Flexo Plate Technology Optimized for Corrugated

Dan Fry,
Portfolio Manager – Corrugated
MacDermid Graphics Solutions
Today’s Challenges

As advertising outlets become more and more fragmented, increasing pressure falls upon the package to sell the product. This pressure, combined with SKU proliferation and inventory reduction practices, creates challenges for package printers.

- Increase quality without increasing price
- Deliver consistent print from job to job
- Improve quality while shortening run lengths
- Optimize operations and reduce internal costs
- Meet tight deadlines with condensed lead times
- Differentiate from competitive offerings
Simple Solution to Complex Challenges

MacDermid’s Solution to these challenges is the Anti-Fluting Technology Platform:

- Delivers consistent print from job to job
- Optimizes operations with faster press start-ups and fewer adjustments
- Differentiate through exceptional print quality
- Optimize platemaking workflow to increase productivity and consistency, plate to plate
Flat-Top Dot Expertise

- **2019**: MacDermid introduces LUX Flat-Top Dot technology with LUX Lamination
- **2014**: MacDermid introduces LUX Flat-Top Dot In-The-Plate with LUX ITP 40
- **2018**: MacDermid introduces LUX ITP EPIC
- **2018**: MacDermid introduces LUX ITP M

*Award winning innovations*
Flat-Top Dots Reduce Fluting

Flat-top dots have been shown to dramatically reduce fluting when compared to standard digital dots. However…

Not All Flat-Top Dots Are The Same
Building the Better Dot:
MGS Anti-Fluting Technology Platform

**MacDermid Anti-Fluting Technology: The Basics**

- **What is it?**
  - Conventional digital photopolymer printing plate
  - Engineered flat-top dot In-The-Plate optimized for corrugated printings
- **What is needed to take advantage of this technology?**
  - A digital imager
  - Conventional sheet exposure unit
- **What is not needed to use MacDermid Anti-Fluting products?**
  - Laminator, lamination media, inert gas exposure, high intensity UV exposure
Understanding Fluting
CHALLENGE: Fluting

- **The Fluting Effect:** The visual washboard appearance on corrugated print due to the variance in dot gain from the flute peaks and valleys.

- General factors that influence fluting:
  - Liner quality and fineness of the flute
  - Printing plate type (hardness & thickness)
  - Printing impression
  - DOT SHAPE
What is the connection?

They are both engineered structures
What Causes Fluting?

- Top of a corrugated flute
- Valley between flutes
- Standard Digital plate
- Bleached top sheet
Calculating Fluting Factor

Densitometer reads the printed dots over a short distance and plots the differences in print density across the flutes.

Supported Area (5-6 dots)

Unsupported Area

1”

Side view of a corrugated board
Fluting Factor

- The Fluting Factor is the difference in measured print density across the flutes and valleys of a corrugated board.

![Graph showing fluting factor comparison](image-url)
Standard Digital vs. MGS Anti-Fluting Technology

Fluting Factor
30% at 85 lpi

Fluting vastly reduced
How MacDermid’s Anti-Fluting Technology Works

Top of a corrugated flute

Valley between flutes

Digital MAF plate

Bleached top sheet
Seeing is Believing

**Standard Digital Plate**

**Digital MAF**
Dot Profiles:
Standard Digital v. MGS Anti-Fluting Technology

- Standard Digital 3% 85lpi
- Digital MAF 3% 85lpi
Benefits: Reduced Fluting

Utilizing MacDermid’s Anti-Fluting Technology, specifically engineered to address the challenges of corrugated printing, significantly reduces fluting and simply prints better.

**Competitive Flat-Top Dot Technology**

**Digital MAF**
Benefits: Reduced Fluting

MacDermid Anti-Fluting Technology prints better compared to other competitive flat-top dot technology because the dot shape is specifically designed for corrugated post-print.
MacDermid Anti-Fluting Technology Portfolio

Flat-Top Dot Products for Corrugated Printing

71st Annual Technical Conference · Minneapolis, MN · 2019
MacDermid Anti-Fluting Technology

LUX ITP MELO

- Minimal Board Crush
- Low Fluting
- Excellent Ink Transfer
- Low Tack

Universal Corrugated Plate for the Most Challenging Substrate
LUX ITP MELO

Key Features
- Super soft durometer
- Engineered flat-top dot directly in the plate
- Minimal board crush
- Lowest possible fluting with a super soft digital plate
- Excellent ink transfer
- Holds the finest detail in all plate thicknesses
- Extremely dry and low tack
- No extra steps necessary
- Reduced dot gain
- Faster press speeds
- Quick wash out
- Extremely durable
LUX ITP MELO

- What Is It?
  - 25 durometer material for recycled board and thinner liner applications
  - Anti-Fluting base chemistry

- What does it mean?
  - All the anti-fluting benefits of Digital MAF
    AND
  - Minimal board crush on lower quality board
    AND
  - Nearly 1:1 dot holding capability
Corrugated Board

Bending Stiffness = Tensile Stiffness of the Liners x Board Caliper$^2$
LUX ITP MELO – Minimal Board Crush

Measure of unprinted board vs. measure of printed board
LUX ITP MELO Print Samples

Competitive

LUX ITP MELO

Fluting effect during the printing test before the second trial with the new test plates

The contrast and the face are dark

Less effect for the fluting with LUX ITP MELO on the machine

Face supplementary lighter, contrast increasing
Less important effect, with a plaque of 3.94. The sheet looks finer.
Excellent imaging, print reproduction, solid coverage and fluting reduction – Recycled B Flute
LUX ITP MELO Commercial Work
MacDermid Anti-Fluting Technology

- Low Fluting
- Minimal Cupping
- Print Fine Details
Digital MAF

Key Features

- Low fluting
- No extra steps necessary
- Reduced dot gain
- Faster press speeds
- Quick wash out
- Holds the finest detail in all plate thicknesses
- No cupping allows for uniform impression at all process speeds
- Chip resistant, tack free, and extremely durable
FEATURES: Engineered Dot Shape

To reduce fluting in corrugated post print, dot shape matters.

Competitor Digital Plate 3% 85 lpi

Digital MAF 3% 85 lpi
Benefits: High Quality Shelf Impact

- Digital MAF is suitable for HQPP at 2540/4000 DPI with no extra steps.
Success with Digital MAF

EFIA Awards:
Post Print Coated Line & Screen
GOLD

Post Print Coated Process
GOLD

Post Print Coated Line & Screen
SILVER
Success With Digital MAF

FTA SA
Print Excellence Awards:

- Uncoated (Line/Tone) In-Line Case-Maker or Printer/Die-Cutter
  Gold, Silver & Bronze

- Uncoated (Process) In-Line Case-Maker or Printer/Die-Cutter
  Gold

- Coated (Line/Tone) In-Line Case-Maker or Printer/Die-Cutter
  Gold, Silver & Bronze
MGS Anti-Fluting Technology Products Summary

**Digital MAF**
(B,C,E,F,BC,BE,BF,EF) HQPP, MQPP

- Maintain Shelf Impact
  - Reduce fluting
  - Best print quality
  - Best ink coverage (minimum DGC)
  - Faster Press Speeds

**LUX ITP MELO**
(A,B,C,E, BC,BE,BF,)
Recycled & low basis weight liners

- Maintain Shelf Impact
  - Reduce fluting
  - Minimum board crush
  - Best print quality
  - Best ink coverage (minimum DGC)
  - Faster Press Speeds
Thank you!