Corrugated in Today's Digital Market

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- Post-Print Corrugated Plate Market Overview
- Digital Plate-Making
- Film Options
- Liquid Photopolymer
- Automation

Corrugated in Today's Digital Market

What is most critical in prepress in the Post-Print arena?

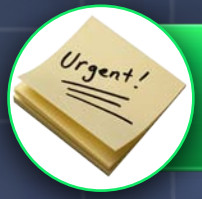
What do customers & printers demand the most…?

Corrugated in Today's Digital Market

Demands of the Post-Print Market

Cost Effective Polymer Utilization

Light-Weight Print Carriers



Quick Turnaround

Print Accuracy

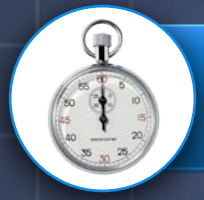


Plate Longevity

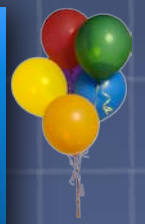
How are the Post-Print demands different than the technology drivers of the Prepress Market?

- Cost Effective Polymer Utilization
- Light-Weight Print Carriers
- Quick Turnaround
- Print Accuracy
- Plate Longevity
- Photograph-like Designs
- Process-Color Consistency
- Proof-to-Press Color Match

FOCUS of Overall Prepress Industry is DIGITAL

Cost Effective Polymer Utilization

Light-Weight Print Carriers

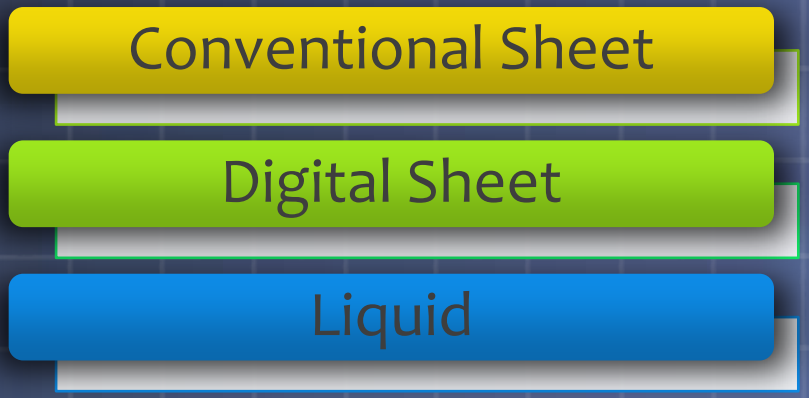


How do we understand the complicated **demands** of **Post-Print** without falling **victim** to **end-of-life** Technology?

Where is Post-Print Today?

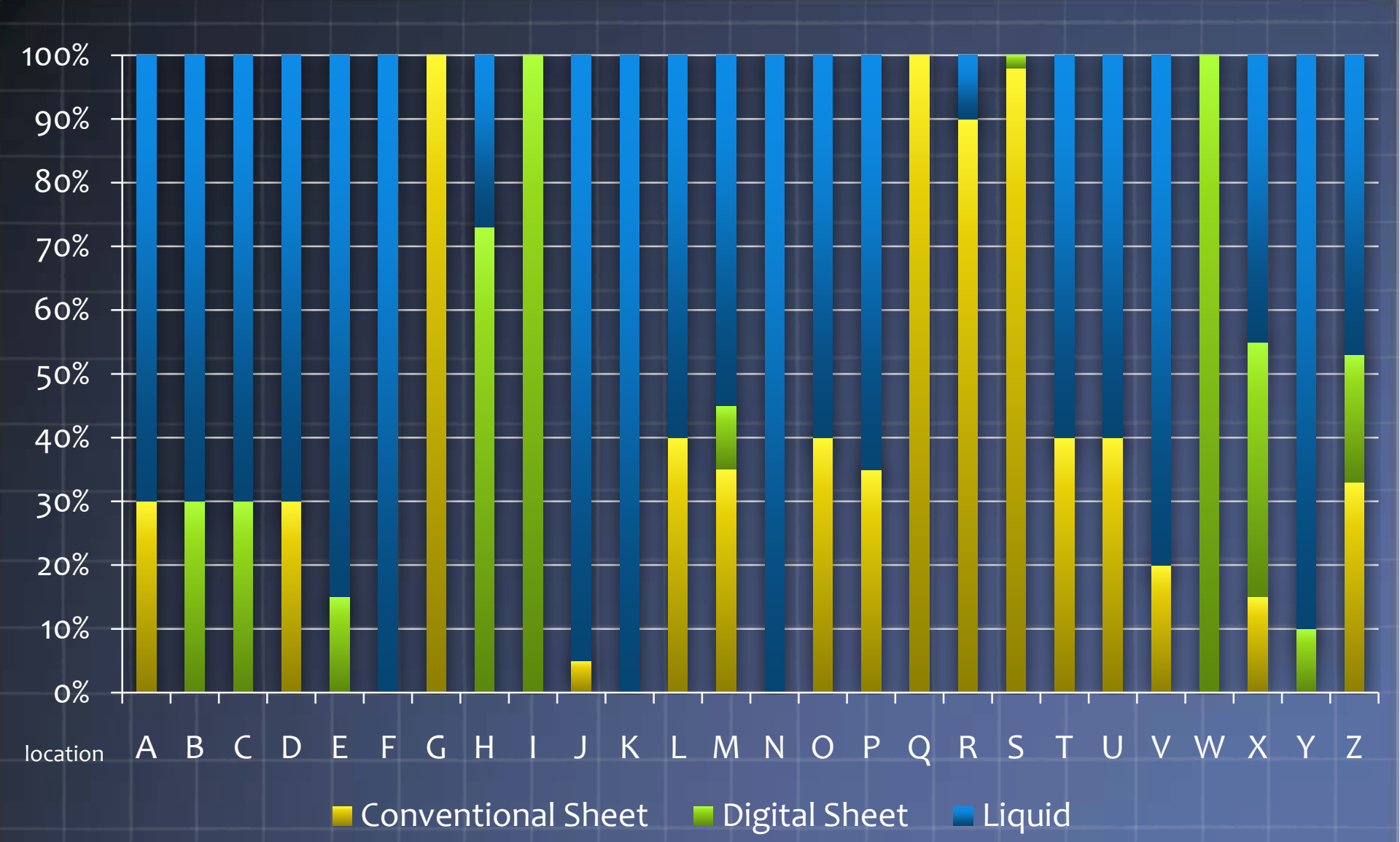
44 customers locations dealing in corrugated were polled.

"What percentage of your corrugated business is:"



Results range from plate-making box shops to high-end trade shops

Survey Says…



Percentage of Plate Type – by Location

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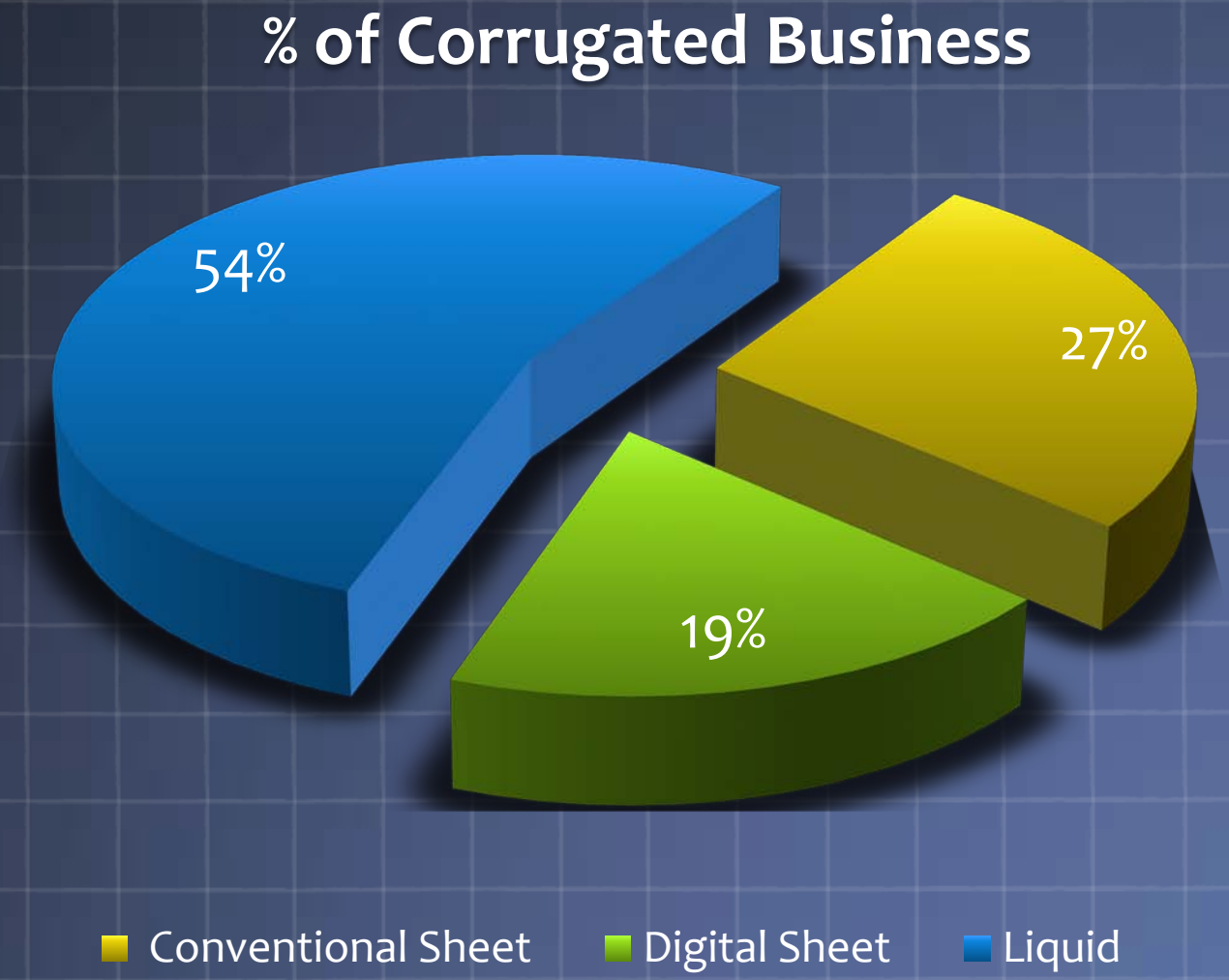
Treating each of the polled locations as equals

(because polling by revenue/business is too confidential per location)

the numbers were averaged together to show the general trend…

Where is Post-Print Today?



Where is Post-Print Today?

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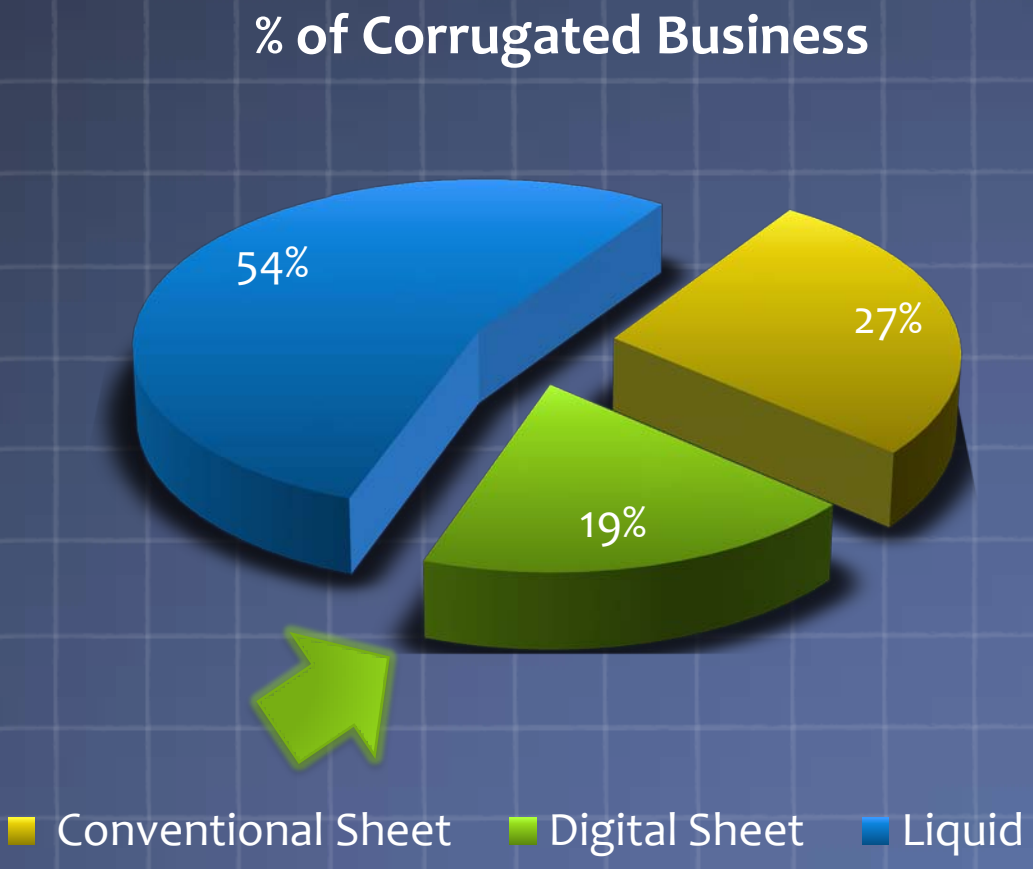
ONLY 19%
OF THE
CORRUGATED
INDUSTRY
USES
DIGITAL



Where is Post-Print Today?

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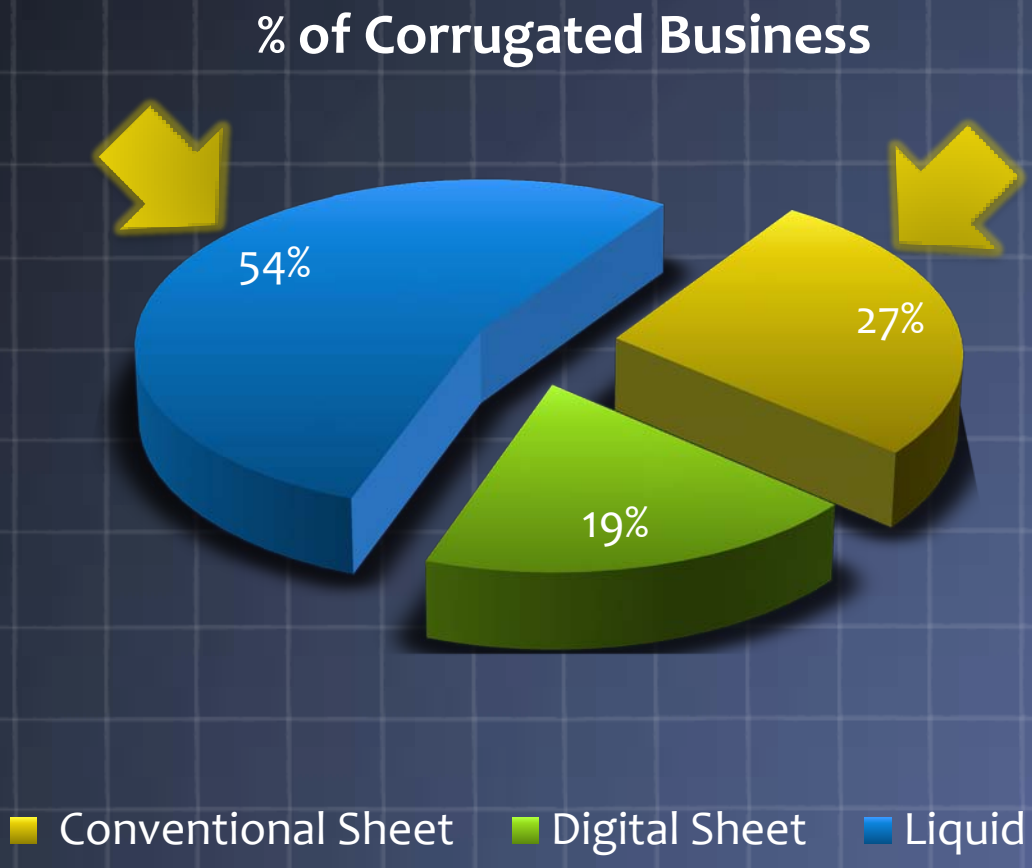

81%
OF THE
CORRUGATED
INDUSTRY
STILL USES
FILM

Where is Post-Print Today?

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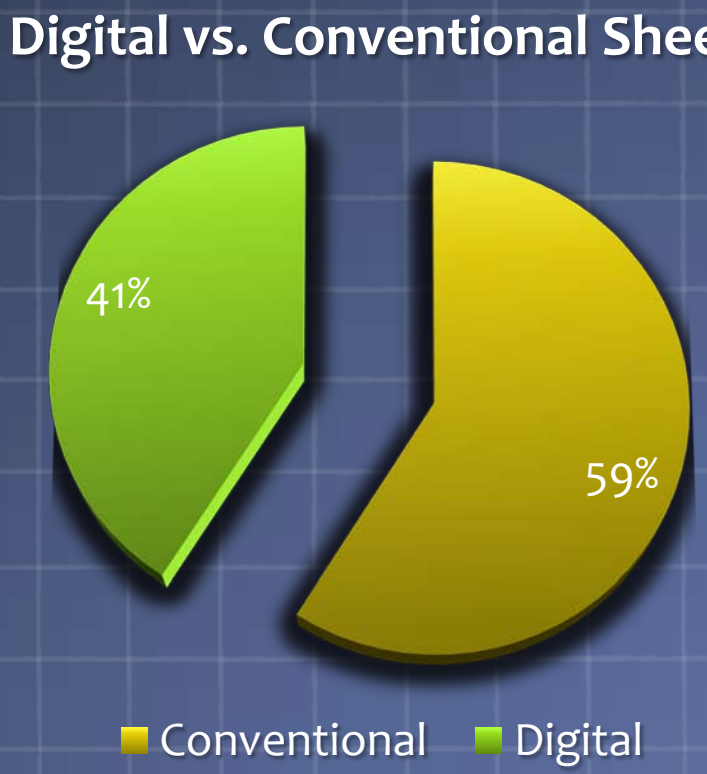
Digital Platemaking

Corrugated Sheet Platemaking

- Of the total sheet market…
  - 41% is digital
  - 59% is film-based



Benefits

Quickly make multiples

Duplicate Images

Easy File Transfer

No film storage
Consistent data handling
Easy archiving

Consistent image output
Less equipment & steps

Reliable Results

Soft Proofing

Catch errors before consumables are wasted

Digital Platemaking

Are these Digital Limitations?

1. Price
2. Fluting
3. Handling
4. Island Plates
5. Material Availability

Digital Platemaking

1. Price

- Important to complete cost analysis of full workflow
- Cost analysis should include consumables, equipment, and cost of service on imager vs. imagesetter

2. Fluting

Tests & trials have found that standard ‘digital’ dots (SCREENED AREAS) pronounce the flutes on corrugated material.

- This does not have a negative impact on solid areas.
- Material & equipment vendors have worked to develop ways to modify digital platemaking procedures to produce a dot more suited for post-print corrugated printing.

Digital Platemaking

3. Handling

Original imagers were not always ‘friendly’ to large, heavy thick plates

- Equipment manufacturers have listened – and designed machines specific to 50x80” thick plate handling needs
  - Air-assist loading tables
  - Stronger clamping mechanisms
  - Simultaneous UV exposure to prevent damage to sensitive mask surface

4. Island Plates

Digital imaging does not allow for easy production of Island Plates

- Automated workflows can make cutting ‘patches’ or slugs apart much easier than in past applications
- Workflows can be custom developed to design a system to include Island Plates

5. Material Availability

Corrugated Material Suppliers are trying to support digital workflows in the Post-Print market

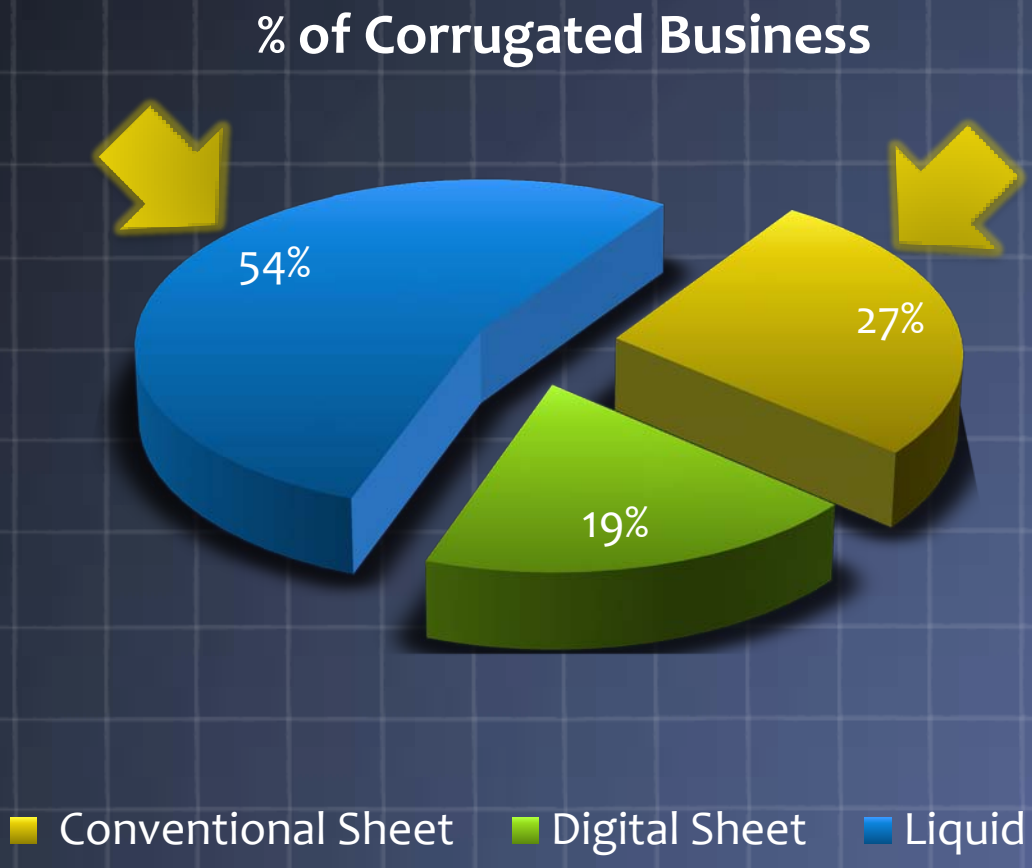
- Variety of materials available from each major vendor
  - Thickness up to 0.250”
  - Multiple Durometers - range from 26 – 40 (Shore A)

Digital Platemaking

- Digital has not taken a strong hold in the corrugated market…
  - Some high-end trade shops have gone 100% digital
  - Where is the resistance from the rest of the market?
- FILM based workflows are still the bulk of platemaking…
  - WHY?

Film Options

(Shhh… you don't need an imagesetter. Or processor!)



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Where is Post-Print Today?

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High Quality

High Resolution

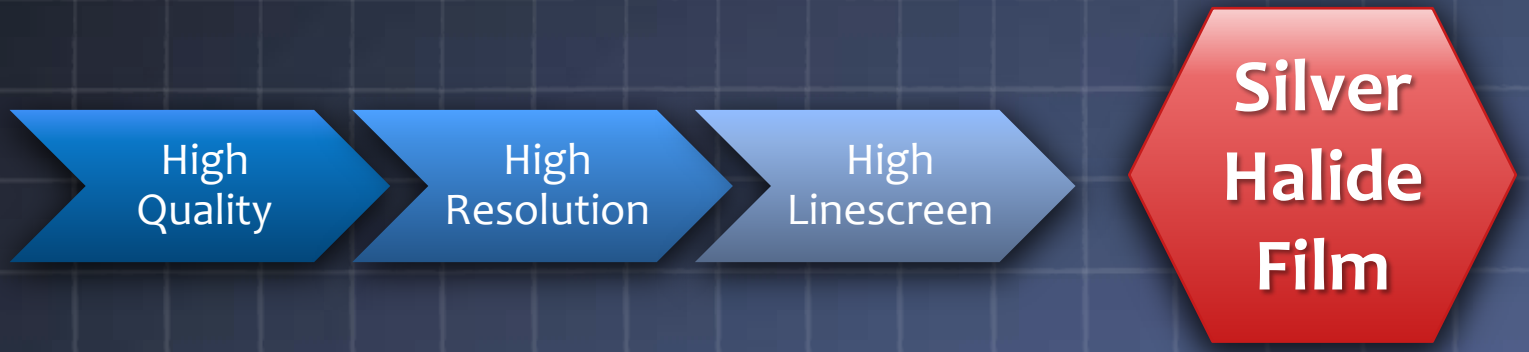
High Linescreen

Silver Halide Film

But the Graphics Industry wants to move away from this film, because the other segments have gone…

Digital

Film Options



- Manufactures have added more price increases
  - up to xx% in the last 6 months
- How long will film suppliers continue to support the film market?
  - Only 2 major segments of the industry rely heavily on film:

Post-Print Corrugated

Screen Printing

Film Options

Imagesetter & processor parts/service/labor

- Availability – Only used equipment…
  - One major manufacturer stopped making imagesetters in 2003…
    - Less technicians are being trained to support film devices
    - Long-term employees are required to assist

Are there other options?

Film Options

Film Options – Laser Point II

Laser Ablative Film

- Matte-film base
  - Designed in 2001
    - Allowed companies to go digital before digital corrugated materials were available
    - Still an option for materials that did not have a digital equivalent
  - Same imaging time and resolution as any digital material
  - Best on soft materials (Letterpress & Flexo)
    - Some are using for offset
  - Best screen transfer at 150lpi and under

Film Options – Laser Point II

Film Options – Thermal

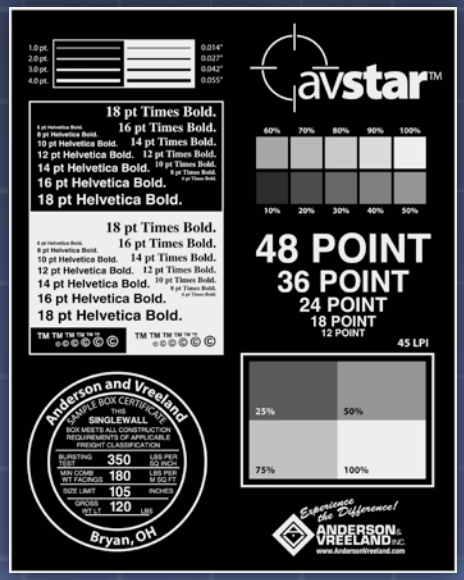
Thermal Film

- Benefits
  - Small footprint
  - Large format – 50”+ wide – roll format
  - No processing
  - No chemicals
- Limitations
  - Cost
  - Resolution = 1200dpi
  - Up to 85 - 100lpi

Ink-Jet

- Benefits
  - Low equipment investment
  - Large format – 65”+ wide – roll format
  - No processing

- Limitations
  - Handling – 1 session use
    - Difficult to clean without disturbing ‘emulsion’
  - Resolution = 1200dpi
  - Up to 65lpi



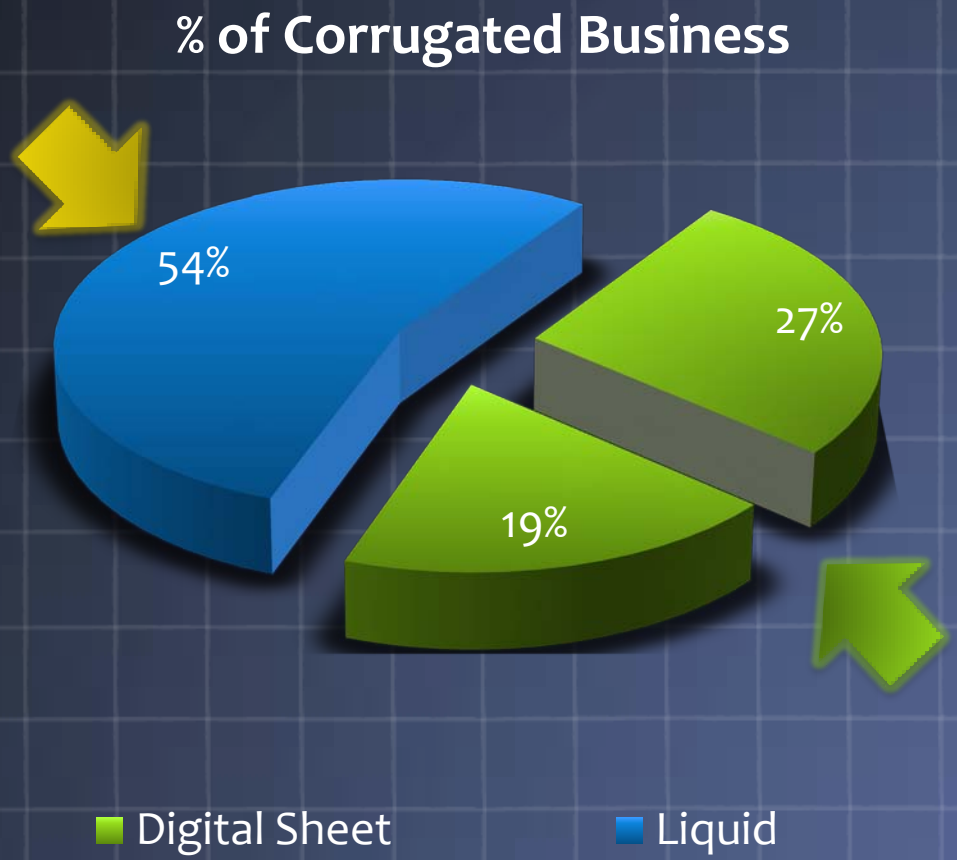
Film Options – InkJet

Film Options – InkJet

Market Shift

- Without a digital imager, there are no high-end film replacement solutions
- Film can still be generated for line/low linescreens
- High quality market will have to shift to digital

Film Options



CAN WE CONVERT THE CONVENTIONAL SHEET SEGMENT TO DIGITAL?

Where is Post-Print Tomorrow?

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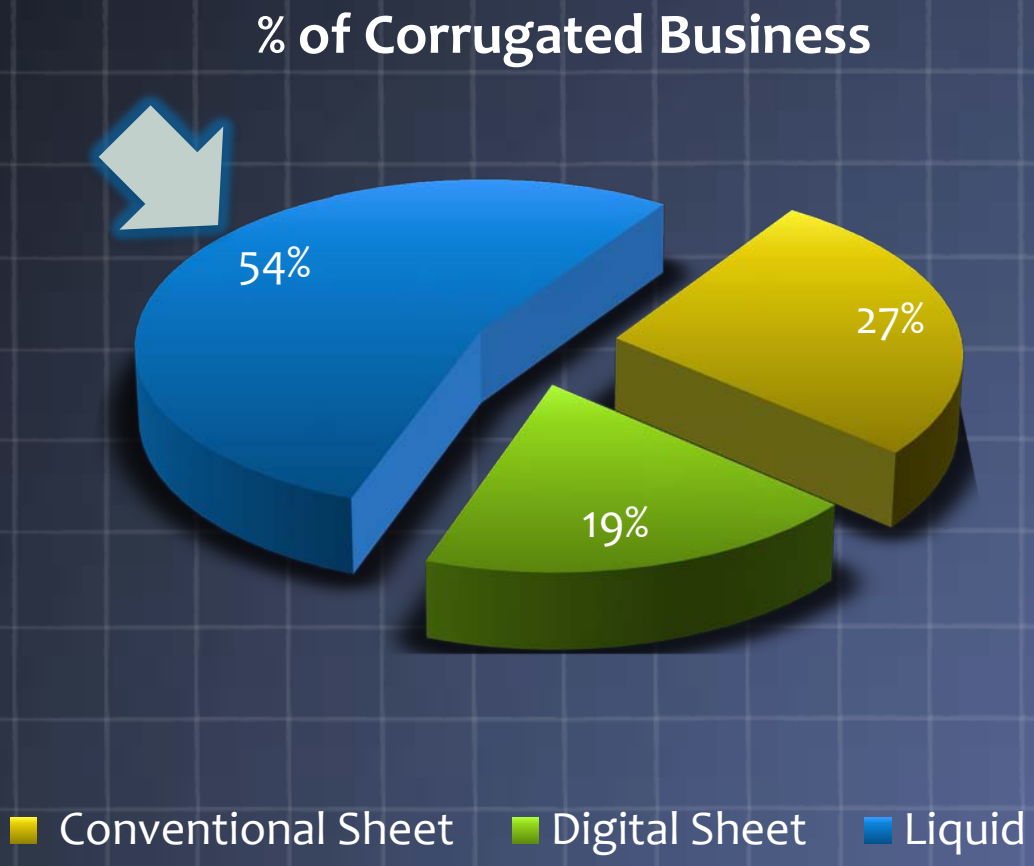
Liquid



54%
OF THE
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LIQUID

Liquid

February, 2011

Why does liquid have such a foothold in post-print?

Cost

- Because so much polymer can be reclaimed, efficient to generate large plates with open areas

Reclaim unexposed polymer

- Open area can be washed to the floor – light weight

Speed

- 52x80 finished plate in 2 hours*

Environmental

- No chemicals/solvents used

Ease in generating Island Plates

- Mylar backing can be used as carrier
- Minimal mounting/operator time required

Liquid

Demands of the Post-Print Market

Liquid Benefits

- Cost Effective Polymer Utilization → **Cost**
- Light-Weight Print Carriers → **Reclaim unexposed polymer**
- Quick Turnaround → **Speed**
- Print Accuracy
- Plate Longevity

Liquid

- Limitations
  - Limited detail
    - High linescreens & small line widths cannot be achieved
  - Non-automated procedure
    - Operator training
  - Requires the use of film
    - But the quality of the film is not required to be as high – alternative methods of film can be used

Liquid

With the industry becoming more environmentally conscious, can liquid be considered a "GREEN solution"?

Points to be considered:

- Re-use of unexposed polymer
- Power consumption
  - How much power is used to run the equipment?
- Consumables
  - Film, Mylar backing, resin generation
- Freight
  - Cost & carbon footprint of shipping sheet polymer & solvents vs. liquid
- Waste
  - What does the printer throw away in the end?

Liquid

Automation

What is AUTOMATION, and how can it relate to the Post-Print industry?

- Software available to take away some of the *unique* Post-Print file separation procedures away
  - Prepress department can separate files in the same way as other work is done
  - Post ripping file handling makes necessary file adjustments

Automation

Automation Limitations

- Software purchase required
- Equipment purchase required to receive the biggest benefits

Automation

Can we successfully integrate AUTOMATION into existing workflows to begin moving our segment of the industry digital?

Automation

Automation