Global OCC Market

OCC Import/Export Prices

US Dollars per Tonne

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Global OCC Market

Domestic OCC Prices
Global Mixed Paper Market

- Germany 1.02 in €
- US Mix #2
- China Mix IM (CIF)
Major RCP Trade Flows

2012 ⇒ 2014 ⇒ 2015

- **USA**
  - 17.7 ⇒ 16.5 ⇒ 17.0 MT

- **Western Europe**
  - 9.5 ⇒ 8.5 ⇒ 9.4 MT

- **Asia**
  - 4.9 ⇒ 4.6 ⇒ 4.2 MT

- **Japan**
  - 1.8 ⇒ 1.7 ⇒ 1.7 MT

- **Oceania**
  - 4.9 ⇒ 4.6 ⇒ 4.2 MT

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US RCP Market
Domestic Demand vs. Net Exports

- Domestic Demand
- Net Exports
- Recovery Rate (R)

Net export share:
- 2000: 22%
- 2004: 27%
- 2008: 36%
- 2012: 41%
- 2014: 39%
- 2015: 40%
- 2016: ?
North American OCC Domestic Demand vs. Exports

Net export share
2000: 11%
2005: 17%
2010: 28%
2015: 32%
Total US OCC net exports increased marginally by 1% in the first eight months of the year. Exports to China declined by 4%, while those to most other Asian countries increased significantly.
Chinese RCP Market
Domestic Collection vs. Imports

China is still far from being self-sufficient in terms of RCP. After rebounding by 6% in 2015, Chinese imports have dropped slightly again this year.
Chinese RCP Imports

OCC Share
2000: 27%
2005: 52%
2010: 56%
2015: 57%

MIX Share
2000: 17%
2005: 19%
2010: 18%
2015: 21%

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Western European OCC Domestic Demand vs. Exports

Net export share
- 2000: 8%
- 2005: 15%
- 2010: 22%
- 2013: 25%
- 2015: 28%

Net exports rebounded in 2014 and 2015 after falling by 6% in 2013
Other Asian RCP Markets
Domestic Collection vs. Imports

Net import share
2000: 29%
2010: 18%
2014: 19%
2015: 19%

Net imports rose continuously in 2013-2015. The import share grew again after declining last decade, driven by growing demand from India, Vietnam and other developing countries in this region.
World OCC Markets in the Future

• World OCC demand will grow in 2017-2018, but the growth rate will decelerate
  ▪ Slow containerboard production growth and limited growth in RCP usage rate
  ▪ Other fiber options
    o UKP
      • Market or integrated?
    o Mixed paper
      • Lower cost? Quality? What’s inside mixed paper?
    o Non-wood
      • Will remain small?
World Containerboard Markets

• How much more recycled capacity can be added to the global containerboard sector?
  ▪ RCP usage rate
    • 90% worldwide in 2014 compared to 86% in 2009
    • How high can it go?
  ▪ Planned new recycled containerboard lines and converted capacity from graphic paper sector
  ▪ Cost
    • Will current low prices for bulk grades, including OCC, be long-lasting or temporary?

<table>
<thead>
<tr>
<th>RCP Usage Rate in Containerboard</th>
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<tbody>
<tr>
<td>Region</td>
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<tr>
<td>2009</td>
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<tr>
<td>------</td>
</tr>
<tr>
<td>Western Europe</td>
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<td>Eastern Europe</td>
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<td>North America</td>
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<tr>
<td>Oceania</td>
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<tr>
<td>World</td>
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Estimated OCC and Wood Fiber Costs in the US South

Headbox softwood fiber and OCC costs, excludes costs other than fiber costs (chemicals, energy, labor, maintenance, overheads, etc.)
World OCC Markets in the Future

- World OCC demand will grow in 2017-2018, but the growth rate will decelerate
  - Asia, particularly China and Other Asia, will continue to be the main driving force behind world RCP demand growth, but even Asian RCP usage growth will decelerate
Capacity Expansions and Operating Rates in Asia

Growth in Million Tonnes and Operating Rate (%)
Chinese Containerboard Industry Was Slow to Recognize Changes in Demand

Creating disruptions in the market
World Containerboard Production

2014: 154 Million Tonnes

2018: 168 Million Tonnes

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World OCC Markets in the Future

• World OCC demand will grow in 2017-2018, but the growth rate will decelerate
  ▪ Other developing regions, such as Eastern Europe and Latin America, will also see growing OCC demand
  ▪ The developed regions, such as North America and Western Europe, will generate OCC usage growth as well

• New recycled fiber based capacity
Containerboard Production by Region

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World OCC Markets in the Future

• Supply
  - Already very high OCC recovery rate in the developed world (>100%)
  - OCC recovery rate in the developing regions
    - Not very low compared to other grades
    - Not much room to improve
    - Real OCC recovery rates
  - World average OCC recovery rate is about 85%

• Quality issue and yield rate
  - Higher recovered paper usage rate in containerboard sector → higher recycled fiber content and lower virgin fiber content → weaker and shorter fiber in OCC
  - Overall lower yield rates
OCC Recovery Rate by Region

- N. America
- Other Asia
- W. Europe
- Japan
- China
- Latin America
- World Average

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World OCC Markets in the Future

• Upward pressure on OCC pricing
  ▪ Higher OCC recovery rate will push up OCC collection costs, along with rising transportation and labor costs
  ▪ Limited supply worldwide will give OCC prices more running room

• Global demand/supply imbalance
  ▪ Possible fiber furnish change in some regions
  ▪ Trade will remain a big part of global OCC market

• Risks
Thank you!

For more information:

OCC/UKP Market Analysis and Outlook  
www.risiinfo.com/occ-ukp

Outlook for Global Recovered Paper Markets  
www.risi.com/recoveredpaper

The China Recovered Paper Market: A Comprehensive Analysis and Outlook  
www.risi.com/chinarcp

World Pulp and Recovered Paper 5-Year & 15-Year Forecasts  
www.risi.com/WPRP5  
www.risi.com/WPRP15

World Recovered Paper Monitor  
www.risi.com/wrpm

The information in this presentation comes from these sources unless otherwise cited

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