SPECIALTY PAPER AND THE FUTURE - A EUROPEAN SPECIALTY PAPER & PAPERBOARD MARKET OVERVIEW IN GLOBAL CONTEXT

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AWA Alexander Watson Associates
AGENDA

- Introduction & Definitions
- Global Market
- Market Segmentation
- Growth & Decline
- Trends Impacting Specialties
- European Market
INTRODUCTION & DEFINITIONS
We solve problems and support your information needs

AWA Alexander Watson Associates is a company with a unique industry focus on the specialty paper, film, packaging, coating and converting sector. AWA provides a complement of Market Research, Events, Business Development and Advisory Services. We have been providing clients with expert knowledge since 1971.
AWA PAPER & PAPERBOARD GRADE CLASSIFICATIONS

Source: AWA
DEFINITION OF SPECIALTY PAPER & PAPERBOARD

- A paper or paperboard that requires properties (physical, optical, electrical, chemical and/or other special considerations) that are different from the norm for the market sector and application being served.

- Performance related products that are found in all paper and paperboard market sectors.

- Higher volume specialities are considered “specialized commodities.”

Source: AWA
DEFINITION OF SPECIALTY PAPER & PAPERBOARD

They all exhibit special performance characteristics, including:

- physical properties: such as strength, dimensional stability, density, porosity, smoothness, wet strength, absorptivity and others;

- optical properties: such as very high brightness, deep colors, especially low or high opacity and gloss;

- electrical properties: such as increased conductivity or increased resistivity (insulation);

- chemical properties: such as purity, anti-corrosion, ant-microbial or pH; and/or

- other special considerations: such as FDA or equivalent compliance, special insertions (such as security features), special moisture levels, very narrow rolls, etc..

Source: AWA
DEFINITION OF SPECIALTY PAPER & PAPERBOARD

- It is important to establish the definition before we discuss our assessment of the market, as most studies and many companies have a different definition and perception of what a “specialty” is.

- Of course, this results in a widely varying range of market sizes and growth patterns.

Source: AWA
GLOBAL
SPECIALTY PAPER & PAPERBOARD MARKET
SPECIALTY PAPER & PAPERBOARD
SHARE OF TOTAL GLOBAL PAPER & PAPERBOARD

Specialty = 25,890,000 tonnes in 2014

Sources: FAOstat, AWA
GLOBAL SPECIALTY PAPER & PAPERBOARD MARKET BY GEOGRAPHY 2014

Source: AWA
GLOBAL SHARE OF SPECIALTY PAPER & PAPERBOARD VOLUME BY MARKET SEGMENT

Source: AWA
GLOBAL TRADE IN SPECIALTY PAPERS & PAPERBOARDS

- Europe & North America remain net exporters of specialties, with Europe being the leading exporter. Asia-Pacific and South American regions continue to be net importers.

- However, in both cases, local production of specialties is rapidly increasing, with Asia-Pacific rapidly becoming self-sufficient in grades such as decor and South America producing increasing quantities of label, release and direct thermal papers, for example.
SPECIALTY PAPER & PAPERBOARD APPLICATION SEGMENTATION
# MARKET SEGMENTS SERVED BY SPECIALTY PAPERS & PAPERBOARDS

<table>
<thead>
<tr>
<th>Specialty Market Segment</th>
<th>No. of Grade Categories</th>
<th>% of All Specialty Grade Categories</th>
<th>% Share of Specialty Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging &amp; Labeling</td>
<td>22</td>
<td>15</td>
<td>42</td>
</tr>
<tr>
<td>Building &amp; Construction</td>
<td>8</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Business &amp; Communication</td>
<td>16</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Food Service</td>
<td>7</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Industrial</td>
<td>31</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>Printing &amp; Publishing</td>
<td>15</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Consumer</td>
<td>20</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Filter</td>
<td>11</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Security</td>
<td>6</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Medical</td>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Electrical</td>
<td>8</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: AWA
## SOME GRADES WHERE EUROPE HAS LEADING POSITIONS GLOBALLY

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Packaging &amp; Labeling</td>
<td>• Aseptic Packaging</td>
</tr>
<tr>
<td></td>
<td>• C1S</td>
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<tr>
<td></td>
<td>• Metallizing Base</td>
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<td></td>
<td>• Release Base</td>
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<td></td>
<td>• Twisting</td>
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<tr>
<td>• Building &amp; Construction</td>
<td>• Décor</td>
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<td>• Wallpaper</td>
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<tr>
<td>• Business &amp; Communication</td>
<td>• Direct Thermal</td>
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<tr>
<td>• Food Service</td>
<td>• Food Processing Papers</td>
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<tr>
<td></td>
<td>• Vegetable Parchment</td>
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<tr>
<td></td>
<td>• Meat Casing</td>
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<tr>
<td>• Industrial</td>
<td>• Abrasive Bases</td>
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<tr>
<td></td>
<td>• Vulcanized Fibre</td>
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<tr>
<td>• Printing &amp; Publishing</td>
<td>• Bible Papers</td>
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<td></td>
<td>• Outdoor Poster</td>
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<tr>
<td>• Consumer</td>
<td>• Art Media</td>
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<td></td>
<td>• Photographic</td>
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<tr>
<td></td>
<td>• Scrapbook/Craft Media</td>
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<td></td>
<td>• Tobacco Papers</td>
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<tr>
<td>• Filter</td>
<td>• Analytical &amp; Medical</td>
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<tr>
<td></td>
<td>• Coffee</td>
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<tr>
<td></td>
<td>• Tea Bag</td>
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<tr>
<td>• Security</td>
<td>• Banknote</td>
</tr>
<tr>
<td>• Medical</td>
<td>• Steriizable Kraft</td>
</tr>
<tr>
<td>• Electrical</td>
<td>• Cable Wrap</td>
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</tbody>
</table>
SPECIALTY PAPER & PAPERBOARD GROWTH & DECLINE
SPECIALTY PAPER OPPORTUNITIES

Source: AWA
SPECIALTY PAPER & PAPERBOARD TRENDS IMPACTING SPECIALTIES
TRENDS – AND IMPACT TO SPECIALTY PAPER SEGMENTS

**TRENDS**

**SUSTAINABILITY AND RENEWABLE MATERIALS, MATERIAL EFFICIENCY**
- Renewable resource based materials
- Material recycling
- Forest management
- Replacing oil based materials with renewable resources based
- Functional materials
- Lighter weight materials

**SAFETY**
- Health issues in tobacco and food
- Governmental requirements for product information
- Fluorocarbon-based grease-resistant papers

**IMPACT**

**SEGMENTS**
- Packaging & Labeling
- Food service
- Business & Communication
- Industrial
- Security
- Electrical
- Medical packaging

Source: AWA
TRENDS – AND IMPACT TO SPECIALTY PAPER SEGMENTS

<table>
<thead>
<tr>
<th>TRENDS</th>
<th>IMPACT</th>
<th>SEGMENTS</th>
</tr>
</thead>
</table>
| GLOBALISATION: GROWTH OF COUNTERFEIT | • Increased security concerns | • Packaging & Labeling  
• Business & Communication  
• Security |
| DIGITALISATION | • Further erosion of paper-based communications by electronic media  
• New printing technologies | • Business & Communication  
• Printing & Publishing  
• Building & Construction  
• Packaging & Labeling |
| CONSUMER LIFE STYLE AND AGING SOCIETY | • Growth of +65 population  
• Fast food and food service lifestyle | • Packaging & Labeling  
• Food service  
• Medical |

Source: AWA
EUROPEAN SPECIALTY PAPER & PAPERBOARD MARKET
EUROPE –
STATUS AND DIRECTION

- Currently the leading specialty paper producing region
- Exports significant volume to all other regions
- Will retain the lead for the immediate future in certain specialties. Examples:
  - Décor – excellent technology
  - Strong position in medical and abrasive base
  - Aseptic Packaging – excellent technology and global marketing position with two European companies leading the market
  - Photographic – a declining market
  - Coffee Filter – global marketing position of leading European company
  - Tea Bag – local demand
  - Food processing papers such as bakery pan liners – good technology and market position of European producers
EUROPE –
STATUS AND DIRECTION

- Growing competition in some grades and geographies such as Décor in Asia, C1S in North America
- Developing technologies for certain specialties in Europe but also increasingly in North America and Asia
- Replacement of plastics with paper-based materials for some applications, particularly in packaging and food service market sectors – driven by customer preference and legislative actions
- Some recovery for certain printing & publishing grades related to book publishing, for both educational and trade book markets

Source: AWA
2016 GLOBAL SPECIALTY PAPER & PAPERBOARD VALUE CHAINS, TABLES & GRAPHS, AND MORE...

Source: AWA
AWA GLOBAL SPECIALTY PAPER & PAPERBOARD MARKET STUDY 2016
THANK YOU!

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