

# Pulp and Paper Mill Products Market Profile

Office of Business Development,  
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Maine DECD

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## Pulp and Paper Mill Products

This profile is intended to provide an overview of Maine's Pulp, Paper, and Paperboard Mills industry (NAICS 3221), including the current presence of the industry in the state, its markets and products, and the outlook for industry products.

This profile is divided into the following sections:

**Pulp, Paper, and Paperboard Mills Industry Summary:** Overview of industry jobs and sales for Maine and the United States.

**Markets and Products:** A summary of industries that pulp and paper mills are selling to.

**Market Outlook:** A deeper look into the outlook for industries using pulp and paper mill outputs, and the products that they are producing.

## Pulp, Paper, and Paperboard Mills Industry Summary

Currently, there are nearly 3,000 jobs in Maine’s Pulp, Paper, and Paperboard Mills industry (NAICS 3221). Approximately two thirds of these jobs are in NAICS 322121: Paper (except Newsprint) Mills, followed by a quarter of jobs in NAICS 322110: Pulp Mills and the remained of industry jobs in NAICS 322122: Newsprint Mills. Pulp, Paper, and Paperboard Mills jobs account for 0.43% of all of Maine’s jobs. At the national level, jobs in this industry account for only 0.06% of all jobs. Maine’s industry jobs represent 3% of total domestic jobs in the Pulp, Paper, and Paperboard Mills industry.

**NAICS 3221: Pulp, Paper, and Paperboard Mills Jobs, 2021**

NAICS	Description	Maine		United States		Maine % of US
		#	% of Total	#	% of Total	
322110	Pulp Mills	739	25%	5,549	6%	13%
322121	Paper (except Newsprint) Mills	2,011	67%	50,679	55%	4%
322122	Newsprint Mills	232	8%	3,464	4%	7%
322130	Paperboard Mills	0	0%	31,882	35%	0%
<b>Total NAICS 3221</b>		<b>2,982</b>	<b>100%</b>	<b>91,574</b>	<b>100%</b>	<b>3%</b>
<b>NAICS 3221 as % of Jobs in All Industries</b>		<b>0.43%</b>		<b>0.06%</b>		

Source: Emsi

On a percentage basis, job losses in this industry are more significant in Maine than nationally. In the years leading up to COVID-19 (2015-2019), Maine lost 19% of its jobs in this industry, compared to 5% at the national level. This trend has continued throughout the COVID-19 period (2019-2020) and is projected to continue through 2026.

**NAICS 3221: Pulp, Paper, and Paperboard Mills Job Change**

	Historic, 2015-2019		COVID-Related, 2019-2020		Projected, 2021-2026	
	#	%	#	%	#	%
Maine	(769)	(19%)	(377)	(11%)	(518)	(17%)
United States	(5,000)	(5%)	(4,587)	(5%)	(3,829)	(4%)

Source: Emsi

In Maine, NAICS 322121: Paper (except Newsprint) Mills have had the highest number of jobs lost – 625 between 2015-2019, and another 390 in 2019-2020. On a percentage basis, NAICS 322122: Newsprint Mills has lost the most jobs, declining by 55% in the years leading up to COVID-19.

**NAICS 3221: Pulp, Paper, and Paperboard Mills Job Change, Maine**

NAICS	Description	COVID-					
		Historic, 2015-2019		Related, 2019-2020		Projected, 2021-2026	
		#	%	#	%	#	%
322110	Pulp Mills	140	24%	(11)	(2%)	108	15%
322121	Paper (except Newsprint) Mills	(625)	(21%)	(390)	(16%)	(547)	(27%)
322122	Newsprint Mills	(284)	(55%)	24	10%	(79)	(34%)
322130	Paperboard Mills	0	0%	0	0%	0	0%
<b>Total</b>		<b>(769)</b>	<b>(19%)</b>	<b>(377)</b>	<b>(11%)</b>	<b>(518)</b>	<b>(17%)</b>

Source: Emsi

The Pulp, Paper, and Paperboard Mills industry is an export industry for Maine. 95% of the industry’s \$2.2 billion in annual sales are made to consumers out of state (both domestic and foreign). Nationally, 16% of industry sales are made to foreign consumers.

**NAICS 3221: Pulp, Paper, and Paperboard Mills Sales, 2021**

	Total Sales	In-Region Sales	Exported Sales	% of Sales In-Region	% of Sales Exported
Maine	\$2,213,700,131	\$112,422,814	\$2,101,277,317	5%	95%
United States	\$76,124,101,732	\$64,233,659,942	\$11,890,441,790	84%	16%

Source: Emsi

Since 2018 total sales by Maine’s Pulp, Paper, and Paperboard Mills have fluctuated between \$2.0 billion and \$2.4 billion.

### NAICS 3221: Pulp, Paper, and Paperboard Mills Total Sales Trend, Maine

Year	Total Sales
2018	\$2,160,995,000
2019	\$2,380,794,000
2020	\$2,062,665,000
2021	\$2,213,700,131

Source: U.S. Census Bureau (2018-2020), Emsi (2021)

Over a longer time period the industry has experienced a decline in gross regional product (GRP) in Maine. Since 2010, the Pulp, Paper, and Paperboard Mills industry’s GRP has declined by nearly \$390.0 million, or 33%. The industry has declined from 2.5% of Maine’s total GRP to 1.2%, indicating that the industry is becoming less of an economic contributor to the state, relative to other industries.

## NAICS 3221: Pulp, Paper, and Paperboard Mills

### GRP Trend, Maine

Year	Industry GRP	% of Total GRP All Industries
2010	\$1,165,914,419	2.5%
2011	\$1,085,155,728	2.3%
2012	\$1,058,947,564	2.2%
2013	\$1,058,295,357	2.1%
2014	\$1,004,977,549	2.0%
2015	\$938,360,437	1.8%
2016	\$758,913,389	1.4%
2017	\$660,050,792	1.2%
2018	\$725,601,694	1.2%
2019	\$802,245,819	1.3%
2020	\$727,344,740	1.2%
2021	\$775,971,637	1.2%
Change	-\$389,942,782	
% Change	-33%	

Source: Emsi

Industry sales are of greater importance to Maine's economy than they are to the national economy. Pulp, Paper, and Paperboard Mills sales per capita equal approximately \$1,613 in Maine, compared to only \$229 nationally. Industry GRP (gross regional product) per capita is equal to \$0.03 in Maine compared to \$1.04 nationally.

### NAICS 3221: Pulp, Paper, and Paperboard Mills Sales per Capita and per GDP, 2021

	Industry Sales	Total Population	Total GRP	Sales per Capita	Sales per GRP
Maine	\$2,213,700,131	1,372,247	\$66,485,521,431	\$1,613	\$0.03
United States	\$76,124,101,732	331,893,745	\$73,306,108,828	\$229	\$1.04

Source: Emsi; United States Census Bureau

## Markets and Products

### Paper Mills

Maine's paper mills sell their products as inputs to businesses in other industries. Within Maine, the Corrugated and Solid Fiber Box Manufacturing industry is the largest consumer of products from paper mills. Other key industries that paper mills are selling to include Commercial Printing, Sanitary Paper Product Manufacturing, and Other Paperboard Container Manufacturing. This data is related only to *in-state* sales from Maine's paper mills.<sup>1</sup>

#### Top 15 Industries Paper Mills are Selling to in Maine

NAICS	Sales to	Total In-Region Sales	% of Total In-Region Sales
322211	Corrugated and Solid Fiber Box Manufacturing	\$6,107,682	14%
902999	State Government, Excluding Education and Hospitals	\$3,357,336	8%
323111	Commercial Printing (except Screen and Books)	\$3,232,380	8%
322299	All Other Converted Paper Product Manufacturing	\$2,992,992	7%
322121	Paper (except Newsprint) Mills	\$2,591,903	6%
322291	Sanitary Paper Product Manufacturing	\$2,046,213	5%
903999	Local Government, Excluding Education and Hospitals	\$1,766,865	4%
551114	Corporate, Subsidiary, and Regional Managing Offices	\$1,641,417	4%
322219	Other Paperboard Container Manufacturing	\$970,649	2%
721110	Hotels (except Casino Hotels) and Motels	\$884,155	2%
622110	General Medical and Surgical Hospitals	\$787,752	2%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	\$780,529	2%
561730	Landscaping Services	\$690,884	2%
322110	Pulp Mills	\$662,763	2%
322220	Paper Bag and Coated and Treated Paper Manufacturing	\$608,172	1%

Source: Emsi

Note: NAICS 322121 Paper (except Newsprint) Mills is used.

<sup>1</sup> Note that sales represent only the sales made from Maine's paper mills to other industries within Maine (in-region sales). Out of region sales data by industry is not available.

Trends are similar at the national level, with similar industries being key consumers of paper mill industry outputs. The following table shows the total sales from the national paper mill industry to other industries within the United States.

**Top 15 Industries Paper Mills are Selling to in the United States**

NAICS	Sales to	Total In-Region Sales	% of Total In-Region Sales
322211	Corrugated and Solid Fiber Box Manufacturing	\$3,125,969,276	19%
323111	Commercial Printing (except Screen and Books)	\$1,142,798,337	7%
902999	State Government, Excluding Education and Hospitals	\$992,817,067	6%
903999	Local Government, Excluding Education and Hospitals	\$907,709,983	5%
322220	Paper Bag and Coated and Treated Paper Manufacturing	\$872,006,617	5%
322212	Folding Paperboard Box Manufacturing	\$806,612,290	5%
322219	Other Paperboard Container Manufacturing	\$657,840,855	4%
551114	Corporate, Subsidiary, and Regional Managing Offices	\$500,381,325	3%
322291	Sanitary Paper Product Manufacturing	\$292,134,348	2%
721110	Hotels (except Casino Hotels) and Motels	\$220,567,107	1%
323113	Commercial Screen Printing	\$214,152,211	1%
322230	Stationery Product Manufacturing	\$214,013,519	1%
902622	Hospitals (State Government)	\$200,895,712	1%
561730	Landscaping Services	\$178,654,534	1%
622110	General Medical and Surgical Hospitals	\$169,082,617	1%

Source: Emsi

Note: NAICS 322121 Paper (except Newsprint) Mills is used.

## Pulp Mills

Within Maine, pulp mills sell most of their outputs to other paper and pulp mills, within the state. Key industries that purchase from pulp mills to use the output in other products include Sanitary Paper Product Manufacturing, Corrugated and Solid Fiber Box Manufacturing, Paper Bag and Coated and Treated Paper Manufacturing, and Other Paperboard Container Manufacturing. Note again that this data is related only to *in-state* sales from Maine's pulp mills.

**Top 15 Industries Pulp Mills are Selling to in Maine**

NAICS	Sales to	Total In-Region Sales	% of Total In-Region Sales
322121	Paper (except Newsprint) Mills	\$10,333,404	47%
322110	Pulp Mills	\$5,654,666	26%
322299	All Other Converted Paper Product Manufacturing	\$2,282,364	10%
322291	Sanitary Paper Product Manufacturing	\$1,397,258	6%
322122	Newsprint Mills	\$1,160,427	5%
322211	Corrugated and Solid Fiber Box Manufacturing	\$424,547	2%
322220	Paper Bag and Coated and Treated Paper Manufacturing	\$78,796	0.36%
322219	Other Paperboard Container Manufacturing	\$45,812	0.21%
321113	Sawmills	\$21,536	0.10%
321999	All Other Miscellaneous Wood Product Manufacturing	\$15,605	0.07%
333611	Turbine and Turbine Generator Set Units Manufacturing	\$10,199	0.05%
325212	Synthetic Rubber Manufacturing	\$9,873	0.05%
561730	Landscaping Services	\$9,444	0.04%
902999	State Government, Excluding Education and Hospitals	\$8,541	0.04%
238910	Site Preparation Contractors	\$8,370	0.04%

Source: Emsi

Note: NAICS 322110 Pulp Mills is used.

Trends are similar at the national level, with similar industries being key consumers of pulp mill industry outputs. The following table shows the total sales from the national pulp mill industry to other industries within the United States.

**Top 15 Industries Paper Mills are Selling to in the United States**

NAICS	Sales to	Total In-Region Sales	% of Total In-Region Sales
322121	Paper (except Newsprint) Mills	\$410,503,339	28%
322211	Corrugated and Solid Fiber Box Manufacturing	\$236,402,238	16%
322291	Sanitary Paper Product Manufacturing	\$130,153,186	9%
322299	All Other Converted Paper Product Manufacturing	\$105,094,687	7%
322220	Paper Bag and Coated and Treated Paper Manufacturing	\$86,016,188	6%
322212	Folding Paperboard Box Manufacturing	\$61,326,038	4%
322219	Other Paperboard Container Manufacturing	\$50,035,513	3%
322130	Paperboard Mills	\$48,891,213	3%
322110	Pulp Mills	\$48,192,718	3%
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	\$43,054,459	3%
322122	Newsprint Mills	\$29,212,846	2%
322230	Stationery Product Manufacturing	\$23,446,600	2%
325212	Synthetic Rubber Manufacturing	\$17,436,064	1%
511210	Software Publishers	\$7,378,920	1%
522110	Commercial Banking	\$5,318,935	0.4%

Source: Emsi

Note: NAICS 322110 Pulp Mills is used.

## Market Outlook

The in-region industry sales data in the following section was used to identify six 5-digit NAICS industries that are key consumers of output from Maine’s pulp and paper mills:

- ◆ Cardboard Box & Container Manufacturing
- ◆ Coated & Laminated Paper Manufacturing
- ◆ Office Stationery Manufacturing
- ◆ Sanitary Paper Product Manufacturing
- ◆ Paper Product Manufacturing
- ◆ Printing

Products produced by these industries include paperboard containers and boxes, paper bags, envelopes, toilet paper, napkins, diapers, party supplies, and books, among others.

### Key Industry Products

NAICS	Industry	Products
32221	Cardboard Box & Container Manufacturing	Paperboard containers, folding paperboard boxes, corrugated and solid fiber boxes
32222	Coated & Laminated Paper Manufacturing	Surface coated paperboard, coated and laminated packaging paper, uncoated paper bags and sacks
32223	Office Stationery Manufacturing	Paper supplies, stationary, envelopes
32229a	Sanitary Paper Product Manufacturing	Toilet paper, paper towels, napkins, tissues, diapers
32229b	Paper Product Manufacturing	Party supplies, molded pulp goods, misc.
32311	Printing	Books, other

Source: IBISWorld

According to data from IBISWorld the Cardboard Box & Container Manufacturing, Sanitary Product Manufacturing, and Paper Product Manufacturing industries are expected to grow over the next five years, with revenue, national imports and exports, and demand trending positively over this time period. The strongest demand growth is expected in the Cardboard Box & Container Manufacturing industry, where growth in online retail is expected to continue to increase demand for cardboard for use in packaging and shipping.

### Industry Growth Projections, 2021-2026 % Change

NAICS	Industry	Revenue	Exports	Imports	Demand
32221	Cardboard Box & Container Manufacturing	15%	16%	14%	15%
32222	Coated & Laminated Paper Manufacturing	-1%	-11%	-18%	-2%
32223	Office Stationery Manufacturing	-1%	0%	-2%	-1%
32229a	Sanitary Paper Product Manufacturing	6%	7%	4%	5%
32229b	Paper Product Manufacturing	3%	4%	0%	2%
32311	Printing	-4%	-18%	-24%	-4%

Source: IBISWorld

Below is a brief summary of the market outlook for each of the six selected industries, according to IBISWorld:

- ◆ **Cardboard Box & Container Manufacturing:** E-commerce is a significant downstream market for industry operators, and its increasing prevalence has propped up industry revenue growth over the past five years. Despite the economic consequences of the coronavirus pandemic in 2020, industry operators have been buoyed by the movement of consumers to shop online. Online retailers require industry products to ship goods to customers, and as consumers increasingly opt to purchase goods online rather than in brick-and-mortar stores, demand for industry products has risen. Revenue growth is expected to accelerate in the coming years due to the recovery of downstream markets from COVID-19 and the increasing prevalence of e-commerce.
- ◆ **Coated & Laminated Paper Manufacturing:** Operators in the Coated and Laminated Paper Manufacturing industry have experienced a wide array of challenges over the last five years, particularly from import competition and weak demand. As producers of commoditized goods, industry manufacturers compete heavily on price and have struggled with foreign companies that can pass their substantially lower production costs on. Bright spots for the industry have included environmental awareness leading to a preference for paper products over plastic and steady demand from food manufacturers. While import competition, offshoring trends in downstream industries, and a declining print media sector point to continued weak demand for the industry the wide range of uses for industry products will help maintain a level of stability.

- ◆ **Office Stationery Manufacturing:** The industry has faced ongoing challenges from the trend toward digitalization. Many industry products have been digitized, decreasing demand for paper products and hampering industry revenue. Over the five years to 2026, the increasing use of electronics instead of traditional office supplies will likely continue, creating a weak long-term outlook for the industry.
- ◆ **Sanitary Paper Product Manufacturing:** Due to the industry's production of nondiscretionary goods, it is shielded from extreme fluctuations caused by macroeconomic shifts. Industry growth can be attributed to the expanding population, although this has been limited somewhat by declines in birth rates. On the other hand, the United States is a net importer of sanitary paper products as consumers and downstream markets have increasingly opted for imported goods, available at lower prices. Nevertheless, the growing elderly population has mitigated the industry's decline by fueling demand for adult incontinence products. Diapers and incontinence products represent the industry's most lucrative product segment. Demographic trends will benefit the industry over the next five years, while a shift in consumer preferences towards reusable products poses a threat.
- ◆ **Paper Product Manufacturing:** Over the five years to 2021, the industry has contended with heightened competition from substitute products and low-cost imported goods. Many paper products in this industry are considered discretionary, such as paper dishware and party supplies, causing the industry to be vulnerable to macroeconomic factors. Over the five years to 2026, industry operators are expected to benefit from favorable economic conditions and declining import penetration.
- ◆ **Printing:** The printing industry is in the midst of a decline as digital products and services continue to displace printed materials. The industry's two largest markets, advertising and publishing, have both accelerated their moves online over the last five years, reducing demand for printing. Substitutes for commercially printed material, such as online media, will likely continue to adversely affect industry demand. However, some

bright spots remain for the industry. Although industry operators are expected to persistently lose revenue to digital media, the continued value of print advertisements to marketing campaigns may somewhat temper the pace of printing's decline.

## Data Sources

### Economic Modeling Specialists International (EMSI)

To analyze the industrial makeup of a study area, industry data organized by the North American Industrial Classification System (NAICS) is assessed. Camoin Associates subscribes to Economic Modeling Specialists Intl. (EMSI), a proprietary data provider that aggregates economic data from approximately 90 sources. EMSI industry data, in our experience, is more complete than most or perhaps all local data sources (for more information on EMSI, please see [www.economicmodeling.com](http://www.economicmodeling.com)). This is because local data sources typically miss significant employment counts by industry because data on sole proprietorships and contractual employment (i.e., 1099 contractor positions) is not included and because certain employment counts are suppressed from BLS/BEA figures for confidentiality reasons when too few establishments exist within a single NAICS code.

### IBISWorld

IBISWorld is one of the world's leading publishers of business intelligence, specializing in industry and procurement research. Through its detailed industry reports available at 5-digit NAICS level, IBISWorld provides insight into market conditions for targeted industries, helps to identify major suppliers or supply chain, and provides an understanding of competitor activity. More at [www.ibisworld.com](http://www.ibisworld.com)