



# Ultraking® Shrink U 2300 EB and Ultraking® Shrink U 2500 UV

## Applications:

Shrink Sleeves

Tamper evident neck bands

Combination and Multi Packs



***Rely on us.***

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# **Flint**Group

# Outline

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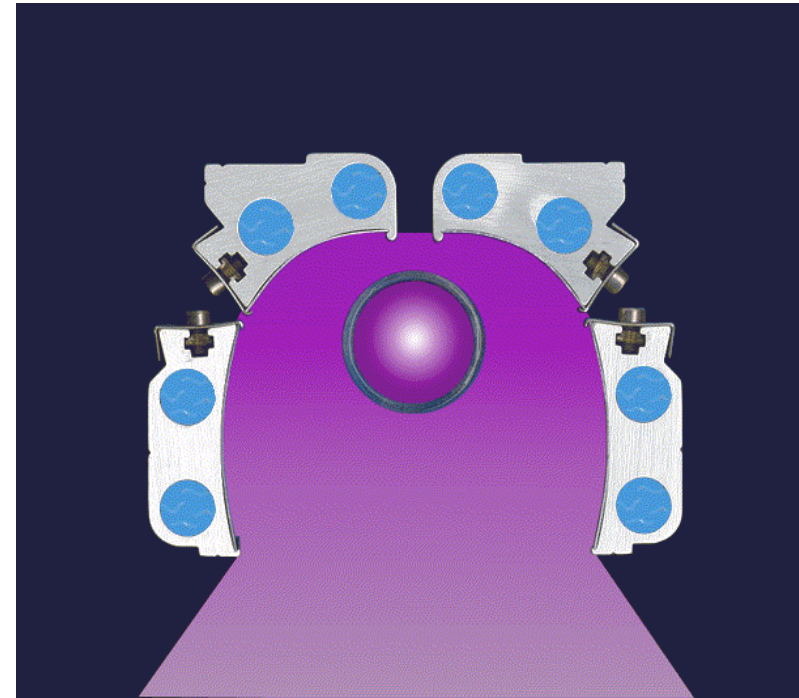
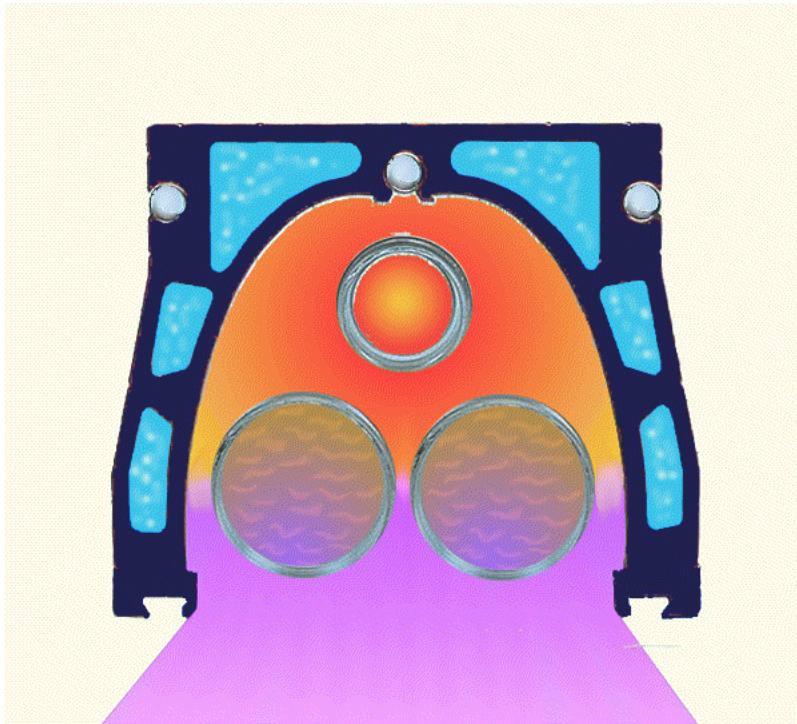
- Introduction
  - UV Curing – Advantages / Disadvantages
  - EB Curing – Advantages / Disadvantages
- Applications
- General Demands and Voice of Customer
- Value Proposition
- Attributes and Benefits
- Benchmark Results
- Proposed Launch Documents

# What is UV & EB Curing?

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- Ultraviolet curing (UV) – light energy is utilized in the 200 to 400 nanometer section of the electromagnetic spectrum
  - Free radical
  - Cationic
- Electron beam curing (EB) – high energy electrons are produced giving energy ranges of 150,000 to 300,000 electron volts. These electrons are then beamed into the ink film.

# UV Curing Unit



# UV Curable Advantages

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- Instantaneous curing and drying (approx. 1/10<sup>th</sup> sec.)
- No set-off
- Eliminates spray powder
- Faster turnaround
- Increased productivity
- Excellent press stability – stay open
- Better colour reproduction - no dry-back
- Low taint and odour
- No VOC's
- Suitable for printing on most substrates
- Excellent heat and product resistance
- Can be finished directly off press
- High gloss (coated I/L)

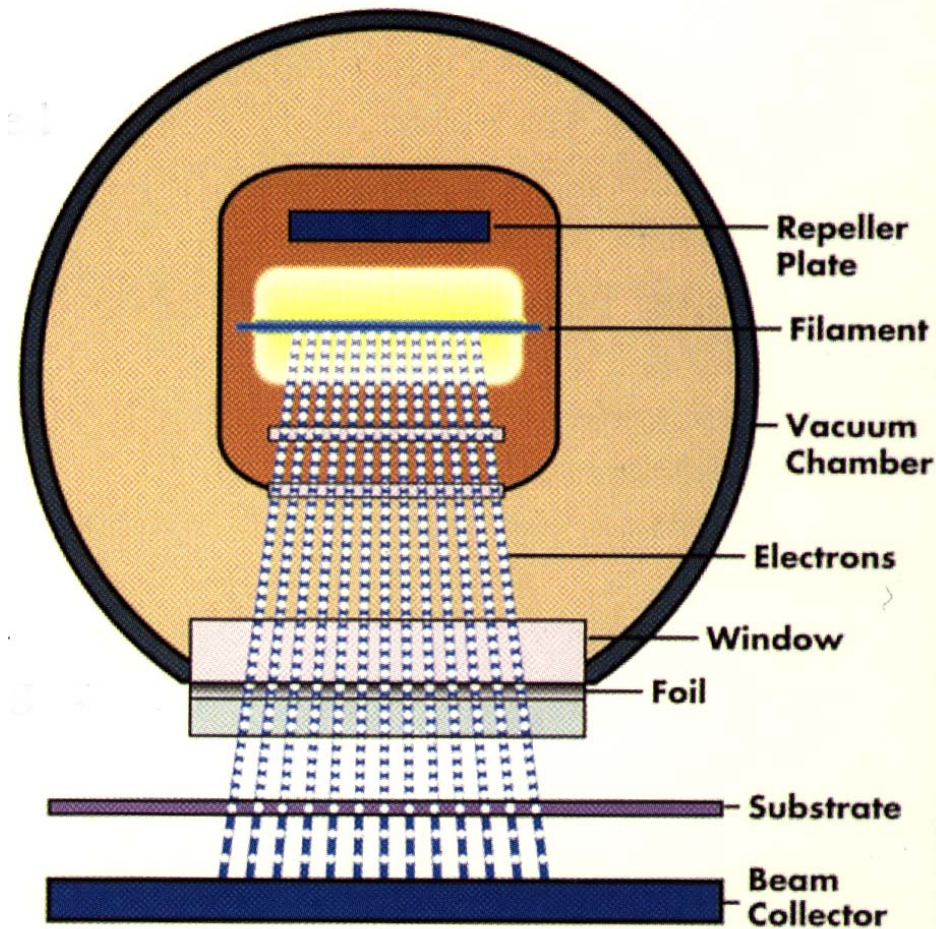
# UV Curable Disadvantages

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- One-time, high equipment cost
- Inks and coating are more costly
- Possible toxicology issues? (developed sensitivity)
- Highly pigmented and opaque systems may be difficult to cure with UV
- Might exhibit lower gloss than conventional when uncoated
- Limited shelf life?
- Some non-porous substrates may require experimentation to optimize adhesion
- May require specific rollers and washes
- Cannot print on microfoam due to heat generation



# Electron Beam Curing Unit



# Electron Beam (EB)

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- Electrons are negatively(-) charged particles
- The tungsten wire filaments are heated until they glow white hot and generate a cloud of electrons
- Electrons are accelerated more than 100,000 miles/second in high vacuum
- The high vacuum is held by a titanium foil
  - 10-15 microns thick



# Electron Beam Curing

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- Advantages
  - Energy required is generally less than that for UV
  - High speed curing
  - Consistent cure - Inerting with Nitrogen Gas Oxygen does not get in the way of electrons
  - More suitable for food packaging applications
    - Curing is approx. 90+% reacted with EB (UV only 70+% reacted)
    - Needs no photoinitiators
    - Low odour / low taint / low extractables
  - No heat generation allowing for printing on microfoam and heat sensitive substrates (ie. single serve soup containers)
  - Pigments do not interfere with curing
  - Suitable for heat sensitive substrates
  - Most stable COF with EB inks and EB coating

# Electron Beam (EB) Curing

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- Disadvantages
  - Price of equipment
  - Requires Nitrogen inerting
  - Trapping of colour – All colours are wet trapped
  - Web presses only
  - Maintenance cost may be higher

# Introduction

- J&J Tylenol® tampering crisis was the impetus for the development of tamper proof shrink wrap – unconverted
- Others like Arizona® Iced Tea used incredible eye catching 360° graphics to build a cool, intriguing brand
- Coffeemate® brand increased market share by 60% after switching to shrink label



“Arizona Iced Tea started the bandwagon and others jumped on. Then Nestlé began using sleeves for their Coffeemate non-dairy creamer product and went from an average market share to as high as 60 percent. That’s remarkable and shows the power of that packaging. Customers will continue to get on that band wagon.” - Rick Whipple, vice president of sales and marketing OSIO Labels



# Applications

- Tamper – evident neck bands



- Shrink Sleeve Labels



- Combination



- Multi-packs



# Applications and Target Markets

- Plastic: Shrink Sleeve
  - Glass Bottle Wraps
  - Plastic Bottle Wraps
  - Drink Enhancer Wraps
  - Container Wraps
- Foam: Single Serve Containers
  - Outside Wrap



# General Demands & Voice of Customer

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- “HD” or high definition, 360°, colourful, eye catching, cool graphics
- Eco friendly/Sustainable
  - Less packaging
  - Smaller carbon footprint
  - Ease of recyclability
- Wide range of substrate adhesion
  - PET-g – Strong shrink and can deform some packaging
  - PVC – Preferred – Due to film degradation with EB, inks must be UV cured and any EB at end of press is reduced to at the most 1/3 normal EB dosage
  - OPS – good shrink
  - PLA
  - Microfoam – Must be cured EB to eliminate heat effects
- High shrink for use with contoured containers
- Product resistance
- Scuff resistance
- Zero blocking
- No cracking
- Fit for food, beverage, and household products

# General Demands & Voice of Customer

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- Offset is used for high volume runs where Flexo is used for small volume runs and labels than require special enhancements like screen, foil-stamp, etc.
- The sleeve has to shrink by up to 70% to fit the bottles and/or tubes
- With offset, UV cure is preferred to improve registration and transfer
- Last down white is always EB cured
- EB cure for PVC has to be reduced to minimize yellowing of the film, typically to a third of the dosage
- Very good lithographic performance
- Fast clean-up on restarts
- Very good transfer
- Very good flow
- HDODA, Benzophenone and ITX free
- Fast cure



# Value Proposition

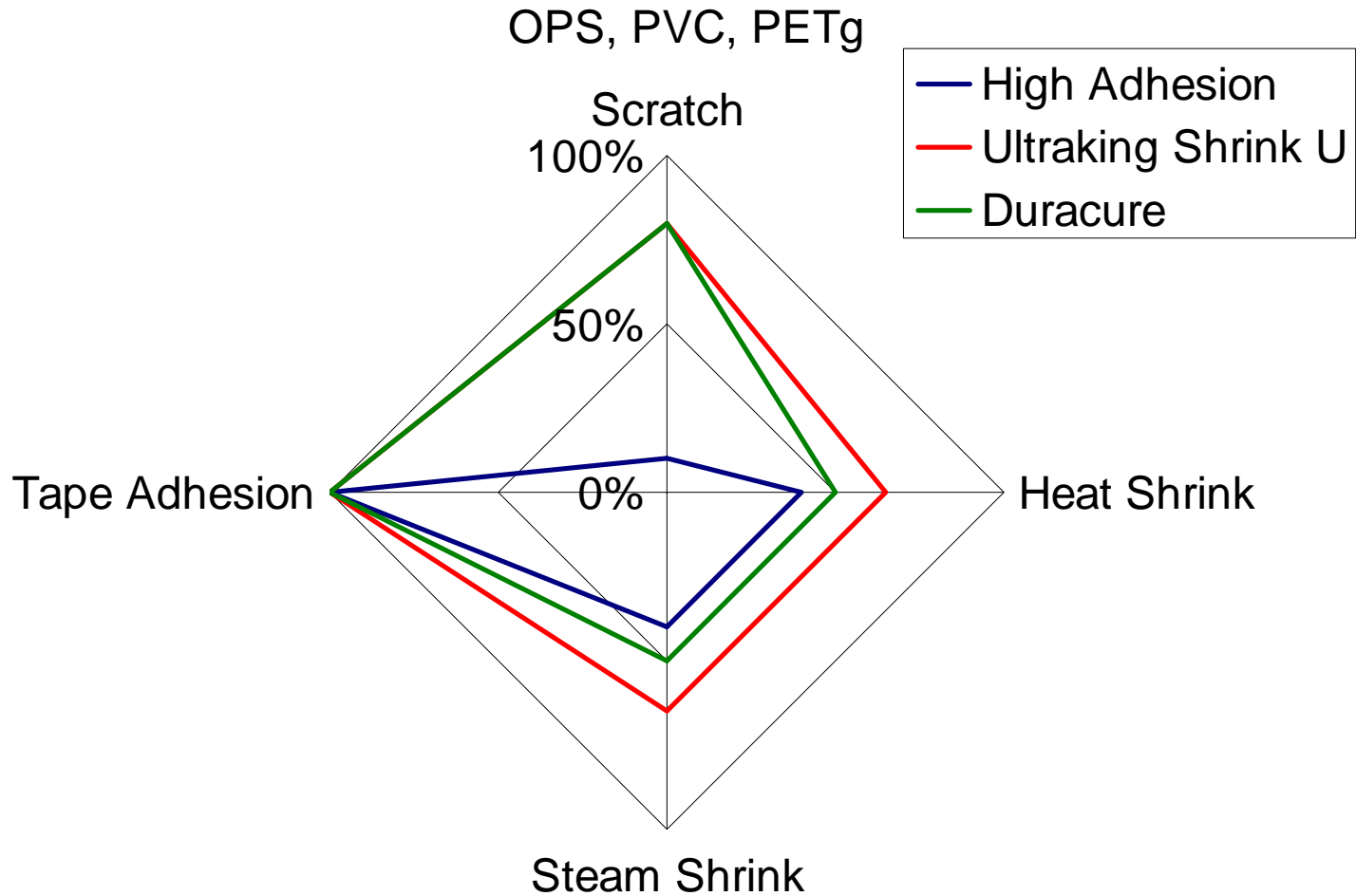
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- Ultraking® Shrink U 2500 UV
  - The Ultraking® Shrink U 2500 UV inks give the printer the ability to consolidate from 2 different chemistry systems (7800 UV and 7300 UV) to one chemistry system (2500 UV)
  - The Ultraking® Shrink U 2500 UV inks give the latitude to have shrink high values without powdering
- Ultraking® Shrink U 2300 EB
  - The Ultraking® Shrink U 2300 EB inks give the printer the ability to consolidate from 2 different chemistry systems (1500 EB and 1300 EB) to one chemistry system (2300 EB)
  - The Ultraking® Shrink U 2300 EB inks give the printer the ability to print on a wider range of heat sensitive substrates such as microfoam
  - The Ultraking® Shrink U 2300 EB inks give the latitude to have shrink high values without powdering

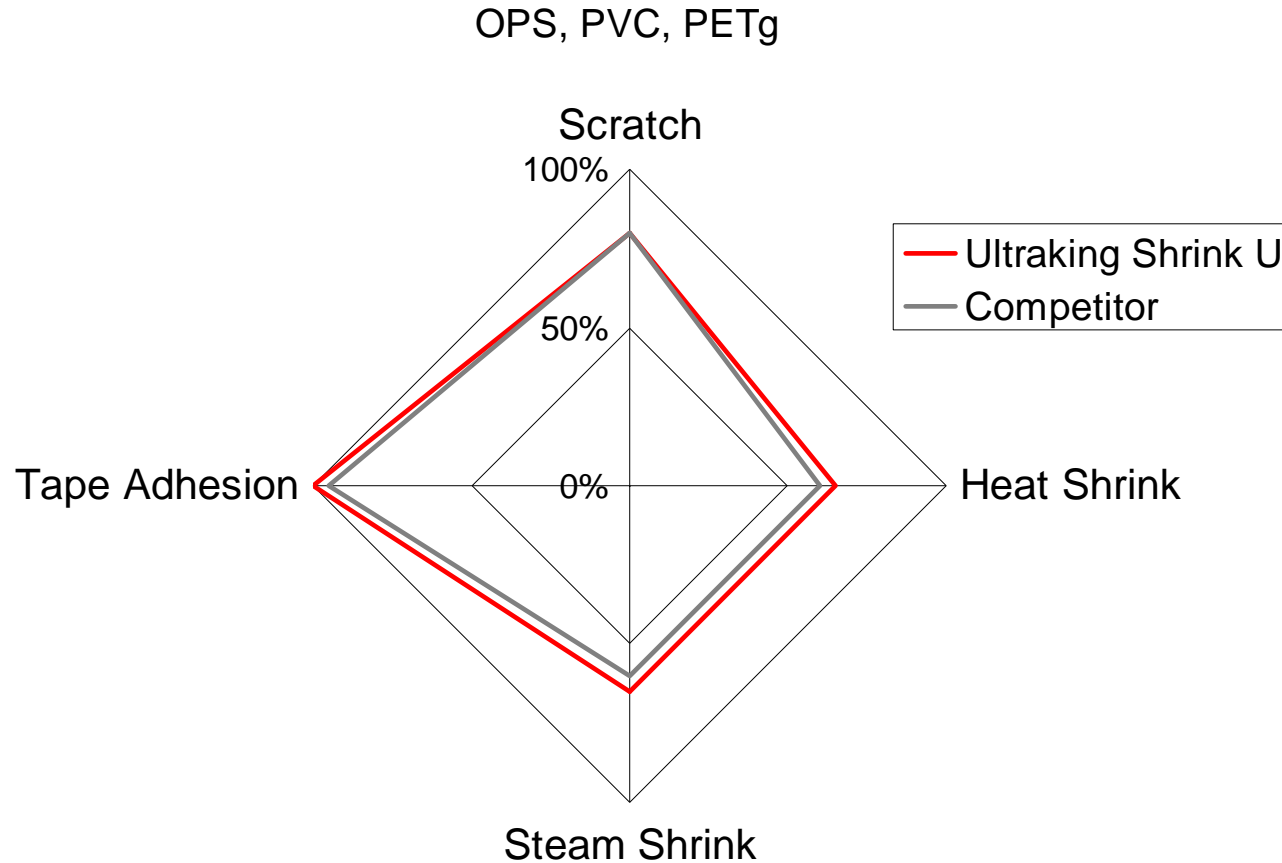
# Attributes and Benefits

Attributes	Benefits
Does not powder at high shrink levels	Excellent for applications requiring high shrink
Suitable for use on all shrink films as well as paper & board	Allows customer to have one universal system for all label applications
Available in UV & EB chemistries	EB for use with heat sensitive films (i.e. micro-film) and low migration/low extraction applications
Excellent lithographic properties	Excellent press performance on the most demanding press configurations
Excellent transfer and stability	Fast clean-up on restarts
Fast cure	Suitable for high speeds; improved productivity
Complies with ISO 2846-1	Suitable for printing to ISO 12647-1

# Benchmark Results – 2500 UV & 2300 EB



# Benchmark Results – 2500 UV & 2300 EB



# QUESTIONS?

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## THANK YOU!

If you have questions on Ultraking® Shrink U,  
contact your local sales representative  
or email,

[info.packaginginks@flintgrp.com](mailto:info.packaginginks@flintgrp.com)

# Product Support Documents

(end the show to open the documents)

- Sales Flyer –



- Technical Data Sheet –



- Press Release –

