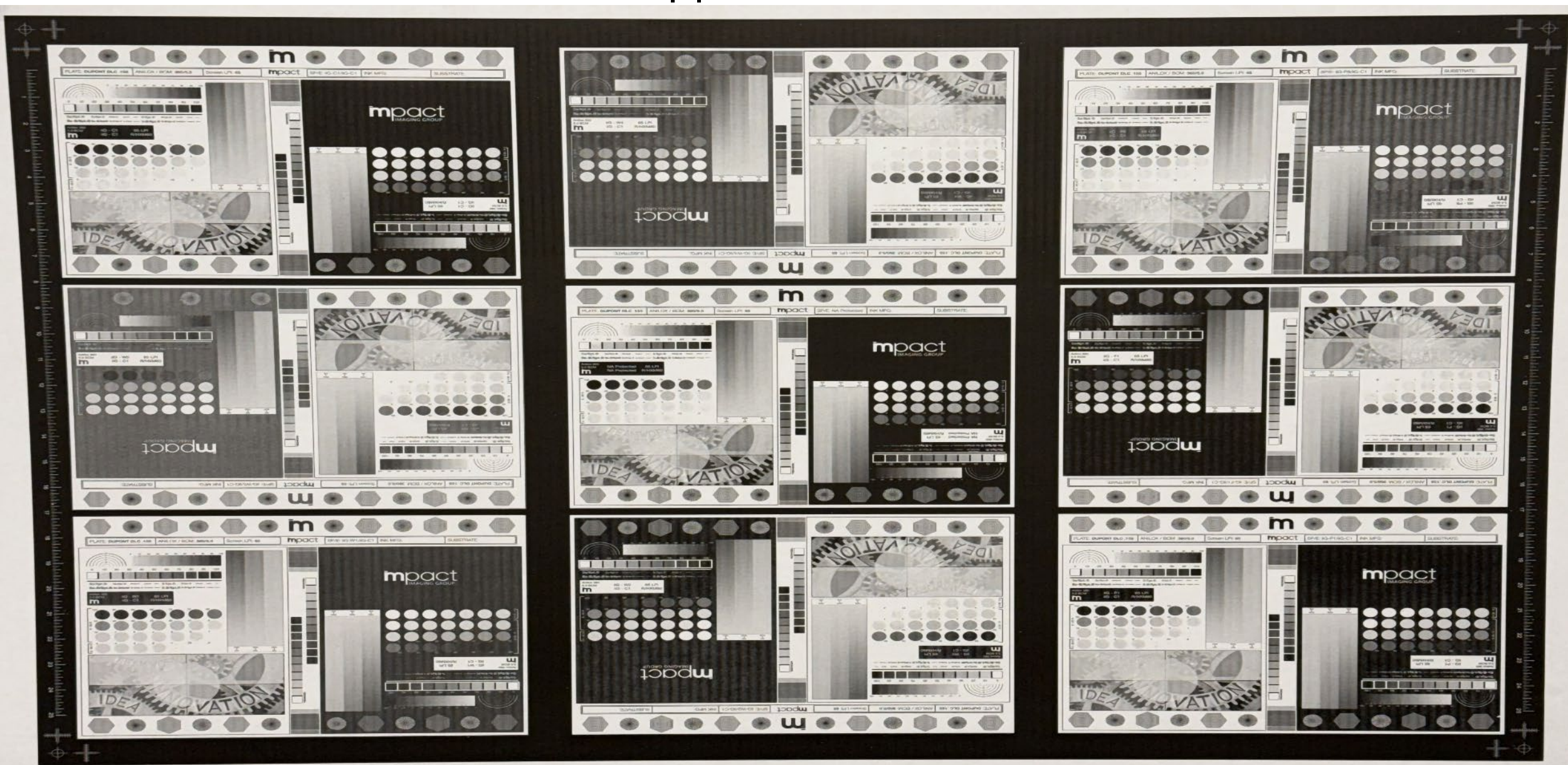
HOW DO WE ENHANCE THE PRINT QUALITY?

- Adding surface pattern
- Ensuring we have the right pattern for the anilox and BCM
- Ensuring we have the right plate material for the application
- Producing a benchmark test and characterization to confirm and apply

Surface Patterns

- Today, surface patterns are widely used in flexible packaging
- Potential for gain in density when you have the right pattern and volume of ink
- Better reverses and smaller type on both coated and uncoated substrates
- Overall reduction of dot gain and better tone reproduction
- Applying surface patterns allows better ink release and less ink consumption with cleaner print results

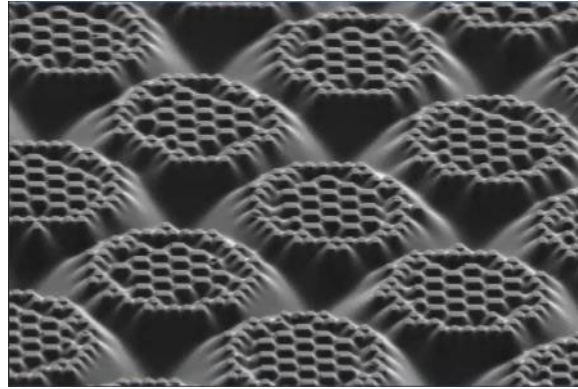
Benchmark Test for Surface Pattern Applied



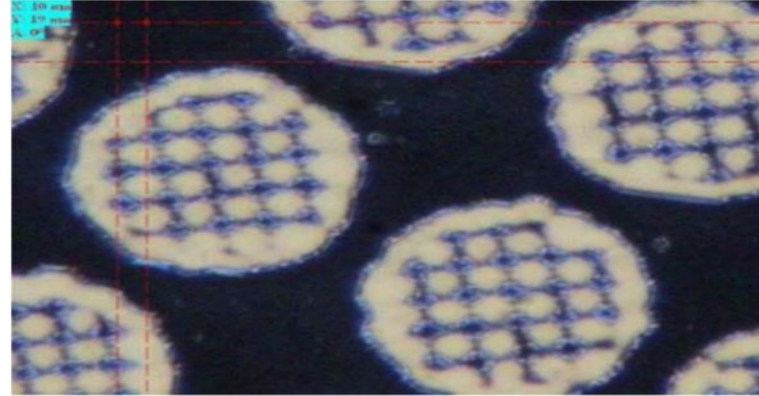
[illegible]

Surface Pattern on Plate Surface & Results

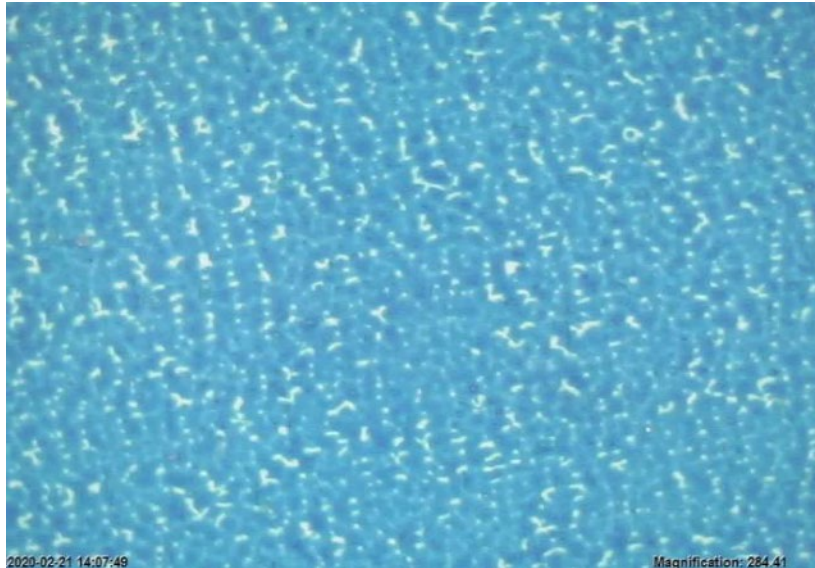
Surface pattern
on dots of plate



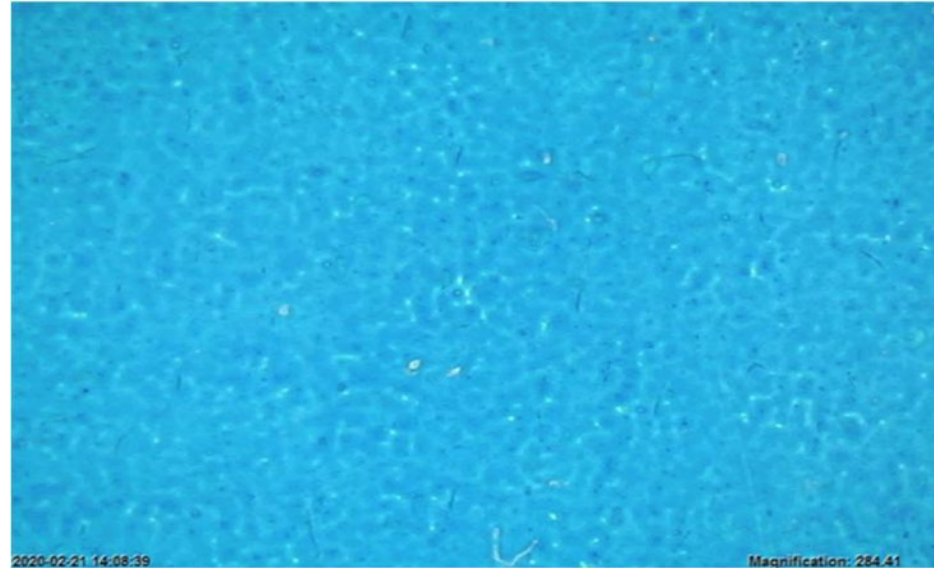
Surface pattern
on ablated mask



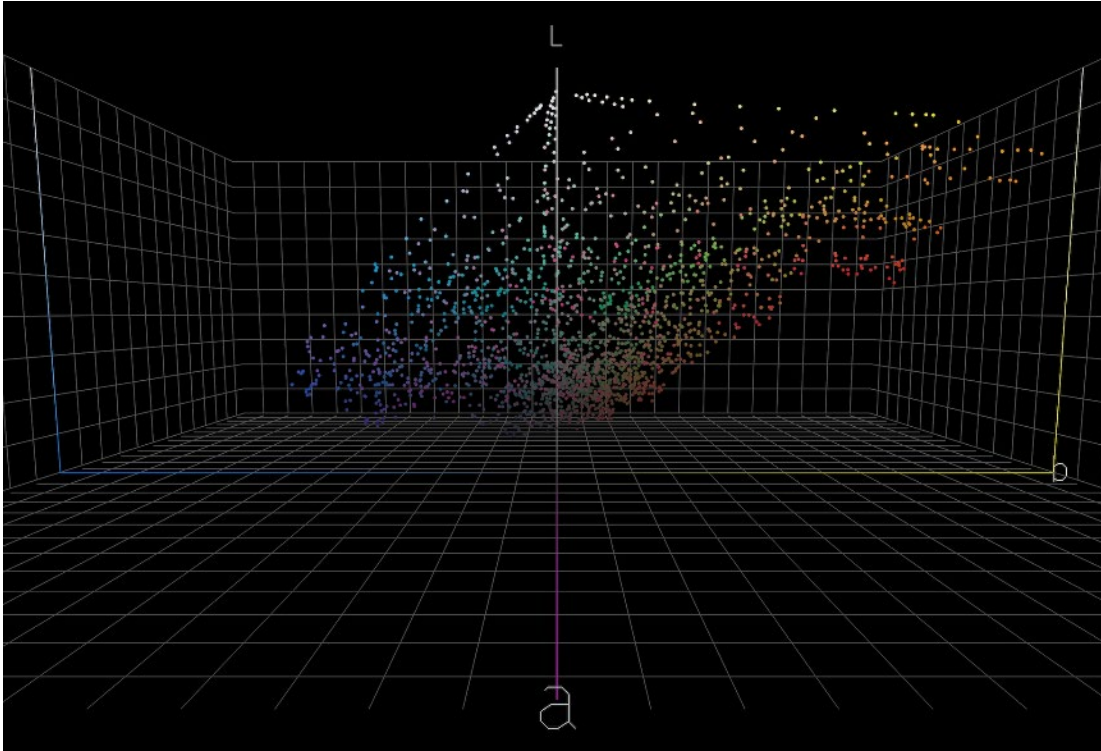
Mottling
without
pattern



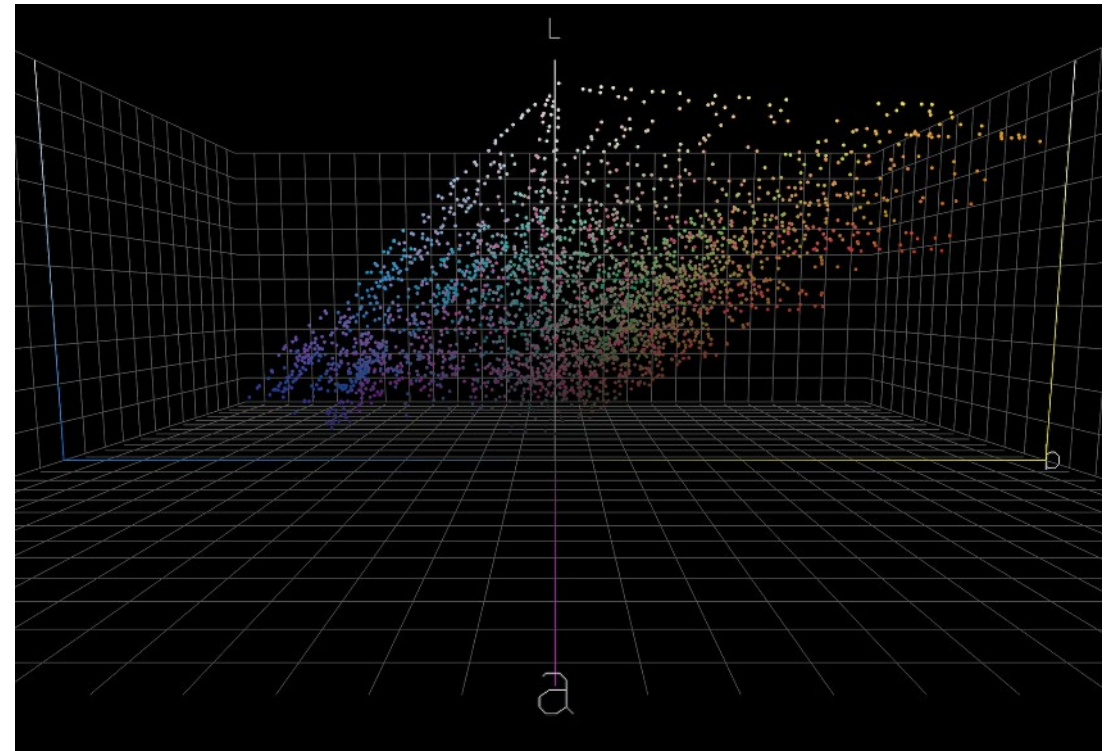
Less
mottling
with
pattern



Bridging the Gap Between Flexographic Market Segments

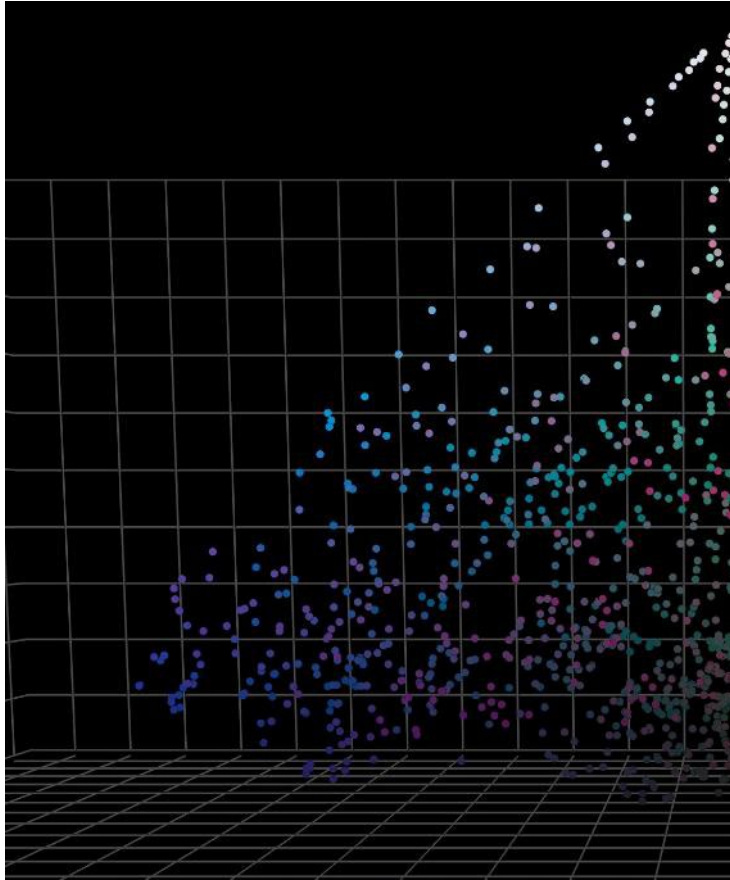


Without Surface Pattern

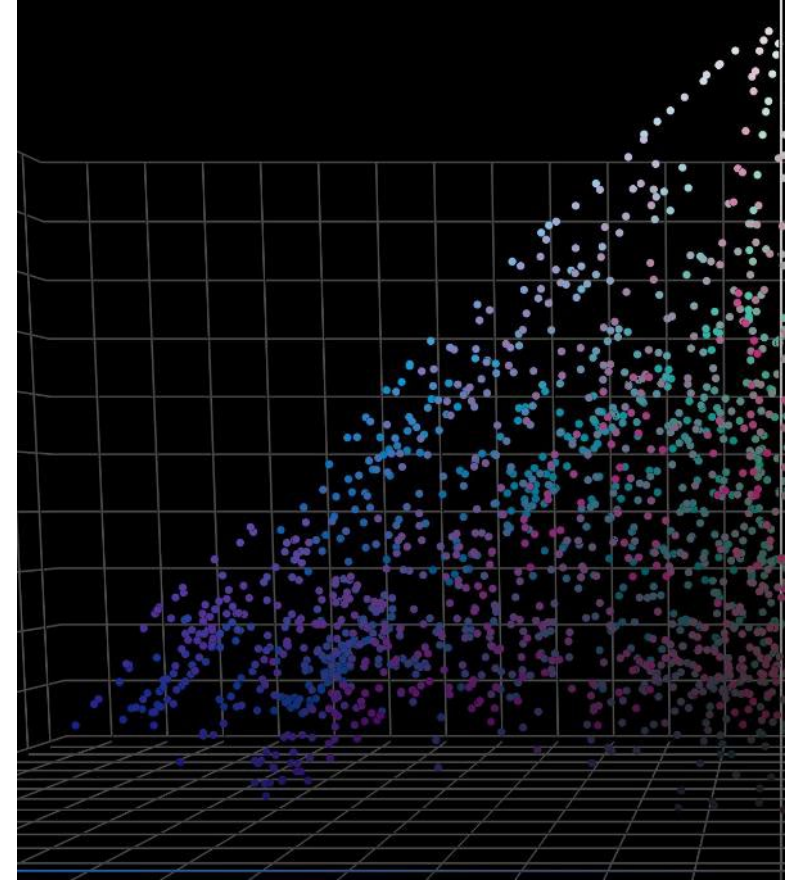


With Surface Pattern

Bridging the Gap Between Flexographic Market Segments



Without Surface Pattern



Increased gamut with
surface pattern

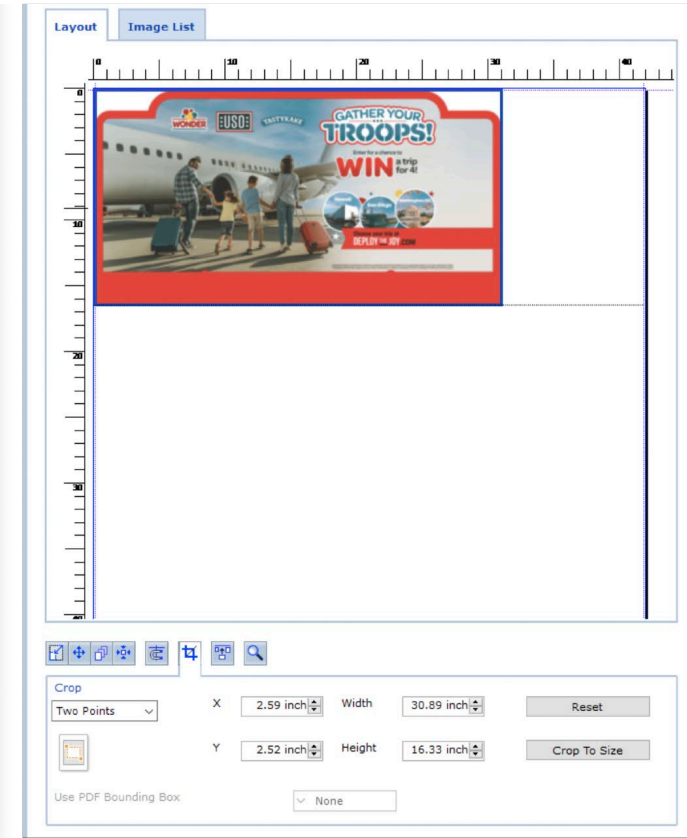
Proofing

Color proofs on Epson SCP9570

- There are 2 types of proofs, dot proofs and contone proofs.
- Most web/poly/folding carton printers only get contone proofs. We can print these bidirectional.
- Corrugated customers typically get dot-proofs which require more steps as they are more intricate. We have to print these unidirectional, the printing alone takes twice as long. Not to count setup and tiff-ripping.



Contone Proof



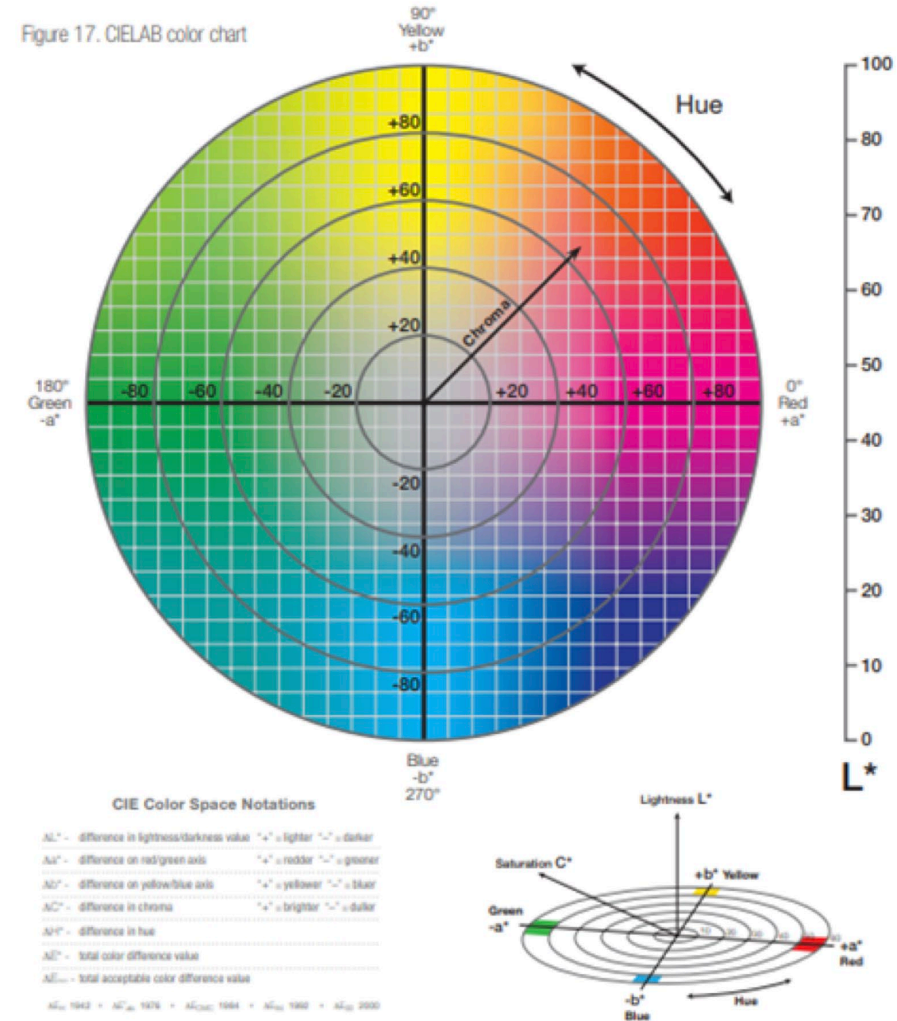
Dot Proof

Spectral Data

Drawdowns vs. CXF files

- CXF files are far more accurate and create quicker turnaround times than receiving/reading drawdowns.
- If customer wants to do drawdowns instead of CXF, it is at least a one day wait due to shipping.
- CXF can be emailed and imported in a matter of minutes.

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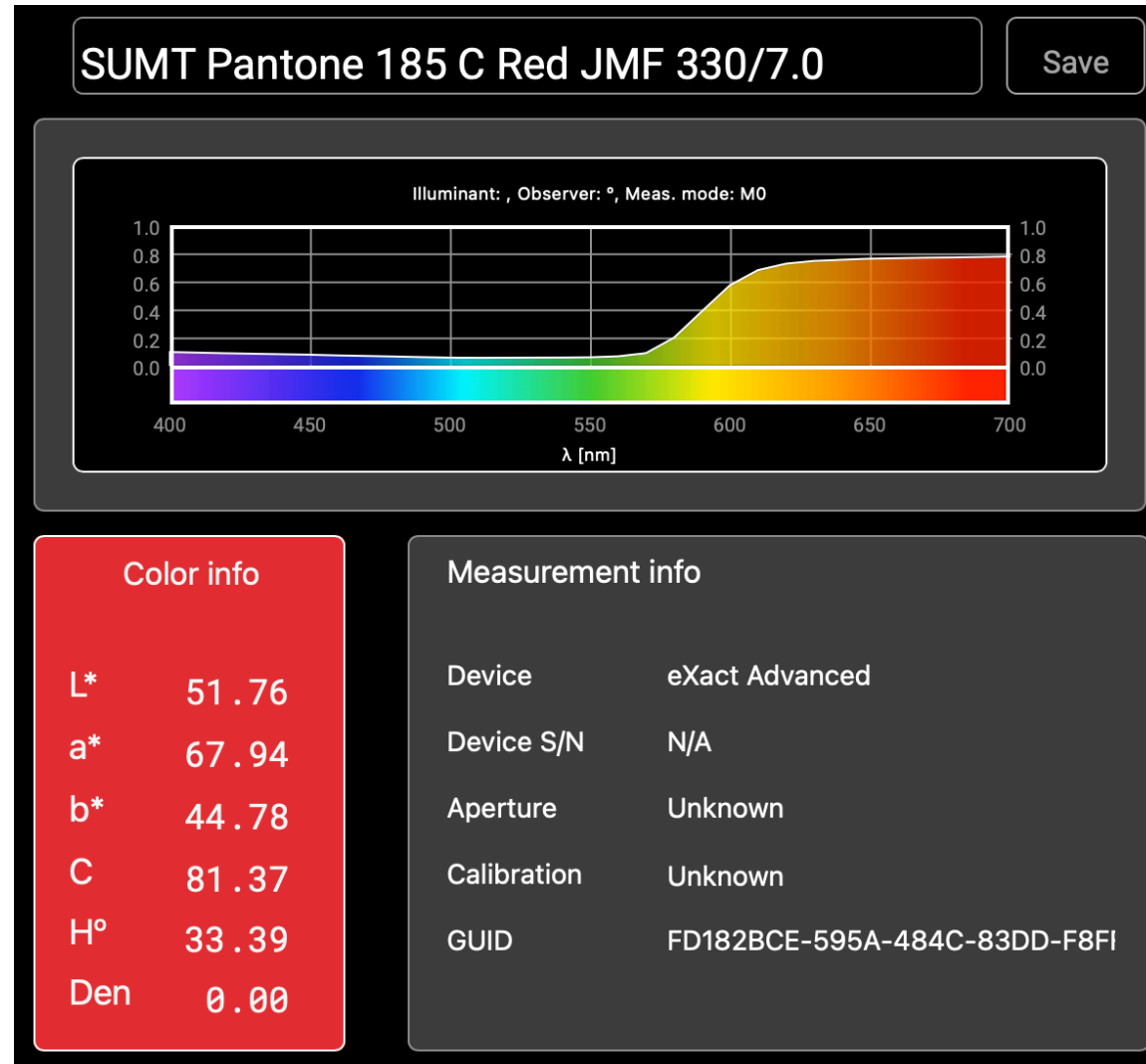
Drawdowns Are Industry Standard



Printed drawdowns can have defects just like print on press can.

CXF Data Is Impact Standard

CXF – Color Exchange Format
Larger spectral gamut than
Printed drawdowns.



GMG OpenColor Advantages

Converting color with GMG OpenColor vs. Manually

- What used to take hours, can now be done in minutes.
- GMG OpenColor takes all of the guessing out of the equation and does all of the thinking for you.
- True 4 color process images can be converted to all spot colors and print just as good.

CMYK



Initial Conversion to TriTone spot



OpenColor Preview



Pantone 185 Red, Pantone 354 Green, Pantone Yellow

Measuring Spectral Data

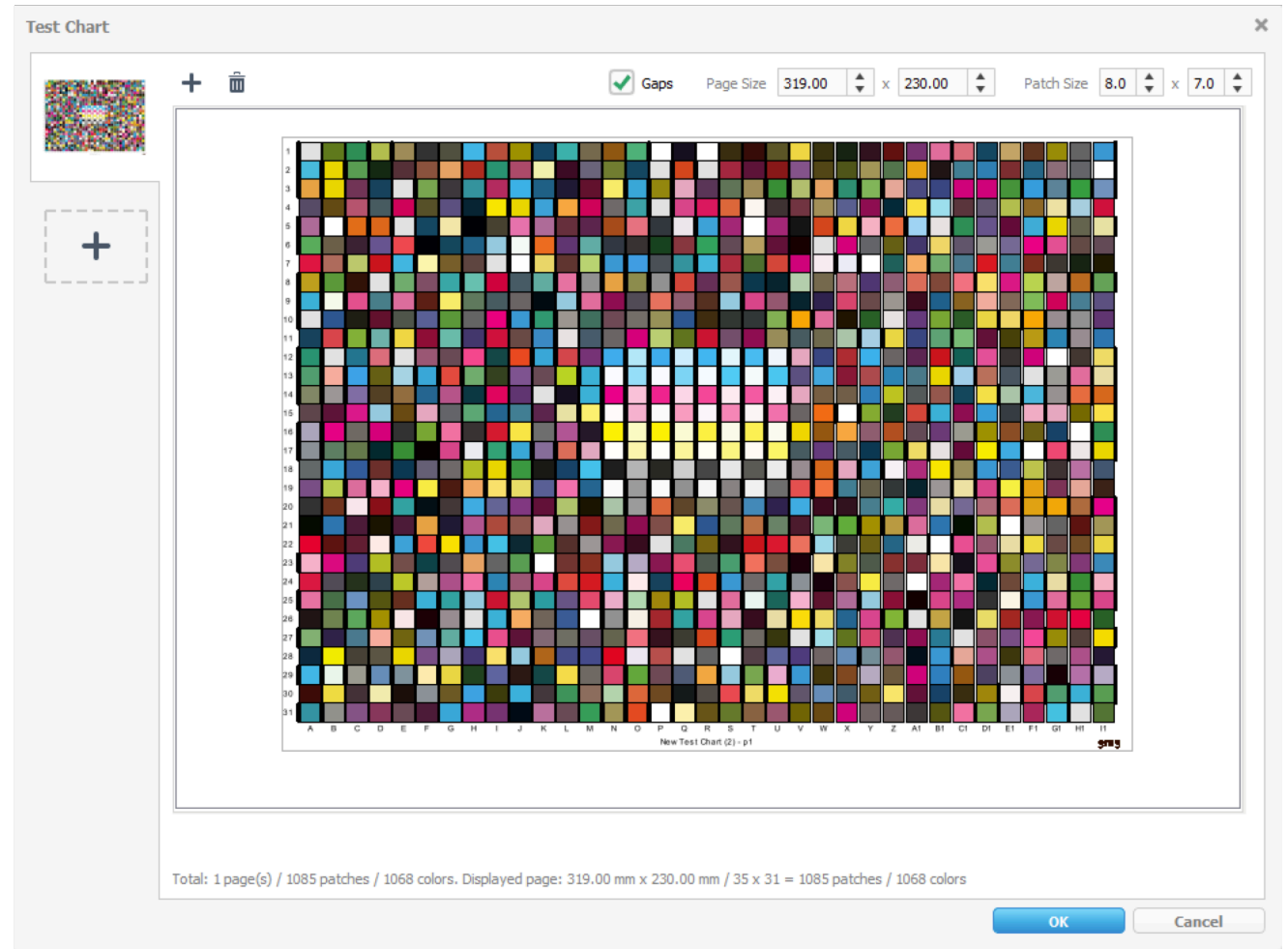
X-rite is industry standard.
Impact uses Techkon and
Barbieri.



Test Charts

Data retrieval

- GMG OpenColor allows us to essentially characterize a press on the fly, using a test chart created in GMG OpenColor, placed in a live job.
- We can create any size test chart, abiding by the minimums/maximums, and use anywhere on a live job.
- The customer will have to ship us samples back, but we can use this to confirm our data is working correctly.



What changes are allowing Corrugate to close the Gap?

- Today direct print Flexo equipment can compete with Offset and Digital
- Technology is improving daily with the new equipment coming into our printers
- Equipment technology allows traps: 1/16", 1/32", 1/64" & now .008-.004
- Continuing development of software allows for higher levels of print reproduction.

Post Print / Converting Solutions can impact Label and Flexible Packaging quality in several ways by:

- Adding to overall functionality of the package
- Protecting Product
- Extending Shelf Life
- Enhancing Aesthetics
 - Coatings – enhance visual appeal
 - Foil Stamp – Create a “glamorous” look and add brand impact
 - Embossing / Debossing – Create tactile appeal with textures
 - Custom Shapes – Flexibility to maximize consumer experience
 - Window Packaging – Highlight the product inside

Post Print / Converting Solutions can impact package quality in several ways...

- Today, pouch / bag machines can offer...
 - Specialty Shapes & Styles



“Here’s what I want you to walk away with today.

You’re entering an industry that touches everything. Every box that ships a product. Every bag that holds your food. Every label on every bottle you’ve ever picked up — someone like you made that possible.

Flexographic printing isn’t a backup plan. It’s a \$300 billion global industry that is growing, that is hiring, and that desperately needs sharp, trained people who understand both the science and the craft behind it.

The students who came before you are running pressrooms, managing prepress operations, launching their own shops. Some are doing color science for Fortune 500 brands. Some are solving problems every single day that machines still can’t solve on their own — because this work still requires human judgment, human eyes, and human skill.

You are sitting in one of the few programs in the country that prepares you for this. That’s not an accident — that’s an advantage.

So, as you move through this program, stay curious. Ask the hard questions. Get your hands dirty. Because the opportunities on the other side of this degree are real, they are waiting, and honestly — we need you.

The industry needs you.

Tony Prozzi – Owner
tprozzi@impactimagingllc.com
704-651-9759

