Arbocel® UFC100 Ultrafine Cellulose for Paper and Board Coating
Member of the JRS Group

- 17 Sales Offices Worldwide
- 17 Manufacturing Locations

Over 1500 Representatives World-Wide
J. RETTENMAIER USA LP
Schoolcraft, Michigan

• Headquarters of North American Operations

ARBOCEL® Powdered Cellulose
What is Arbocel® UFC100 Ultrafine Cellulose?

- Unmodified Cellulose
  - No modification chemistry
- Powder Form
- Insoluble in Water
- High Water Binding Capacity
  - Even at high temperature and high shearing forces
Advantage of UFC100 Use = Improved Penetration Behavior

**Without UFC100**
- high and uneven water, binder and additive penetration
- paper strength losses
- sagging of color into the basepaper
- solids increase in the color cycle and increasing blade contact pressure

**With UFC100**
- good water retention under pressure spikes and at elevated temperatures
- barrier formation (reduced penetration)
- enhanced coating holdout (higher coat thickness)
Benefits For Paper Producers

• Good water retention and reduced penetration into basepaper
  • Especially under pressure spikes and high temperatures
• Savings of binder and water soluble additives
• Higher solids content
• Reduced variation of solids content in recirculation
• Energy cost savings
• Better coverage and better coating hold-out
• Higher coating gloss & smoothness
• Increased product sustainability
Benefits for Paper Converters and Printers

• Microporosity – No film formation like starch
• Reduced mottling and blistering
• Improved printability and glueability
• Printing inks stand better on paper coating
• Savings of printing inks
• Brilliant print images
LWC / Coated Groundwood

• Targets & results:
  - significant cost savings
  - same or slightly improved paper quality
  - reduced printing ink consumption by 10%

• Status: pilot coater trial

• Coating device: metered size press
• Coat weight: 8.5 gsm each side
• Machine speed: 1,000 m/min
## Formulation

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pigments:</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Calcium Carbonate</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Kaolin</td>
<td>20</td>
<td>20</td>
<td>20</td>
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<tr>
<td><strong>Additives:</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Binder</td>
<td>8</td>
<td>7</td>
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<tr>
<td>Starch</td>
<td>3</td>
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<tr>
<td>PVA</td>
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<tr>
<td>OBA</td>
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<tr>
<td>Thickener</td>
<td>0.1</td>
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<td>0</td>
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<tr>
<td>ARBOCEL UFC 100</td>
<td>0</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Solids[%]</strong></td>
<td>66.7</td>
<td>70.5</td>
<td>70.5</td>
</tr>
<tr>
<td><strong>Brookfield viscosity, 100 RPM [mPas]</strong></td>
<td>1080</td>
<td>490</td>
<td>470</td>
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</tbody>
</table>
PPS Roughness

![Bar Chart]

- V1 cal: PPS FS 2.00, PPS WS 1.50
- V2 cal: PPS FS 1.50, PPS WS 1.00
- V3 cal: PPS FS 1.50, PPS WS 1.00

Legend:
- PPS FS
- PPS WS
TAPPI Gloss

![Bar chart showing TAPPI Gloss values for V1 cal, V2 cal, and V3 cal with Glanz FS and Glanz WS categories.](image-url)
Final Results

- **Runnability:** Problem Free
- **Printability:** No significant differences between specimens as regards print appearance and cloudiness.
- **Printing characteristics and dot gain:** All specimens have met the FOGRA standard.

- **12.5% reduction in latex binder**
  - Major cost savings
  - Increased sustainability level of paper eliminating portion of petroleum latex
Questions / Comments?

Thank You

Please visit us at booth 609