

# 2018 Global Molded Pulp Market Outlook

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Sheraton San Diego Hotel & Marina

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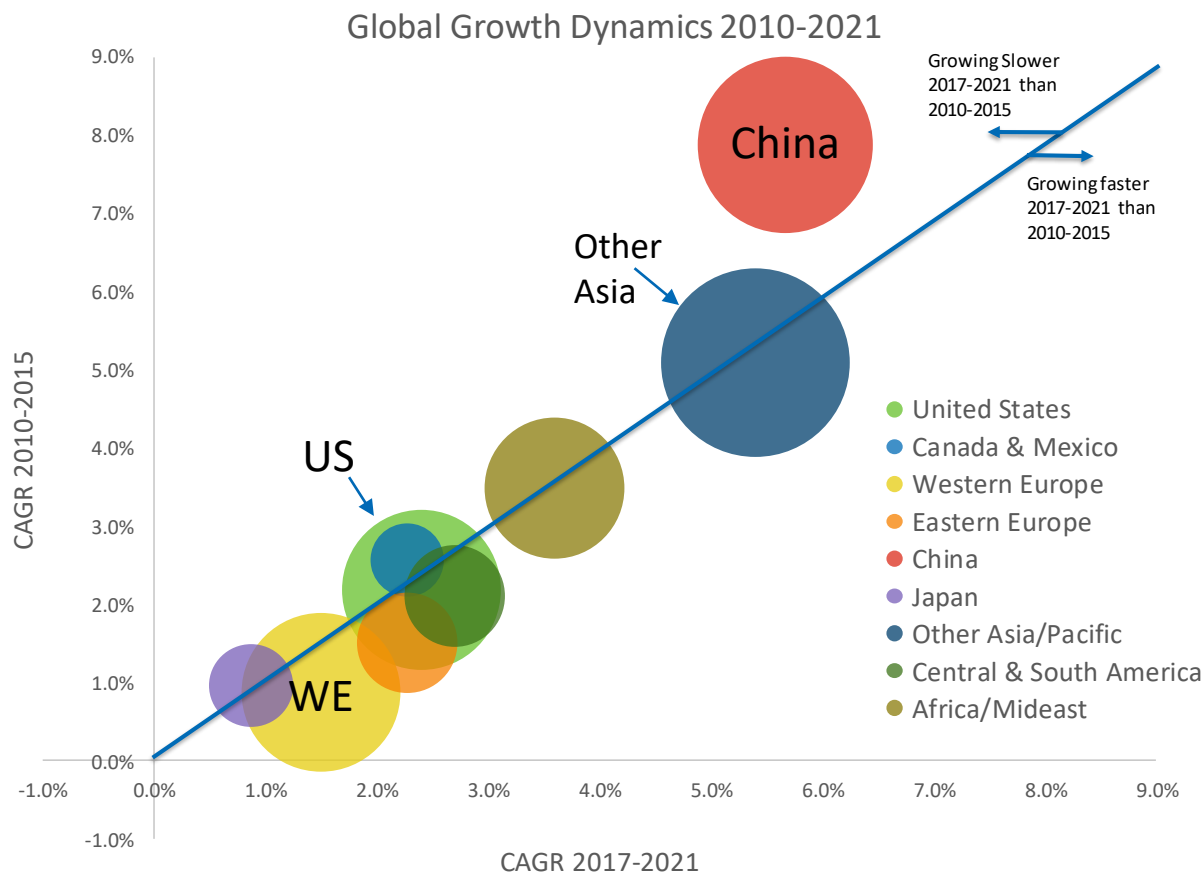


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*Freedonia has been analyzing and reporting on the global molded pulp industry since 2009 and the North American market since 1995.*

- Global economic outlook
  - North America
  - Europe
  - Asia/Pacific
  - Rest of the World
- Growth outlook for key markets
  - Foodservice
  - Food and beverage production
  - E-commerce
- Demand for molded pulp
  - By type
  - By market
  - By region
- North American molded pulp demand
- Rest of the World molded pulp demand
- Key trends impacting the molded pulp industry
  - Competitive substrates (foam, plastic, other-paper)
  - Regulatory environment
  - Other key industry trends
- Keeping up with the industry

*The global economy largely strengthened over the past two years and should continue to grow about 3.5% annually over the next four years.*



**Table I-1: Global – Economic Overview (Real, Inflation Adjusted)**

Item	YoY	
	16/15	17/16
<b>Global Real GDP Growth</b>	<b>3.1%</b>	<b>3.6%</b>
North America:	<u>1.6%</u>	<u>2.4%</u>
United States	1.5%	2.3%
Canada & Mexico	1.9%	2.5%
Europe	<u>1.6%</u>	<u>2.3%</u>
Western Europe	1.8%	2.1%
Eastern Europe	1.2%	2.8%
Asia/Pacific:	<u>5.3%</u>	<u>5.6%</u>
China	6.7%	6.9%
Japan	1.0%	1.7%
Other Asia/Pacific	5.0%	5.3%
Central & South America	-2.2%	0.9%
Africa/Mideast	3.5%	2.7%

Source: Freedonia Custom Research

- The US economy has expanded for 104 straight months since June 2009 – the end of the great recession.
  - This will be the second longest economic expansion in US history and would break the record (120-month expansion from 1991 to 2001) in mid-2019.

*Momentum in the global economy is trending upwards, and most market watchers have noted a broad-based strengthening over the past year.*

Table I-2: Real World GDP Growth Outlook (year-over-year % change)				
Item	2017	2018	2019	Change in 2019 Forecast since June/July-2017
IMF	3.7	3.9	3.9	↑ 0.3
World Bank	3.0	3.1	3.0	↑ 0.1
OECD	3.7	3.9	3.9	↑ 0.3
EU	3.5	3.7	3.7	↑ 0.1
BMO	3.6	3.6	3.4	↑ 0.1
Oxford Economics	3.0	3.2	2.9	↔
Freedonia	3.7	3.8	3.7	↑ 0.1

Source: Freedonia Custom Research

- Most economic forecasts for 2018 and 2019 have edged up 10-30 basis points over the past six to nine months, suggesting that most global regions are poised to grow steadily over the next few years.
- In many areas – Central and South America, Africa and Europe – geopolitical risks are lessening or abating, resulting in renewed business confidence.
  - OECD business confidence index rose from 99.8 in January 2016 to 101.4 in February 2018.

*Key markets for molded pulp products will grow steadily in North America from 2017 to 2022 but at a slight slower rate than over the past seven years.*

Table I-3: North America – Economic Overview					
Item	2010	2017	2022	CAGR	
				17/10	22/17
<b>North America Key Market Indicators</b>					
Foodservice (billion US\$)	725	980	1,200	4.4%	4.1%
Food MVA (billion US 2016\$)	318	345	361	1.2%	0.9%
E-Commerce (billion US\$)	285	555	815	10.0%	8.0%
<b>United States Real GDP</b>	<b>1,439</b>	<b>1,675</b>	<b>1,830</b>	2.2%	1.8%
<b>Canada Real GDP</b>	<b>1,910</b>	<b>2,295</b>	<b>2,600</b>	2.7%	2.5%
<b>Mexico Real GDP</b>	<b>16,471</b>	<b>19,050</b>	<b>21,110</b>	2.1%	2.1%

Source: Freedonia Custom Research

- The US and Canada are set for a “soft patch” in their economic outlooks in the 2019-2020 timeframe.
- Very few economists are predicting a recession over the next few years.
  - That said, the US and Canada could see a period of a few weak quarters of growth in late 2019 and into early 2020.
- Key molded pulp markets will see steady growth, albeit a pace that slightly underperforms the growth rates achieved in the 2010-2017 period.

*Gradually strengthening economies and solid growth in foodservice markets and e-commerce will anchor demand for molded pulp products in Europe.*

Table I-4: Europe – Economic Overview					
Item	2010	2017	2022	CAGR	
				17/10	22/17
<b>Europe Key Market Indicators</b>					
Foodservice (billion US\$)	655	780	920	2.5%	3.4%
Food MVA (billion US 2016\$)	356	394	426	1.5%	1.6%
E-Commerce (billion US\$)	165	290	420	8.4%	7.7%
<b>Western Europe Real GDP</b>	<b>17,220</b>	<b>18,690</b>	<b>20,300</b>	1.2%	1.7%
<b>Eastern Europe Real GDP</b>	<b>6,537</b>	<b>7,385</b>	<b>8,280</b>	1.8%	2.3%

Source: Freedonia Custom Research

- Despite Brexit, the United Kingdom should lead the big economies of Western Europe with 1.7% real growth per year between 2017 and 2022.
- France is expected to follow close behind with 1.6% annual real GDP growth over the same period, while Germany is likely to rise only 1.2% per annum through 2022.
- The Russian economy is forecast to increase a real 1.6% per year over this period, reversing the past two years of virtual stagnation.
- Foodservice revenues should accelerate over the next five years, and e-commerce growth will remain robust, anchoring demand for molded pulp products.

*Foodservice and food production should buoy demand for molded pulp, while e-commerce will decelerate due to a maturing Chinese market.*

Table I-5: Asia/Pacific – Economic Overview					
Item	2010	2017	2022	CAGR	
				17/10	22/17
<b>Asia/Pacific Market Indicators</b>					
Foodservice (billion US\$)	985	1,600	2,300	7.2%	7.5%
Food MVA (billion US 2016\$)	715	983	1,217	4.7%	4.4%
E-Commerce (billion US\$)	135	450	800	18.8%	12.2%
<b>China Real GDP</b>	<b>13,743</b>	<b>22,900</b>	<b>30,430</b>	7.6%	5.9%
<b>India Real GDP</b>	<b>5,850</b>	<b>9,285</b>	<b>13,120</b>	6.8%	7.2%
<b>Other Asia/Pacific Real GDP</b>	<b>100.0</b>	<b>127.6</b>	<b>150.9</b>	3.5%	3.4%

Source: Freedonia Custom Research

- The Chinese economy is expected to expand by close to 6% per year in real terms from 2017 to 2022, while e-commerce in China will average over 15% annual growth over the same period.
- The Indian economy is forecast to grow in excess of 7% per year through 2022.
- As the region's economies (excluding China and Japan) strengthen over the next five years, rising levels of wealth will lead to strong gains in the foodservice sector.
- E-commerce is also expected to grow above 10% per year in India, Thailand and Indonesia.



*Emerging markets should see strong economic growth over the 2017-2022 period, leading to increased demand for molded pulp products.*

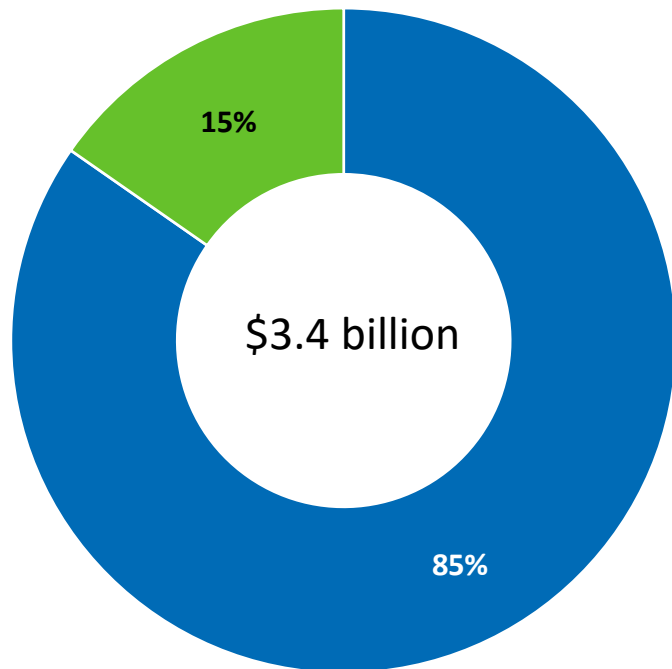
Table I-6: Rest of the World – Economic Overview					
Item	2010	2017	2022	CAGR	
				17/10	22/17
<b>Rest of the World Key Market Indicators</b>					
Foodservice (billion US\$)	180	300	450	7.6%	8.4%
Food MVA (billion US 2016\$)	365	448	522	3.0%	3.1%
E-Commerce (billion US\$)	25	60	100	13.3%	10.8%
<b>Middle East &amp; North Africa Real GDP</b>	<b>8,654.0</b>	<b>10,868</b>	<b>12,873</b>	3.3%	3.4%
<b>Sub-Saharan Africa Real GDP</b>	<b>3,086</b>	<b>3,962</b>	<b>4,787.0</b>	3.6%	3.9%
<b>C&amp;S America Real GDP</b>	<b>6,813</b>	<b>7,465</b>	<b>8,520</b>	1.3%	2.7%

Source: Freedonia Custom Research

- Freedonia anticipates that Central and South America has turned the corner, as both Brazil and Argentina begin to grow steadily again.
- Economic growth should also accelerate in the Middle East, North Africa and Sub-Saharan Africa.
- Rising incomes are spurring strong growth in the foodservice sector across these emerging markets.
- South Africa, Argentina and Brazil should all see e-commerce grow by more than 10% per year over the forecast period.

*Recycled fiber remains the dominant raw material in global molded pulp products.*

### 2017 Molded Pulp Demand by Fiber Type



#### CAGR 2022/2017

**Global 5.4%**

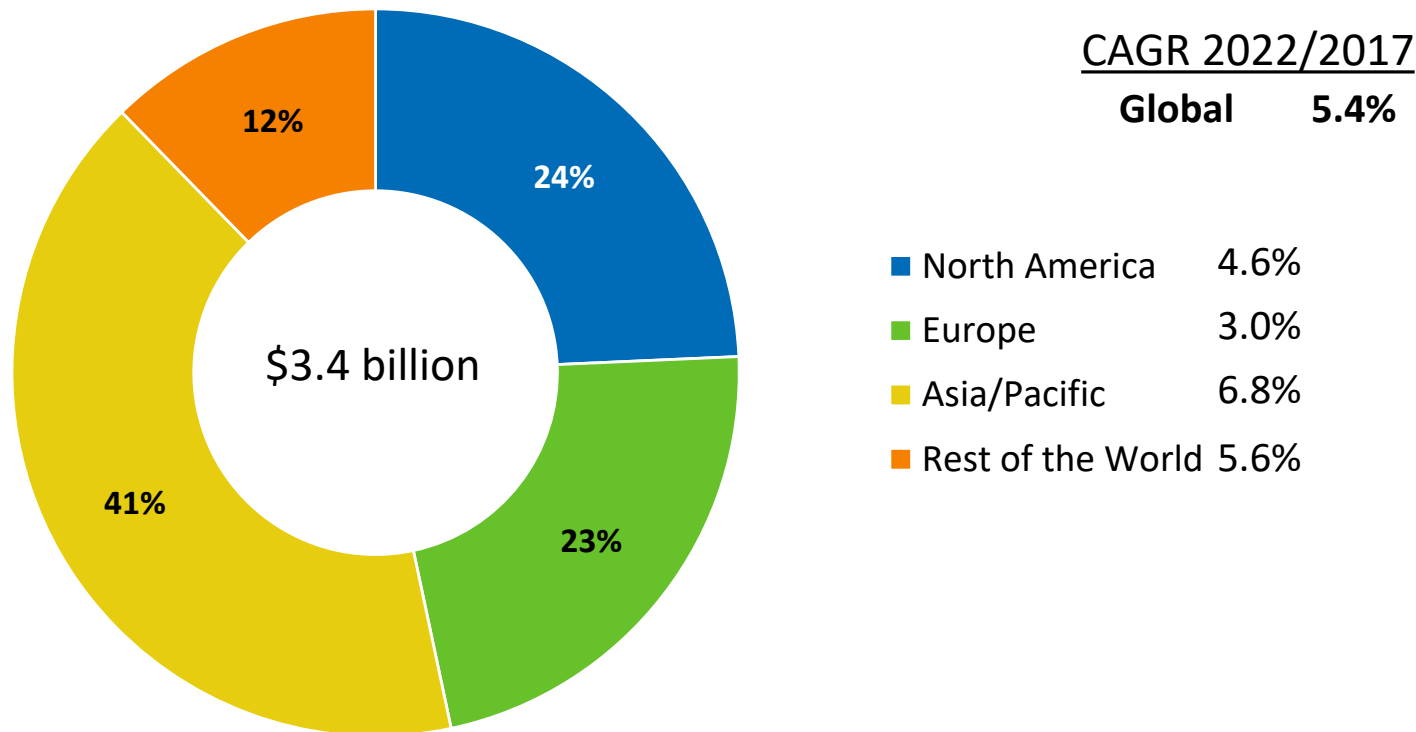
■ Recycled Fiber ≈\$2.8 billion (2017)  
5.8% CAGR

■ Virgin Fiber ≈\$500 million (2017)  
3.6% CAGR

- The use of recycled fiber should continue to outpace the use of virgin fiber in most molded pulp products and in most markets of the world.
- Recycled fiber will comprise approximately 86% of the market for molded pulp by 2022.

*Developing economies account for more than half of global demand for molded pulp products and represent the largest growth opportunities.*

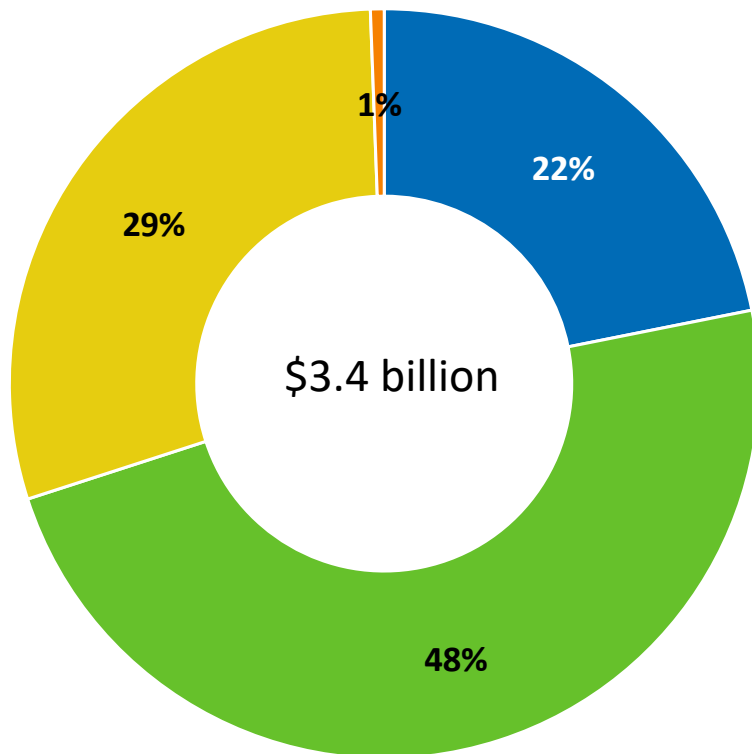
## Global Molded Pulp Demand By Region



- The North American and European markets are roughly the same size, with food packaging representing the single largest market in both regions.
- By 2022, the global molded pulp market will be nearly \$4.4 billion

*The largest single segment for molded pulp demand is food-oriented packaging – eggs, fruits, berries and other fresh produce.*

## Global Molded Pulp Demand by Market



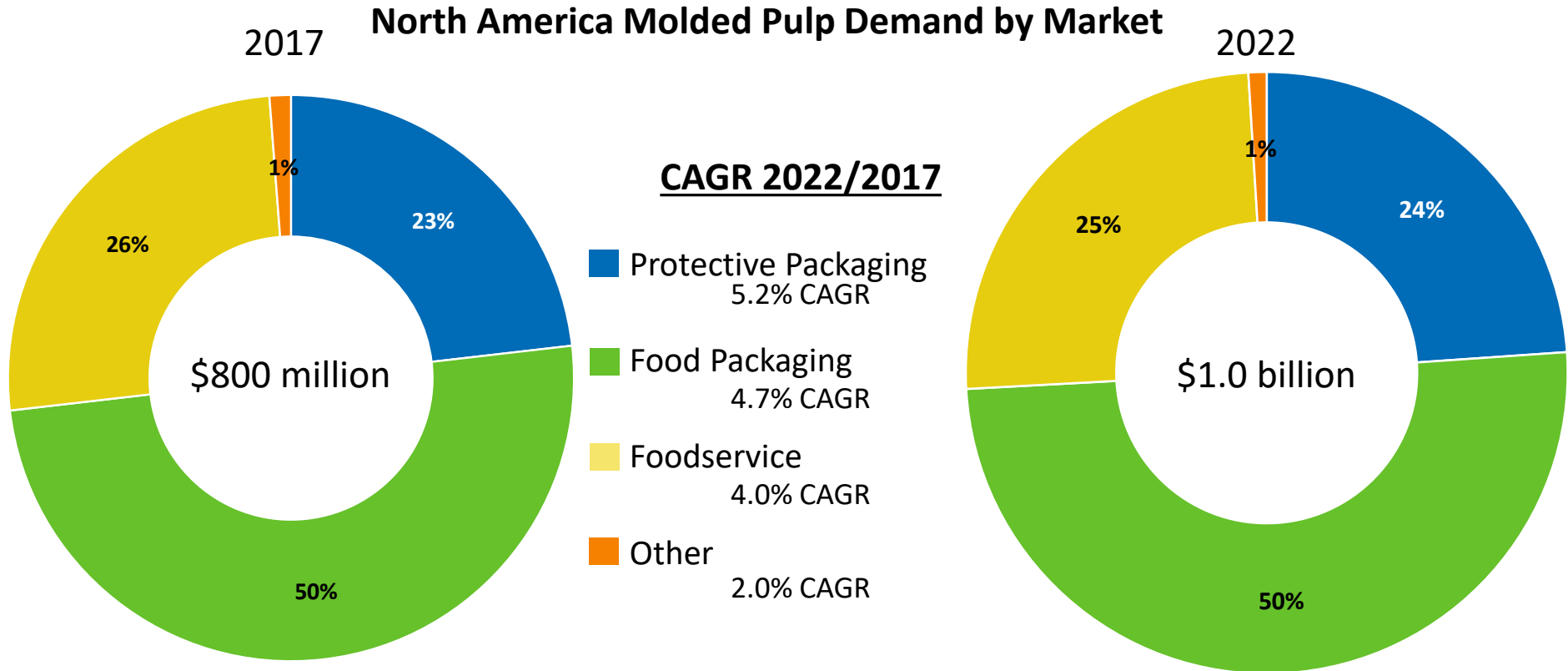
### CAGR 2022/2017

**Global 5.4%**

■ Protective Packaging	6.6%
■ Food Packaging	3.9%
■ Foodservice	6.5%
■ Other	4.6%

- E-commerce is driving strong growth in molded pulp demand for protective packaging applications, and the growing foodservice industry is buoying demand for food and beverage trays and other disposable molded pulp items.

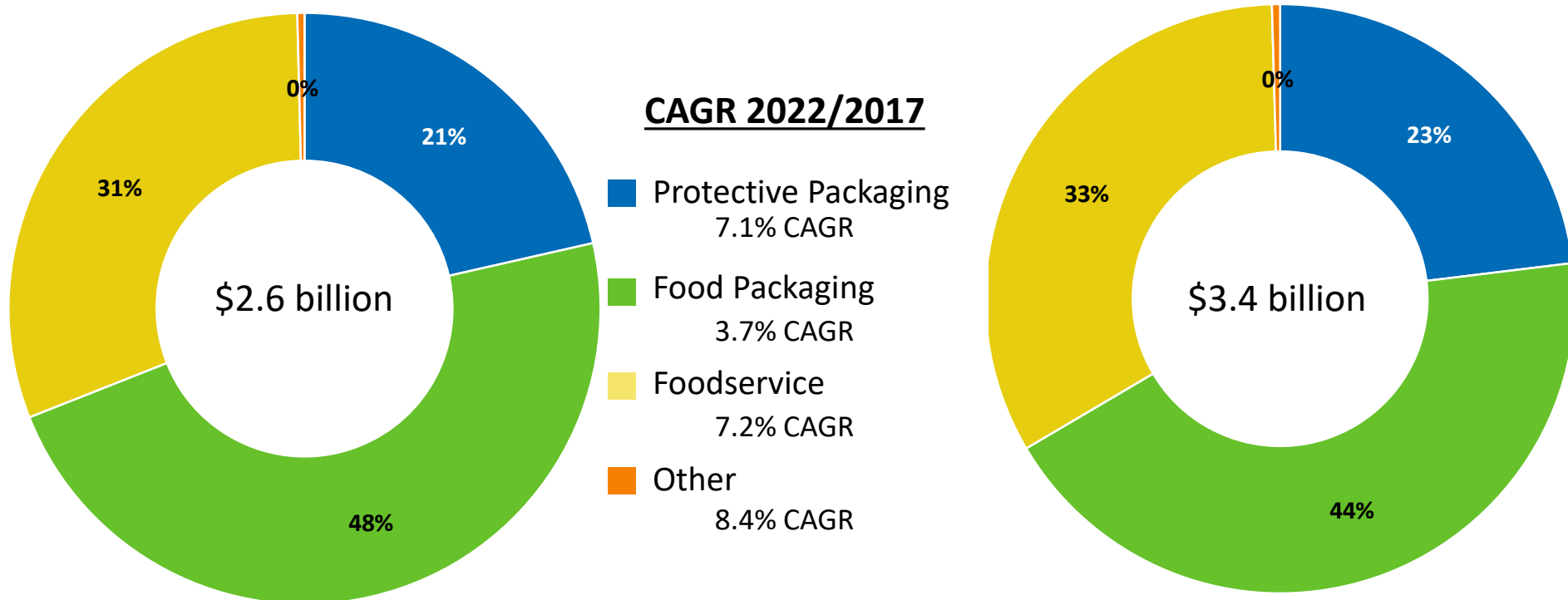
*The North American molded pulp market is anticipated to grow 4.6% per year over the 2017-2022 period.*



- The North American molded pulp market is dominated by packaging for fruits, berries and vegetables. Bulk carry trays, egg cartons and berry/mushroom tills are the preponderance of this demand.
- E-commerce is driving strong gains in protective packaging, which utilizes molded pulp in select consumer goods and electronic shipments.

*Growth in molded pulp demand in emerging markets will be driven by strong gains in protective packaging and foodservice products.*

2017 **Rest of the World Molded Pulp Demand by Market** 2022



- Rising standards of living, urbanization and steady economic growth will underpin demand for molded pulp related to e-commerce markets, particularly in Asia, and foodservice packaging products.
- Asia is anticipated to exceed 8% annual growth in molded pulp usage in both protective packaging and foodservice products.
- Central and South America should see the strongest growth in molded pulp in foodservice packaging products.

*Molded pulp products will continue to face competition from plastic, other paper substrates and foam in each market segment.*

- In each key market category, molded pulp faces competition from alternative substrates:

Competitive Product Overview				
Product	Application	Growth Outlook (2022/2017 CAGR)	Market Drivers	Key Players
Air pillows and bubble wrap	<ul style="list-style-type: none"> <li>• Protective packaging</li> </ul>	7-10 %	<ul style="list-style-type: none"> <li>• E-commerce</li> <li>• Shipping costs</li> </ul>	Sealed Air, Pregis, Storopack, DS Smith
Paper-fill and dunnage	<ul style="list-style-type: none"> <li>• Protective packaging</li> </ul>	~6%	<ul style="list-style-type: none"> <li>• E-commerce</li> </ul>	Signode, Tianjin Newtrans, Ranpak
EPS foam	<ul style="list-style-type: none"> <li>• Protective packaging</li> <li>• Food packaging</li> <li>• Foodservice</li> </ul>	4-6%	<ul style="list-style-type: none"> <li>• E-commerce</li> <li>• Environmental factors</li> <li>• Food production</li> </ul>	Numerous players in each region
Rigid plastics (PET)	<ul style="list-style-type: none"> <li>• Food packaging</li> <li>• Foodservice</li> </ul>	4-5%	<ul style="list-style-type: none"> <li>• Food production</li> <li>• Foodservice revenues</li> </ul>	Numerous players in each region
Paperboard	<ul style="list-style-type: none"> <li>• Foodservice</li> <li>• Food packaging</li> <li>• Protective packaging</li> </ul>	4-5%	<ul style="list-style-type: none"> <li>• Foodservice revenues</li> <li>• Food production</li> </ul>	BillerudKorsnas, International Paper, Metsa, Georgia-Pacific

Source: Freedonia Custom Research

## *Molded pulp stands to gain in some markets due to environmental concerns that are discouraging use of foam-based products.*

- Approximately a dozen US cities – including New York, Seattle and Washington, DC – have banned or taxed the use of polystyrene single-use products such as clam shells, cups, and other food and foodservice packaging.
- Europe has recently laid out a EU-wide strategy to curb the use of single-use plastic items that seems likely to discourage the use of foam in a variety of food and foodservice packaging – A European Strategy for Plastics in a Circular Economy (January 2018).
- Major brand-owners are moving away from the use of EPS foam products. For example, McDonald’s announced in January 2018 that it would “eliminate foam packaging from our global system by the end of 2018”.
- In Asia, cities in Malaysia, India, Vietnam and the Philippines have also banned the use of polystyrene foam products, which is changing the preferred substrates used in the food packaging and foodservice industries.
- The risk to molded pulp may be that the foam industry retreats from the food packaging and foodservice markets and re-focuses its marketing efforts on protective packaging, where the product’s recyclability could be better messaged and made more operationally viable.



*The molded pulp industry continues to innovate to enhance the product's value proposition.*

- Other notable trends within the industry:
  - Advances in bio-based coatings to enhance moisture resistance and printability
  - R&D efforts in energy efficiency have led to advances in pulping and drying methods that are reducing costs
  - 3D printed mold tooling can reduce tool cost and “solutioning” procurement timeframe
  - Increased use of non-wood fibers (bamboo, sugarcane, palm, etc)
  - Printing options and vibrant colors have opened up new options for molded pulp products
  - Freedonia anticipates more PoP displays and other niche uses of molded pulp to gain wider acceptance

## Questions?

- Additional information can be found in Freedonia Industry Studies:
  - Foodservice Single-Use Products in the US by Product and Market – 4<sup>th</sup> Edition (December 2017)
  - Protective Packaging in the US by Product and Market – 9<sup>th</sup> Edition (November 2017)
  - Global Protective Packaging Market by Region, Product and Market – 4<sup>th</sup> Edition (May 2016)
  - US Food Containers: Rigid & Flexible – 4<sup>th</sup> Edition (February 2016)



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