UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K/A

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): February 11, 2019

GREIF, INC.
(Exact name of registrant as specified in its charter)

Delaware	001-00566	31-4388903
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

425 Winter Road, Delaware, Ohio	43015
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (740) 549-6000

Not Applicable
(Former name or former address, if changed since last report.)

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Section 2 - Financial Information

Item 2.01. Completion of Acquisition or Disposition of Assets

On February 11, 2019, Greif, Inc. (the "Company") completed its previously announced acquisition (the “Caraustar Acquisition”) of Caraustar Industries, Inc. (“Caraustar”). The Caraustar Acquisition was completed in accordance with the terms of an Agreement and Plan of Merger, dated December 20, 2018 (the “Merger Agreement”), between two of the Company’s subsidiaries and the parent of Caraustar, Paperboard Parent, Inc. ("Paperboard Parent" and, together with its subsidiaries, "Paperboard"). Under the terms of the Merger Agreement, a subsidiary of the Company was merged into Paperboard Parent, with Paperboard Parent surviving the merger as the surviving corporation.

On February 13, 2019, the Company filed a Current Report on Form 8-K (the "Original Report") with the Securities and Exchange Commission (the "SEC") to report the completion of the Caraustar Acquisition and other related matters. The purpose of this filing is to amend the Original Report to provide certain financial statements and certain pro forma financial information in connection with the Caraustar Acquisition as required by Items 9.01(a) and 9.01(b) of Form 8-K. Except for the foregoing, this filing does not modify or update any other disclosure contained in the Original Report.

Section 9 - Financial Statement and Exhibits

Item 9.01. Financial Statements and Exhibits

(a) Financial Statements of Businesses Acquired

The audited consolidated financial statements of Paperboard as of and for the years ended December 31, 2018 and 2017, are filed herewith as Exhibit 99.1 and incorporated herein by reference.

The Company requested and was granted a waiver from the SEC that permits the Company to omit the financial statements of Paperboard for its fiscal year ended December 31, 2016, which were otherwise required by Rule 3-05 of Regulation S-X.

(b) Pro Forma Financial Information

The unaudited pro forma condensed consolidated financial statements of the Company, giving effect to the Caraustar Acquisition and related financing transactions, as of and for the year ended October 31, 2018, are filed herewith as Exhibit 99.2 and are incorporated herein by reference.

(c) Exhibits

Exhibit No.	Description
23.1	Consent of Ernst & Young LLP, independent auditors of Paperboard Parent, Inc.
99.1	The audited consolidated financial statements of Paperboard Parent, Inc. and subsidiaries for the years ended December 31, 2018 and 2017.
99.2	Unaudited pro forma condensed consolidated financial statements of Greif Inc. and subsidiaries, giving effect to the Caraustar acquisition and related financing transactions as of and for the year ended October 31, 2018.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

GREIF, INC.

Date: April 25, 2019

By /s/ Lawrence A. Hilsheimer

Lawrence A. Hilsheimer,
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 23.1

Consent of Independent Auditors

We consent to the incorporation by reference in Registration Statement Nos. 333-26767, 333-26977, 333-35048, 333-61058, 333-61068, 333-123133, and 333-151475 on Form S-8 of Greif Inc. of our report dated April 19, 2019 relating to the consolidated financial statements of Paperboard Parent, Inc. and Subsidiaries, included in this Current Report on Form 8-K/A of Greif Inc. dated April 25, 2019.

/s/ Ernst & Young LLP

Atlanta, Georgia
April 25, 2019

Exhibit 99.1

Paperboard Parent, Inc. and Subsidiaries

Consolidated Balance Sheets as of December 31, 2018 and 2017, and Consolidated Statements of Comprehensive Loss, Changes in Shareholders' Deficit and Cash Flows for the Years Ended December 31, 2018 and 2017, and Independent Auditor's Report

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

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Report of Independent Auditors

To the Board of Directors
Paperboard Parent, Inc. and Subsidiaries

We have audited the accompanying consolidated financial statements of Paperboard Parent, Inc. and Subsidiaries, which comprise the consolidated balance sheets as of December 31, 2018 and December 31, 2017, and the related consolidated statements of comprehensive loss, changes in shareholders' deficit and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in conformity with U.S. generally accepted accounting principles; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free of material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audit in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Paperboard Parent, Inc. and Subsidiaries at December 31, 2018 and 2017, and the consolidated results of their operations and their cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP
April 19, 2019

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS AS OF DECEMBER 31, 2018 AND 2017
(In thousands)

	2018	2017
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 8,305	$ 16,033
Receivables — net of allowances for doubtful accounts, returns, and discounts of $2,905 and $2,612 at December 31, 2018 and December 31, 2017, respectively	143,648	131,937
Inventories, net	98,438	87,881
Prepaid expenses	4,998	5,039
Prepaid income taxes	1,352	640
Other current assets	2,409	1,811
Assets held for sale	—	2,376
Total current assets	259,150	245,717
PROPERTIES, PLANT, AND EQUIPMENT:		
Land	66,205	65,095
Buildings	87,262	83,965
Machinery and equipment	449,680	418,435
Capital projects in progress	49,429	35,089
Total property, plant, and equipment	652,576	602,584
Less accumulated depreciation	(193,996)	(148,567)
Property, plant, and equipment, net	458,580	454,017
GOODWILL, NET	263,060	259,600
OTHER INTANGIBLE ASSETS, NET	127,732	151,655
DEFERRED TAX ASSETS	6,597	956
RESTRICTED CASH AND CASH EQUIVALENTS	1,416	1,100
OTHER LONG TERM ASSETS	—	878
TOTAL ASSETS	$ 1,116,535	$ 1,113,923

See accompanying Notes to Consolidated Financial Statements.

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS AS OF DECEMBER 31, 2018 AND 2017
(In thousands, except share data)

	2018	2017
LIABILITIES AND SHAREHOLDERS' DEFICIT		
CURRENT LIABILITIES:		
Current portion of long-term debt	$ 8,600	$ 8,600
Accounts payable	101,209	114,840
Accrued payroll and employee benefits	20,394	13,990
Other current liabilities	34,504	32,487
Total current liabilities	164,707	169,917
LONG-TERM DEBT, less current maturities	856,103	850,644
DEFERRED TAX LIABILITY	34,001	29,269
PENSION LIABILITY	72,157	59,136
OTHER LONG-TERM LIABILITIES	8,201	9,730
SHAREHOLDERS' DEFICIT:		
Preferred stock, $0.001 par value - authorized, 25,000 shares; issued no shares	—	—
Common stock, $0.001 par value - authorized, 300,000 shares; 123,241 and 123,132 shares issued and outstanding at December 31, 2018 and December 31, 2017, respectively	—	—
Additional paid-in capital	127,568	127,083
Accumulated deficit	(119,059)	(128,063)
Accumulated other comprehensive loss:		
Minimum pension liabilities	(24,091)	(1,759)
Foreign currency translation	(3,052)	(2,034)
Total accumulated other comprehensive loss	(27,143)	(3,793)
Total shareholders' deficit	(18,634)	(4,773)
TOTAL LIABILITIES AND SHAREHOLDERS' DEFICIT	$ 1,116,535	$ 1,113,923

See accompanying Notes to Consolidated Financial Statements.

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017
(In thousands)

	2018	2017
SALES	$ 1,373,824	$ 1,311,424
COST OF PRODUCTS SOLD	1,107,429	1,109,469
SELLING, GENERAL, AND ADMINISTRATIVE EXPENSES	182,214	159,301
RESTRUCTURING CHARGES	495	6,382
GOODWILL IMPAIRMENT	—	31,725
(GAIN) LOSS ON DISPOSAL OF PROPERTIES, PLANTS AND EQUIPMENT, NET	2,151	1,540
INCOME FROM OPERATIONS	81,535	3,007
OTHER (EXPENSE) INCOME:		
Interest expense, net	(73,756)	(74,081)
Other income — net	5,394	6,949
Total other expense	(68,362)	(67,132)
INCOME (LOSS) BEFORE INCOME TAXES	13,173	(64,125)
INCOME TAX EXPENSE (BENEFIT)	5,914	(41,658)
NET INCOME (LOSS)	7,259	(22,467)
OTHER COMPREHENSIVE (LOSS) INCOME:		
Pension and other postretirement gains and (losses)	(20,587)	6,304
Foreign currency translation adjustment	(1,018)	3,784
Total other comprehensive (loss) income	(21,605)	10,088
COMPREHENSIVE LOSS	$ (14,346)	$ (12,379)

See accompanying Notes to Consolidated Financial Statements.

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' DEFICIT
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017
(In thousands, except share data)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Shareholders' Deficit
	Shares	Amount				
BALANCE — December 31, 2016	122,464	$ —	$ 126,012	$ (106,013)	$ (13,881)	$ 6,118
Net loss	—	—	—	(22,467)	—	(22,467)
Stock-based compensation expense	—	—	985	—	—	985
Issuance of common stock under equity incentive plan	668	—	86	—	—	86
Stock-based compensation, windfall adjustment	—	—	—	417	—	417
Pension and other benefit liability adjustment — net of taxes of ($1,725)	—	—	—	—	6,304	6,304
Foreign currency translation adjustment	—	—	—	—	3,784	3,784
BALANCE — December 31, 2017	123,132	$ —	$ 127,083	$ (128,063)	$ (3,793)	$ (4,773)
Net income	—	—	—	7,259	—	7,259
Stock-based compensation expense	—	—	214	—	—	214
Issuance of common stock under equity incentive plan	109	—	271	—	—	271
Pension and other benefit liability adjustment — net of taxes of ($5,622)	—	—	—	—	(20,587)	(20,587)
Accounting standard adoption	—	—	—	1,745	(1,745)	—
Foreign currency translation adjustment	—	—	—	—	(1,018)	(1,018)
BALANCE — December 31, 2018	123,241	$ —	$ 127,568	$ (119,059)	$ (27,143)	$ (18,634)

See accompanying Notes to Consolidated Financial Statements.

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017
(In thousands)

	2018	2017
OPERATING ACTIVITIES:		
Net income (loss)	$ 7,259	$ (22,467)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation, depletion and amortization	76,607	72,535
Non-cash asset impairment costs	—	3,750
Goodwill impairment charges	—	31,725
Gain on disposals of properties, plants and equipment, net	1,849	1,540
Deferred income tax (benefit) expense	3,334	(43,323)
Stock-based compensation expense	214	985
Deferred debt costs amortization	3,138	3,888
Deferred debt issuance cost on early extinguishment of debt	—	6,468
Term loan original discount amortization	1,452	1,671
Changes in operating assets and liabilities:		
Trade accounts receivable	(11,142)	(4,315)
Inventories	(10,189)	(3,084)
Accounts payable	(14,010)	14,757
Accrued liabilities	(4,841)	(8,723)
Other, net	(951)	(4,488)
Prepaid income taxes	583	3,822
Net cash provided by operating activities	53,303	54,741
INVESTING ACTIVITIES:		
Purchases of properties, plant, and equipment	(50,863)	(43,022)
Proceeds from the sale of properties, plants, and equipment and other assets	570	5,870
Acquisitions of businesses, net of cash acquired	(9,600)	(21,267)
Net cash used in investing activities	(59,893)	(58,419)
FINANCING ACTIVITIES:		
Proceeds from issuance of long-term debt	268,500	1,106,000
Payments on long-term debt	(267,600)	(1,079,922)
Deferred debt costs	(28)	(10,408)
Proceeds from exercise of stock options	271	86
Principal payments on capital lease arrangements	(1,965)	(1,160)
Payments related to the early extinguishment of debt	—	(99)
Net cash provided by (used in) financing activities	(822)	14,497
Net increase (decrease) in cash and cash equivalents and restricted cash	(7,412)	10,819
Cash and cash equivalents and restricted cash at beginning of year	17,133	6,314
Cash and cash equivalents and restricted cash at end of year	$ 9,721	$ 17,133
Cash and cash equivalents	8,305	16,033
Restricted cash	1,416	1,100
Cash and cash equivalents and restricted cash at end of year	$ 9,721	$ 17,133
SUPPLEMENTAL DISCLOSURES:		
Cash payments for interest	$ 68,211	$ 61,140
Cash payments (refunds) for income taxes	$ 3,515	$ (2,154)
Accrued purchases of property, plant, and equipment	$ —	$ 6,803

See accompanying Notes to Consolidated Financial Statements.

PAPERBOARD PARENT, INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
AS OF DECEMBER 31, 2018 AND 2017, AND FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

1. NATURE OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Business - Paperboard Parent, Inc. (the "Company") is a holding company and owns 100% of the outstanding stock of Caraustar Industries, Inc. The Company operates in four business segments. The paperboard segment manufactures 100% recycled uncoated and clay-coated paperboard and operates from thirteen paperboard mills located primarily in the Southeastern United States and one converting operation. The recycling segment collects and sells recycled paper and brokers recycled paper and other paper rolls and operates from twenty-six facilities located in the United States. The industrial products segment produces spiral and convolute-wound tubes and cores and operates from forty facilities located in the United States and four facilities located in Canada. The folding carton segment produces printed and unprinted folding cartons and set-up boxes and operates from eight facilities located throughout the United States.

Consolidation - The consolidated financial statements include the accounts of Paperboard Parent, Inc. and its majority-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation. Certain amounts related to the year ended December 31, 2017 have been reclassified to conform with the presentation for the year ended December 31, 2018.

Cash and Cash Equivalents -The Company considers all highly liquid investments that mature three months or less from the date of purchase to be cash equivalents. The carrying amount reported in the consolidated balance sheets for cash and cash equivalents approximates fair value. The Company places its cash and cash equivalents with large credit worthy banks, which limits the amount of credit exposure. The Company has no cash equivalents as of December 31, 2018 and 2017.

Accounts Receivable and Allowances - Accounts receivable are stated at the amount owed by the customer, net of an allowance for estimated uncollectable accounts, returns and allowances, and cash discounts. The allowance for doubtful accounts is determined based on historical experience, current economic conditions and the credit worthiness of customers. Receivables are charged to the allowance when determined to be no longer collectible.

Inventories - Inventories are carried at the lower of cost or net realizable value with cost determined using the first-in, first-out method. Cost is determined using primarily a standard cost or average cost valuation methodology. Standard costs are reviewed quarterly to ensure that they approximate actual costs. The costs included in inventory include raw materials (recovered fiber for paperboard products and paperboard for converted products), direct and indirect labor and employee benefits, energy and fuel, depreciation, chemicals, general manufacturing overhead, and various other costs of manufacturing. General and administrative costs are not included in inventory costs.

Market, with respect to all inventories, is replacement cost or net realizable value. The Company reviews inventory at least quarterly to determine the necessity of write-offs for excess, obsolete, or unsaleable inventory. As of December 31, 2018 and 2017, inventory obsolescence reserves are $305 thousand and $316 thousand, respectively.

Inventories at December 31, 2018 and 2017 were as follows (in thousands):

	2018	2017
Raw materials and supplies	$ 47,520	$ 42,621
Work in process	4,091	3,330
Finished goods	46,827	41,930
Total inventory	$ 98,438	$ 87,881

Property, Plant, and Equipment - Property, plant, and equipment are stated at cost, which includes the estimated fair value of property, plant and equipment acquired in conjunction with business acquisitions (Note 2). Expenditures for repairs and maintenance not considered to substantially lengthen the asset lives or increase capacity or efficiency are charged to expense as incurred.

Depreciation is computed using the straight-line method over the following estimated useful lives:

Buildings and improvements	10-45 years
Office equipment and software	3-10 years
Machinery and equipment:	
Small tools	1 year
Small machinery and vehicles	4-8 years
Production equipment	14-25 years

Depreciation expense was $47.4 million, and $44.3 million for the years ended December 31, 2018 and 2017, respectively.

Restricted Cash and Cash Equivalents - As of December 31, 2018 and 2017, the Company had long- term restricted cash of $1.4 million and $1.1 million, respectively. Long-term restricted cash is composed of funds deposited in escrow accounts as collateral support for workers' compensation insurance. The impact of foreign exchange rates is immaterial on these funds.

Use of Estimates - The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. For example, significant management judgment is required in determining: the creditworthiness of customers and collectability of accounts receivable; the potential impairment of long-lived assets, goodwill and intangibles; the accounting for income taxes; the liability for self-insured claims; and the Company's obligation and expense for pension and other postretirement benefits. Actual results could differ from the Company's estimates and the differences could be significant.

Revenue Recognition - The Company recognizes revenue and the related accounts receivable when the following four criteria are met: (1) persuasive evidence of an arrangement exists, (2) ownership has transferred to the customer, (3) the selling price is fixed and determinable, and (4) collectability is reasonably assured. Determination of criterion (4) is based on management's judgments regarding the collectability of the Company's accounts receivable. Generally, the Company recognizes revenue when it ships its manufactured products or when it completes a service and title and risk of loss passes to its customers. Provisions for discounts, returns, allowances, customer rebates, and other adjustments are provided for in the same period as the related revenues are recorded.

Shipping Costs - The costs of delivering finished goods to the Company's customers are recorded as a component of cost of sales. Those costs include the amounts paid to a third party to deliver the finished goods or the Company's cost of using its own delivery trucks and drivers. Any freight costs billed to and paid by a customer are included in revenue.

Self-Insurance - The Company is self-insured for the majority of its workers' compensation and health care costs, subject to specific retention levels. Consulting actuaries and administrators assist the Company in determining its liability for self-insured claims. The Company's self-insured workers' compensation liability is estimated based on actual claims as established by a third-party administrator, increased by factors that reflect the Company's expected claim development. The "developed" claim, net of amounts paid and a present value factor, represents the liability that the Company records in its consolidated financial statements. The Company's self-insured health care liability is estimated based on its actual claim experience multiplied by a time lag factor. The lag factor represents an estimate of claims that have been incurred but have not yet been reported to the Company.

Foreign Currency Translation - The consolidated financial statements of the Company's non-United States based subsidiaries are translated into U.S. dollars in accordance with Accounting Standards Codification ("ASC") 830 "Foreign Currency Matters". Assets and liabilities of the non-U.S. subsidiaries are translated at the appropriate exchange rate as of year-end. The resulting translation adjustments are recorded in accumulated other comprehensive income (loss). Income and expense items were translated at the average exchange rate for the year. Foreign currency transaction gains and losses are reported in net income (loss) and were not material in any period presented.

Goodwill and Other Intangible Assets - The Company accounts for goodwill in accordance with ASC 350 "Intangibles - Goodwill and Other". In accordance with ASC 350, the Company defined each of its operating segments as a reporting unit and tested goodwill for impairment annually as of October 1.

Identifiable intangible assets consist of trade names and trademarks, customer relationships, leasehold interest and non-compete agreements. The trade names and trademarks are amortized over 5 years to 30 years. Customer relationships are finite-lived intangible assets and are amortized over the estimated economic life ranging from 7.5 years to 16.0 years. Leasehold interests are finite-lived intangible assets and are amortized over the estimated economic life ranging from 3.1 years to 3.8 years. The non- compete agreements are finite-lived intangible assets and are amortized over the estimated economic life of 5.0 years.

The Company reviews goodwill by reporting unit and for impairment as required by ASC 350, "Intangibles - Goodwill and Other", either annually in the fourth quarter as of October 1, or whenever events and circumstances indicate impairment may have occurred.

The Company performed its annual goodwill impairment test as of October 1, 2017 and 2018. Based on the assessments performed for the four reporting units, it was determined the estimated fair value of the Folding Carton reporting unit was less than the carrying amount for the unit and thus, an impairment charge was taken for the year ended December 31, 2017 (Note 4).

Impairment of Long-Lived Assets - The Company records property and equipment at cost and depreciates or amortizes these assets on a straight-line basis over their respective estimated useful lives.

Pursuant to ASC 360-10 “Impairment of Long - Lived Assets”, the Company periodically evaluates long-lived assets, including property, plant, and equipment and finite-lived intangible assets whenever events or changes in conditions may indicate that the carrying value may not be recoverable. Factors that management considers important that could initiate an impairment review include the following:

- A significant decrease in the market price of a long-lived asset;
- A significant adverse change in the extent or manner in which a long-lived asset is being used or in its physical condition;
- A significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset, including an adverse action or assessment by a regulator;
- An accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of a long-lived asset;
- A current-period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the use of a long- lived asset;
- A current expectation that, more likely than not, a long-lived asset (asset group) will be sold or otherwise disposed of significantly before the end of its previously estimated useful life;
- Impairment of indefinite lived intangible assets.

If indicators of impairment are present, the Company will determine whether the estimated undiscounted cash flows for the potentially impaired assets are less than the carrying value. This requires management to estimate future net cash flows through operations over the remaining useful life of the asset and its ultimate disposition. If the estimated undiscounted cash flows do not exceed the carrying value, the Company estimates the fair value of the asset and records an impairment charge if the carrying value is greater than the fair value of the asset. The Company estimates fair value using discounted cash flows, observable prices for similar assets, or other valuation techniques.

An impairment charge of $3.8 million related to property, plant, and equipment was recorded for the year ended December 31, 2017. The assets impaired include real estate and machinery and equipment related to facilities that are permanently closed in conjunction with the Company’s restructuring activities and other disposals. See Note 11 for additional discussion regarding the Company’s restructuring activities.

Assets Held for Sale - Real estate held for sale as of December 31, 2017, of $2.4 million is reported in the current assets section of the Consolidated Balance Sheets as “Assets held for sale”. Net realizable value for real estate held for sale at December 31, 2017, was estimated based on either brokers’ opinions of value, letters of intent or the estimated fair values of the acquired assets from current year business acquisitions, less expected broker and selling costs. No real estate was held for sale as of December 31, 2018.

Debt Discount and Deferred Debt Costs - On March 14, 2017, Caraustar Industries, Inc. entered into the Fourth Amendment and First Refinancing Amendment, “Fourth Amendment”, to the Term Loan Credit Agreement dated May 1, 2013. The Amendment provided for refinancing of the existing term loan in the principal amount of $860 million. The Company issued its Initial Term Loan at a 1% discount, issued its First Incremental Term Loan at a 1% discount, issued its Second Incremental Term Loan at a 2% discount and issued its Third Incremental Term Loan at a 1% discount and issued its Fourth Amendment and Refinancing Amendment at a 0.25% discount. The Company amortizes this discount over the contractual term of the debt using the straight-line method, which approximates the effective interest method. Amortization of the debt discount is included as a component of interest expense in the accompanying consolidated statements of comprehensive loss. Amortization of the debt discount is $1.5 million and $1.7 million for the years ended December 31, 2018 and 2017, respectively.

The Company amortizes capitalized deferred debt costs over the term of the associated debt using the straight-line method, which approximates the effective interest method. Amortization of deferred debt costs is included as a component of interest expense in the accompanying consolidated statements of comprehensive loss. Amortization of deferred debt costs is $3.1 million and $3.9 million for the years ended December 31, 2018 and 2017, respectively.

Costs associated with debt amendments that do not qualify for capitalization are expensed as incurred and reported as a separate component of "Other Income (Expense)" in the accompanying consolidated statements of comprehensive loss as "Debt financing costs". The Company evaluates debt amendments for modification or extinguishment accounting treatment. For debt amendments that qualify for modification accounting, lender fees incurred are capitalized and third party costs are expensed. The Company capitalized incurred lender fees and expensed third party costs for debt amendments that qualify for modification accounting. For debt amendments that qualify for extinguishment accounting, fees incurred are expensed and third party costs are capitalized. The Company expensed fees incurred and capitalized third party costs for debt amendments that qualify for extinguishment accounting. Debt financing costs charged to expense is $6.4 million for the year ended December 31, 2017. The Company did not incur finance charges for the extinguishment of debt related to December 31, 2018.

Income Taxes - On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to, (1) reducing the U.S. federal corporate tax rate from 35 percent to 21 percent; (2) requiring companies to pay a one-time transition tax on certain un-repatriated earnings of foreign subsidiaries; (3) generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries; (4) requiring a current inclusion in U.S. federal taxable income of certain earnings of controlled foreign corporations; (5) eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized; (6) bonus depreciation that will allow for full expensing of qualified property; (7) creating a new limitation on deductible interest expense; (8) changing rules related to uses and limitations of net operating loss carry-forwards created in tax years beginning after December 31, 2017; and (9) creating a new provision designed to tax currently in the U.S. global intangible low-taxed income (GILTI) of foreign subsidiaries, which allows for the possibility of utilizing foreign tax credits to offset the income tax liability (subject to some limitations).

The Company accounts for income taxes in accordance with ASC 740 "Income Taxes", which requires an asset and liability approach to financial accounting and reporting for income taxes. In accordance with ASC 740, deferred income tax assets and liabilities are computed annually for differences between the financial statement and tax bases of assets and liabilities that will result in taxable or deductible amounts in the future based on enacted tax laws and rates applicable to the periods in which the differences are expected to affect taxable income. Income tax (expense) benefit is the tax payable or refundable for the period plus or minus the change during the period in deferred tax assets and liabilities. Under ASC 740, a valuation allowance is required when it is more likely than not that some portion of the deferred tax assets will not be realized. Realization is dependent on generating sufficient future taxable income.

The Company follows the guidance on accounting for uncertainty in income taxes, which addresses the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the financial statements. Under this guidance, the Company may recognize the tax benefit from an uncertain tax position only if it is more-likely-than-not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on tax benefits that have a greater than 50% likelihood of being realized upon ultimate settlement.

At December 31, 2017, the Company adopted ASU 016-09, "Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting," which simplified several aspects of the accounting for share-based payment transactions, including the income tax consequences, forfeitures, classification of awards as either equity or liabilities, and classification of awards on the statement of cash flows.

In February 2018, the FASB issued ASU No. 2018-02, Income Statement-Reporting Comprehensive Income (Topic 220) Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, to address a specific consequence of The Act by allowing a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from The Act's reduction of the U.S. federal corporate income tax rate. The ASU is effective for all entities for annual periods beginning after December 15, 2018, with early adoption permitted, and is to be applied either in the period of adoption or retrospectively to each period in which the effect of the change in the U.S. federal corporate income tax rate in The Act is recognized to reclassify the income tax effects of The Act on the Company's pension plans. The ASU also requires the Company to disclose its policy on accounting for income tax effects in accumulated other comprehensive income (loss).

Other Comprehensive Income (Loss) - Other comprehensive income (loss) refers to revenues, expenses, gains and losses that are not included in net income (loss) but rather are recorded directly in shareholders' deficit. Total other comprehensive income (loss) consists of changes in the translation of the Company's non-United States based subsidiaries' financial statements, accounting standard adoption related to tax reform, and changes in estimates and assumptions in the Company's pension and other postretirement benefit plans.

Pension and Other Postretirement Benefit Plans - The Company has a noncontributory defined benefit pension plan covering certain Caraustar employees hired before December 31, 2004. As part of the acquisition of The Newark Group, Inc., the Company assumed a noncontributory defined benefit pension plan liability covering certain Newark employees hired before May 1, 2006. In addition, the Company has a Supplemental Executive Retirement Plan (SERP) for certain members of management. The benefits are based on age, years of service and the level of compensation in effect near retirement. The Company also provides medical benefits to retired employees of certain subsidiaries.

The Company records annual amounts relating to its pension and postretirement plans based on calculations that incorporate various actuarial and other assumptions, including discount rates, mortality, assumed rates of return, compensation increases, turnover rates and healthcare cost trend rates. The Company reviews its assumptions on an annual basis and makes modification to the assumptions based on current rates and trends when it is appropriate to do so. The effect of modifications of those assumptions is recorded in accumulated other comprehensive income (loss) and amortized to net periodic cost over future periods. The Company believes that the assumptions utilized in recording its obligations under its plans are reasonable based on its experience and market conditions.

Transaction Costs - As noted in Note 2, in connection with the business acquisitions, the Company incurred costs related to these acquisitions, including investment banking, legal and professional fees. Transaction costs for the acquisitions recognized in the consolidated statements of comprehensive loss were approximately $74 thousand for the year ended December 31, 2017, respectively. No transaction costs were reported for December 31, 2018.

Recently Issued Accounting Pronouncements - In March of 2017, the FASB issued ASU 2017-07 "Compensation - Retirement Benefits (Topic 715)", which provides additional guidance in ASC 715 for the presentation of net periodic benefit cost related to pension and post-retirement benefits in the income statement and on the components eligible for capitalization in assets. This ASU requires the reporting of the service cost component to be in the same line item as other compensation costs arising from services rendered by the pertinent employees. The other components of net benefit cost are required to be presented in the income statement separately from service cost and outside a subtotal of income from operations. This update also allows for the service cost component to be eligible for capitalization when applicable. The update is effective for the using a retrospective approach for the presentation of the service cost, other components of net periodic pension cost, and net periodic post-retirement benefit cost in the income statement and prospectively, on or after the effective date, for the capitalization of the service cost component of the net period pension cost and net periodic post-retirement benefit in assets. The Company adopted these provisions effective January 1, 2017. The impact of adoption for the year ended December 31, 2017 was $7.1 million of net periodic benefit costs, other than service cost components being recorded in the line item Other income (expense), net in the consolidated statements of income. The adoption did not have a material impact on the Company's financial position, results of operations, comprehensive income, cash flows, or disclosures other than the impact discussed above.

In January of 2017, the FASB issued ASU 2017-04, "Intangibles - Goodwill and Other (Topics 350)", which simplifies the subsequent measurement of goodwill in ASC 350 by eliminating the step 2 requirement to perform procedures to determine the fair value at the impairment testing date of assets and liabilities in order to calculate goodwill impairment based on the implied fair value of goodwill. This amendment modifies the concept of impairment from the condition that exists when the carrying amount of goodwill exceeds its implied fair value to the condition that exists when the carrying amount of a reporting unit exceeds its fair value. The Company elected to adopt the new guidance beginning on January 1, 2017, using a prospective approach and utilized the new guidance for the October 1, 2017 goodwill impairment assessment. The Company recognized the impairment loss for the Folding Carton reporting unit in 2017 in accordance with this ASU (Note 4).

In November of 2016, the FASB issues ASU 2016-18 "Statement of Cash Flows: Restricted Cash", which requires the statement of cash flows explain the change during the period in total cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. The Company adopted this standard effective January 1, 2018 and recognized the restricted cash balance in the line item restricted cash and cash equivalents on the Company's balance sheet, while providing a reconciliation of total cash, cash equivalents, restricted cash and restricted cash equivalents on the statement of cash flows. The December 31, 2017 financial statements have been adjusted to conform with the December 31, 2018 presentation. The adoption did not have a material impact on the Company's financial position, results of operations, comprehensive income, cash flows, or disclosures other than the impact discussed above.

In August of 2016, the FASB issued ASU 2016-15 "Statement of Cash Flows (Topic 230)" which amends the classification of certain cash receipts and cash payments on the statement of cash flows. This update clarifies guidance on eight specific cash flow areas in which there had previously been diversity in practice. Under previous guidance, cash payments resulting from debt prepayment or extinguishment were to be classified as cash outflows in the operating section of the statement of cash flows. This amendment is required to be applied using a retrospective approach. The Company adopted this amendment as of January 1, 2018. The December 31, 2017 financial statements have been adjusted to conform with the December 31, 2018 presentation. The adoption of this update did not have a material impact on the Company's financial position, results from operations, comprehensive income, cash flows, or disclosures for the periods presented.

In March of 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-09 "Compensation - Stock Compensation (Topic 718), which provides additional guidance in ASC 718 for the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. This ASU requires the recognition of excess tax benefits and deficiencies as income tax expense or benefit in the income statement. The update is effective for the Company on January 1, 2017. As a result of the adoption, the Company recorded a deferred tax liability and increase to retained earnings of $417 thousand. The adoption did not have a material impact on the Company's financial position, results of operations, other comprehensive income, cash flows, or disclosures other than the impact discussed above.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. The guidance in this ASU supersedes the leasing guidance in Topic 840, Leases. Under the new guidance, lessees are required to recognize lease assets and lease liabilities on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. The new standard is effective for fiscal years beginning after December 15, 2019. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. The Company is currently evaluating the impact of the pending adoption of the new standard on the consolidated financial statements.

In July 2015, the FASB issued ASU 2015-11 “Simplifying the Measurement of Inventory”, which amends certain provisions of ASC 330 “Inventory”. The ASU requires inventory to be measured at the lower of cost and net realizable value. These provisions do not apply to inventory that is measured using LIFO or the retail inventory method. These provisions apply to all other inventory, which includes inventory that is measured using FIFO or average cost. These provisions are effective for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years, applied prospectively. Early adoption is permitted as of the beginning of an interim or annual reporting period. The Company adopted these provisions on January 1, 2017, and the adoption of these provisions did not have a material effect on our consolidated financial statements.

In September 2015, the FASB issued ASU 2015-16, *Business Combinations (Topic 805): Simplifying the Accounting for Measurement-Period Adjustments*. This ASU eliminates the requirement to retrospectively account for changes to provisional amounts initially recorded in a business combination. ASU 2015-16 requires that an acquirer recognize adjustments to provisional amounts that are identified during the measurement period in the reporting period in which the adjustments are determined, including the effect of the change in provisional amount as if the accounting had been completed at the acquisition date. ASU 2015-16 is effective for reporting periods beginning after December 15, 2016 and is applied prospectively. Early adoption is permitted for financial statements that have not yet been made available for issuance. The adoption of this standard did not have a material impact on the Company’s financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, requiring an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The updated standard will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective and permits the use of either a full retrospective or retrospective with cumulative effect transition method. In August 2015, the FASB issued ASU 2015-14, which defers the effective date of ASU 2014-09 one year making it effective for annual reporting periods beginning after December 15, 2018. The Company selected the modified retrospective approach transition method and is currently evaluating the effect that the standard will have on the consolidated financial statements.

2. BUSINESS ACQUISITIONS

Platinum Core and Tube, Inc. - On July 31, 2017, the Company acquired certain assets and assumed certain liabilities of Platinum Core and Tube, Inc. (“Platinum”). The consideration consisted of cash of $7.5 million. The acquisition allows the Company to expand its strategic footprint in the tubes and cores segment. Operations of the acquired business are included in the consolidated statement of comprehensive loss from the acquisition date.

Platinum has been accounted for as a business combination in accordance with the acquisition method. Assets acquired and liabilities assumed are recorded at fair value. The purchase price has been allocated to the assets and liabilities as follows: $1.2 million of tangible assets, $2.9 million in identifiable intangible assets, and $1.7 million in assumed liabilities resulting in goodwill of approximately $2.9 million, which is amortizable for tax purposes. Of the $2.9 million of acquired intangibles, $2.8 million was assigned to customer relationships with an expected life of 10 years, and $95 thousand to a non- compete agreement with an expected life of 5 years. Goodwill resulting from the acquisition is deductible for tax purposes and includes the fair value of the assembled workforce and expected efficiencies and operational improvements of the Company. Such efficiencies and operational improvements are not recognized as an intangible asset separable from goodwill.

Roberts Paper Tubes & Cores, Inc. - On September 18, 2017, the Company acquired certain assets and assumed certain liabilities of Roberts Paper Tubes & Cores Inc. (“Roberts”). The consideration consisted of cash of $13.8 million. The acquisition allows the Company to expand its strategic footprint in the tubes and cores segment. Operations of the acquired business are included in the consolidated statement of comprehensive loss from the acquisition date.

Roberts has been accounted for as a business combination in accordance with the acquisition method. Assets acquired and liabilities assumed are recorded at fair value. The purchase price has been allocated to the assets as follows: $795 thousand of tangible assets, $7.1 million in identifiable intangible assets, resulting in goodwill of approximately $4.9 million, which is amortizable for tax purposes. Of the $7.1 million of acquired intangibles, $6.9 million was assigned to customer relationships with an expected life of 10 years, and $215 thousand to a non-compete agreement with an expected life of 5 years. Goodwill resulting from the acquisition is deductible for tax purposes and includes the fair value of the assembled workforce and expected efficiencies and operational improvements of the Company. Such efficiencies and operational improvements are not recognized as an intangible asset separable from goodwill.

Cascade Paper Converters Co. - On January 5, 2018, the Company completed an acquisition of all of the outstanding shares of Cascade Paper Converters Co. (“Cascade”). The consideration consisted of cash of $9.6 million, net of cash received. The acquisition allows the Company to expand its strategic footprint in the tubes and cores segment. Operations of the acquired business are included in the consolidated statement of comprehensive loss from the acquisition date.

Cascade has been accounted for as a business combination in accordance with the acquisition method. Assets acquired and liabilities assumed are recorded at fair value. The purchase price has been allocated to the assets as follows: $2.1 million of tangible assets, $5.3 million in identifiable intangible assets, resulting in goodwill of approximately $3.5 million. Of the $5.3 million of acquired intangibles, $4.8 million was assigned to customer relationships with an expected life of 10 years, and $460 thousand to non-compete agreements with expected lives of 1 year and 5 years. Goodwill resulting from the acquisition is not deductible for tax purposes and includes the fair value of the assembled workforce and expected efficiencies and operational improvements of the Company. Such efficiencies and operational improvements are not recognized as an intangible asset separable from goodwill.

3. SHAREHOLDERS’ EQUITY

Common Stock - The common stock is subject to the terms of the Company’s Amended and Restated Certificate of Incorporation. The Certificate authorizes the Company to issue a total of 325 thousand shares of capital stock, of which 300 thousand may be shares of common stock, par value $0.001 per share, and 25 thousand may be shares of preferred stock, par value $0.001 per share. As of December 31, 2018 and 2017, there were 123,241 and 123,132 shares of common stock issued and outstanding, respectively.

Preferred Stock - The Amended and Restated Certificate of Incorporation permits the Company to issue preferred stock in one or more series. Each series of preferred stock is to consist of such number of shares and to have such voting powers, designation, preferences and relative, participating, optional or other special rights, and qualifications, limitations or restrictions thereof, as shall be stated in the resolution or resolutions providing for the issuance of such series adopted by the board of directors of the Company. As of December 31, 2018 and 2017, no preferred stock was issued and outstanding.

4. GOODWILL AND OTHER INTANGIBLE ASSETS

Goodwill -The changes in goodwill by segment for the years ended December 31, 2018 and 2017 are as follows (in thousands):

	Paperboard	Recycling	Industrial Products	Folding Carton	Total
Balance at December 31, 2016	$ 148,837	$ 19,532	$ 83,420	$ 31,725	$ 283,514
Acquisitions	—	—	7,811	—	7,811
Impairment	—	—	—	(31,725)	(31,725)
Balance at December 31, 2017	$ 148,837	$ 19,532	$ 91,231	$ —	$ 259,600
Acquisitions	—	—	3,460	—	3,460
Impairment	—	—	—	—	—
Balance at December 31, 2018	$ 148,837	$ 19,532	$ 94,691	$ —	$ 263,060

The Company reviews goodwill by reporting unit and indefinite-lived intangible assets for impairment as required by ASC 350, "Intangibles - Goodwill and Other", either annually in the fourth quarter as of October 1, or whenever events and circumstances indicate impairment may have occurred. The Company recognizes goodwill in each of the business units (Paperboard, Recycling, Industrial Products and Folding Carton) and recognizes each business unit as a reporting unit for purposes of impairment testing.

The Company performed its annual goodwill impairment test as of October 1, 2017 and 2018. The Company elected to bypass a qualitative assessment for each of its reporting units and proceeded directly the quantitative impairment test. The Company conducted its quantitative impairment assessment for each of the four reporting units utilizing a combination of discounted cash flow method (income approach) as well as the public company peer company comparable market approach and merged and acquired company method (together, the market approach).

Discount rates, growth rates and cash flow projections are the assumptions that are most sensitive and susceptible to change as they require significant management judgement. In addition, certain future events and circumstances, including deterioration of market conditions, higher cost of capital, a decline in actual and expected consumption and demand, could result in changes to these assumptions and judgements. A revision of these assumptions could cause the fair value of the reporting unit to fall below its respective carrying amount. As for all of the Company's reporting units, if in future years, the reporting unit's actual results are not consistent with the Company's estimates and assumptions used to calculate fair value, the Company may be required to recognize material impairments to goodwill.

As of October 1, 2017, based on the assessment performed for the four reporting units, it was determined the estimated fair value of the Folding Carton reporting unit was less than the carrying amount for the unit by $100 million. Through the fourth quarter of 2017, the Folding Carton unit experienced a sustained decline in operating performance due primarily to higher commodity input costs. As a result, the Company recorded a non-cash, non-tax-deductible goodwill impairment charge of $31.7 million for goodwill assigned to the Folding Carton reporting unit during the fourth quarter of 2017.

As of October 1, 2018, the assessment was performed for all reporting units except Folding Carton, which was previously fully impaired based on the 2017 assessment. The fair values of each of the reporting units, Paperboard, Recycling and Industrial Products, exceeded the carrying amounts, resulting in no impairment, however the Recycling reporting unit reported a negative carrying amount of net assets.

Finite-lived Intangible Assets - The following table summarizes the net carrying amount of the finite- lived intangible assets as of December 31, 2018 and 2017 (in thousands):

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Life in Years
December 31, 2018				
Customer relationships	$ 239,416	$ (129,538)	$ 109,878	8.9
Leasehold interest	381	(381)	—	3.2
Non-compete agreement	3,670	(2,770)	900	4.8
Trademark and trade names	22,149	(5,195)	16,954	28.1
	$ 265,616	$ (137,884)	$ 127,732	10.4
December 31, 2017				
Customer relationships	$ 234,616	$ (102,764)	$ 131,852	8.9
Leasehold interest	381	(345)	36	3.2
Non-compete agreement	3,210	(1,420)	1,790	5.0
Trademark and trade names	22,149	(4,172)	17,977	28.1
	$ 260,356	$ (108,701)	$ 151,655	10.5

Amortization expense for the years ended December 31, 2018 and 2017 was $28.7 million and $28.2 million, respectively. The summary of the expected amortization expense for the Company's finite-lived intangible assets, excluding goodwill, for future years, is as follows (in thousands):

2019	$ 29,004
2020	27,362
2021	20,336
2022	14,114
2023	11,525
Thereafter	25,391
Total	$ 127,732

5. DISCLOSURES ABOUT FAIR VALUE OF FINANCIAL ASSETS AND LIABILITIES

The following tables set forth information regarding the Company's financial assets and financial liabilities that are measured at fair value at December 31, 2018 and 2017. ASC 820 requires that assets and liabilities carried at fair value be classified and disclosed in one of the following three categories:

Level 1 - Quoted market prices in active markets for identical assets or liabilities.

Level 2 - Observable market-based inputs or unobservable inputs that are corroborated by market data.

Level 3 - Unobservable inputs that are not corroborated by market data.

The fair value of the Company's restricted cash is based on quoted prices in active markets for identical assets. The Company generally applies fair value techniques on a nonrecurring basis associated with, (1) valuing potential impairment loss related to goodwill and indefinite-lived intangible assets accounted for pursuant to ASC 350, and (2) valuing potential impairment loss related to long-lived assets accounted for pursuant to ASC 360. The Company uses a combination of Level 2 and Level 3 inputs in the impairment assessment and measurement (Note 4).

The carrying amount of long-term debt approximates fair value as of December 31, 2018 and 2017, due to the variable rate terms of the long-term debt.

6. CREDIT FACILITY AND TERM LOAN

At December 31, 2018 and 2017, long-term debt consisted of the following (in thousands):

		2018		2017
Term loan	$	844,950	$	853,550
Senior credit facility		34,500		25,000
Less discount, net of accumulated amortization of $9,464 and $8,013 at December 31, 2018 and December 31, 2017, respectively		(4,644)		(6,095)
Less deferred debt costs, net of accumulated amortization of $23,451 and $20,341 at December 31, 2018 and December 31, 2017, respectively		(10,101)		(13,211)
Total debt		864,705		859,244
Less current maturities		(8,600)		(8,600)
Total long-term debt	$	856,105	$	850,644

The principal amount of total debt outstanding at December 31, 2018, maturing during the next five years and thereafter is as follows (in thousands):

2019	$	8,600
2020		8,600
2021		8,600
2022		819,150
Total	$	844,950

Senior Credit Facility - Effective May 1, 2013, Caraustar Industries, Inc. entered into an Asset Based Lending Agreement, ("ABL"), with Credit Suisse AG, serving as administrative agent and Wells Fargo Bank, N.A. serving as collateral agent. The ABL is secured by a first priority lien on the accounts receivable and inventory and a second priority lien on the fixed assets of Caraustar Industries, Inc. and its wholly owned domestic subsidiaries. The ABL originally provided for a revolving credit facility limit of $50 million. Effective December 22, 2014, Caraustar Industries, Inc. entered into the Second Amendment and Second Incremental Amendment, "Second Amendment", which increased the revolving credit facility limit to $100 million. Effective May 1, 2017, Caraustar Industries, Inc. entered into the Fifth Amendment, "Fifth Amendment", which extended the term of the credit facility. Proceeds from the borrowings under the ABL may be used for the financing of Caraustar Industries, Inc.'s working capital and general corporate needs.

The ABL is subject to a borrowing base limit (Borrowing Availability) calculated as the sum of the following: (a) 85.0% of the book value of eligible accounts receivable and (b) 52.9% of the book value of eligible inventory valued at lower of cost or market, and in all cases less all reserves established by the Agent, including the letter of credit outstanding balance. Availability as of December 31, 2018 is $45.1 million, net of $20.3 million in outstanding letters of credit and as of December 31, 2017 is $54.6 million, net of $20.4 million in outstanding letters of credit. There were $34.5 million and $25 million in borrowings outstanding under the ABL as of December 31, 2018 and December 31, 2017, respectively. Outstanding principal under the ABL bears interest at a rate equal to, at Caraustar Industries, Inc.'s option, either (i) the Alternate Base Rate, ("ABR"), plus the applicable margin, with no ABR floor, or (ii) the London Interbank Offered Rate, "LIBOR", plus the applicable margin, with no LIBOR floor. Pricing under the ABL is determined by reference to a pricing grid under which margins would be adjusted prospectively on a monthly basis as determined by the average availability for the calendar month most recently ended. Under the pricing grid, the applicable margins for the revolver range from 0.75% to 1.25% for ABR loans and from 1.75% to 2.25% for LIBOR loans. Accrued interest is payable on a quarterly basis. The undrawn portion of the revolver is subject to an unused line fee calculated at an annual rate of 0.375% when average excess availability is less than 50% and a rate of 0.250% when average excess availability is greater than or equal to 50%. Outstanding letters of credit are subject to the same LIBOR pricing grid with applicable rates ranging from 1.75% to 2.25%, plus an additional fee of 0.125%.

The ABL contains representations and warranties, financial and collateral reporting requirements, mandatory prepayment events, and events of default and affirmative and negative covenants, including without limitation, covenants that restrict, among other things, Caraustar Industries, Inc.'s ability to create liens, merge or consolidate, dispose of assets, incur indebtedness and guarantees, make certain investments or acquisitions, enter into certain transactions with affiliates, enter into sale and leaseback transactions, or change the nature of its business. A single financial covenant consists of a fixed charge coverage ratio of not less than 1.00 to 1.00 when excess availability falls below an amount equal to the greater of (A) 10.0% of the lesser of (1) the aggregate amount of the commitments then in effect and (2) the Borrowing Base then in effect, and (B) $7,500,000, and ending after excess availability is

greater than the amount noted in (A) above for 30 consecutive calendar days. The Company was in compliance with these covenants as of December 31, 2018. The ABL will mature on December 13, 2021.

Term Loan - On May 1, 2013, Caraustar Industries, Inc. entered into a Term Loan Credit Agreement in the aggregate principal amount of $350 million with Credit Suisse AG, serving as administrative agent and collateral agent. The term loan initially bore interest at 7.50% with interest payable quarterly on March 31, June 30, September 30 and December 31, beginning on September 30, 2013. Interest is based on Caraustar Industries, Inc.'s choice of either, (i) the Alternate Base Rate, "ABR", plus a margin of 5.25%, with an ABR floor of 2.25%, or (ii) LIBOR, plus a margin of 6.25%, with a LIBOR floor of 1.25%. The initial term loan was issued at a discount of $2.6 million to yield an effective interest rate of 7.66%.

On February 12, 2014, Caraustar Industries, Inc. entered into the First Amendment and First Incremental Amendment, "First Amendment", to the Term Loan Credit Agreement dated May 1, 2013. The Amendment provided for an incremental term loan in the principal amount of $100 million used solely to pay a cash dividend to shareholders. The first incremental term loan had the same terms and rates as the original Term Loan dated May 1, 2013. The proceeds of the first incremental term loan were used by the Company to pay a $100 million cash dividend on February 12, 2014 and to pay fees and expenses related to the amendment. The first incremental term loan was issued at a discount of $1.0 million to yield an effective interest rate of 7.74%.

On December 22, 2014, Caraustar Industries, Inc. entered into the Second Amendment and Second Incremental Amendment, "Second Amendment", to the Term Loan Credit Agreement dated May 1, 2013. The Amendment provided for an incremental term loan in the principal amount of $395 million. The loan was funded on February 17, 2015 and proceeds of the loan were used to acquire a business. The second incremental term loan had the same terms as the original Term Loan dated May 1, 2013, however, the interest rate was increased to 8.00% for all outstanding term loans. The second incremental term loan was issued at a discount of $7.9 million to yield an effective interest rate of 8.57%.

On July 31, 2015, Caraustar Industries, Inc. entered into the Third Amendment and Third Incremental Amendment, "Third Amendment", to the Term Loan Credit Agreement dated May 1, 2013. The Amendment provided for an incremental term loan in the principal amount of $75 million. The proceeds of the loan were used to acquire certain businesses. The third incremental term loan had the same terms and rates as amended by the Second Amendment, noted above. The third incremental term loan was issued at a discount of $750 thousand to yield an effective interest rate of 8.31%.

On March 14, 2017, Caraustar Industries, Inc. entered into the Fourth Amendment and First Refinancing Amendment, "Fourth Amendment", to the Term Loan Credit Agreement dated May 1, 2013. The Amendment provided for refinancing of the existing term loan in the principal amount of $860 million. The proceeds of the loan were used to satisfy the principal of the existing term loan. The term loan will mature on March 14, 2022, and is secured by a first priority lien on the fixed assets and a second priority lien on the accounts receivable and inventory of Caraustar Industries, Inc. and its wholly owned domestic subsidiaries. The term loan contains covenants that restrict the ability of Caraustar Industries, Inc. to incur additional indebtedness, incur liens, make certain investments, enter certain related-party transactions, or participate in any unpermitted asset sales. Caraustar Industries, Inc. was in compliance with these covenants as of December 31, 2018. Caraustar Industries, Inc. shall repay to the administrative agent on the last business day of each March, June, September and December, an amount equal to 1%, or $2.15 million, of the refinanced principal amount of the term loan as of the closing date of the fourth amendment and first refinancing amendment borrowing, March 14, 2017. To the extent not previously paid, the term loan shall be due and payable on the applicable maturity date, March 14, 2022.

The term loan includes an annual mandatory redemption related to "Excess Cash Flow". Prepayment is to be made within five business days of the earlier of 90 days after the end of each Excess Cash Flow period and the date on which annual financial statements are required to be delivered. Excess Cash Flow is reduced dollar-for-dollar by, to the extent funded by internally generated cash, voluntary prepayments of the Term Loan and all voluntary prepayments of Revolving Loans to the extent accompanied by a permanent reduction in commitments under the ABL Facility. "Excess Cash Flow" means, for any fiscal period, consolidated net income, as defined by the Term loan agreement, adjusted for non-cash charges and credits, changes in working capital, payments for capital expenditures, payments for indebtedness and other cash payments for items not included in consolidated net income, for such period. The Company was not required to make an Excess Cash Flow payment for the year ended December 31, 2018.

7. COMMITMENTS AND CONTINGENCIES

Leases - The Company leases certain buildings, machinery, and transportation equipment under operating lease agreements expiring at various dates through 2034. Certain rental payments for transportation equipment are based on a fixed rate, plus an additional contingent amount for mileage. Rental expense on operating leases for the years ended December 31, 2018 and 2017 is as follows (in thousands):

	2018	2017
Minimum rentals	$ 17,535	$ 17,175
Contingent rentals	239	790
Total	$ 17,774	$ 17,965

The schedule of future minimum rental payments required under leases that have initial or remaining noncancelable lease terms in excess of one year as of December 31, 2018, is as follows (in thousands):

2019	$ 15,781
2020	14,043
2021	9,937
2022	7,490
2023	5,831
Thereafter	12,278
Total	$ 65,360

Unclaimed Funds Owed to Former Shareholders - On May 1, 2013, the Company acquired all of the outstanding shares of stock of Caraustar Industries, Inc. and Subsidiaries. Under the merger agreement, the former Caraustar shareholders' each share was converted on the effective date of the merger into the right to receive a payment of cash. The Company engaged a paying agent to notify the former shareholders and make such payments. In May 2015, pursuant to the paying agent agreement, the paying agent transferred $18.3 million to the Company, which amount represents the aggregate amount that remained unclaimed at that time by the former shareholders. As of December 31, 2018 and 2017, the Company has recognized $0.4 million and $1.2 million, respectively, in other accrued liabilities related to the unclaimed funds.

Litigation - The Company, and certain of its subsidiaries, are defendants in a number of lawsuits and claims arising out of the conduct of their respective businesses. While the ultimate results of such suits or other proceedings cannot be predicted with certainty, the management of the Company believes the resolution of these other matters will not have a material adverse effect on its consolidated financial condition, results of operations or cash flows.

Environmental - By letters dated February 14, 2006 and June 2, 2006, the United States Environment Protection Agency ("EPA") notified The Newark Group, Inc. (the "Company") of its potential liability under Section 107(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA") relating to the Diamond Alkali Superfund Site, which includes a 17-mile stretch of the Lower Passaic River that EPA has denominated the Lower Passaic River Study Area ("LPRSA"). The Company is one of at least 70 potentially responsible parties ("PRPs") identified in this case. The EPA alleges that hazardous substances were released from the Company's now-closed Newark, New Jersey recycled paperboard mill into the Lower Passaic River. The EPA informed the Company that it may be potentially liable for response costs that the government may incur relating to the study of the LPRSA and for unspecified natural resource damages. The EPA demanded that the Company pay $2.8 million in unreimbursed past response costs on a joint and several liability basis. Alternatively, the EPA gave the Company the opportunity to obtain a release from these past response costs by joining the Cooperating Parties Group (the "Group") and agreeing to fund a Remedial Investigation and Feasibility Study ("RI/FS") by the EPA. The Company subsequently joined the Group.

In 2006, the EPA notified the Group that the cost of the RI/FS would exceed its initial estimates and offered the Group the opportunity to conduct the RI/FS by itself rather than reimburse the government for the additional costs incurred. The Group engaged in discussions with the EPA and the Group agreed to assume responsibility for the RI/FS pursuant to an Administrative Order on Consent entered into with EPA in 2007. The Group continues to conduct the RI/FS; however, in correspondence dated October 10, 2018, EPA directed the Group under the 2007 Administrative Order on Consent to prepare and submit a streamlined Feasibility Study for the LPRSA using adaptive management strategy to evaluate remedy alternatives for a source-control interim remedy for the sediments in the upper nine miles of the LPRSA. Cumulatively, as of December 31, 2018 and based upon the most recent estimates for the RI/FS, the Company has recorded expense of $3.9 million since joining the Group in 2006.

In June 2012, the Company, along with all current members of the Group entered into an Administrative Order on Consent with the EPA to perform the removal of soil to remediate dioxin contamination at river mile 10.9 of the Passaic River ("RM 10.9"). The EPA estimates the cost of the RM 10.9 removal at $24.0 million. The Company's allocated portion of the RM 10.9 removal costs is $375 thousand. Additionally, by letter dated August 2, 2007, the National Oceanic and Atmospheric Administration ("NOAA") of the United States Department of Commerce sent a letter to the Company and other companies identified as PRPs notifying them that it intended to perform an assessment of injuries to natural resources in connection with the release of hazardous substances at or from the Diamond Alkali Superfund Site. In this letter, the NOAA invited all of the identified PRPs, including the Company, to participate in the development and performance of this assessment. At the present time, the Company has not recorded any expense related to this matter.

In February 2009, Tierra Solutions, Inc. ("Tierra") and Maxus Energy Corporation ("Maxus") filed a third-party complaint in New Jersey state court against the Company and over 300 other defendants in an action brought against Tierra and Maxus by the State of New Jersey. The third-party complaint seeks contribution from the Company for amounts that Tierra and Maxus may owe to the State of New Jersey for damages related to alleged discharges of contaminants into the Passaic River. In January 2014, the Company paid $195 thousand as part of a settlement with all of the third-party defendants and has been dismissed from this litigation.

In April 2014, EPA issued a Focused Feasibility Study ("FFS") that proposed alternatives for the remediation of the lower 8 miles of the Lower Passaic River. On March 3, 2016, EPA issued its Record of Decision (ROD) for the lower 8 miles of the Lower Passaic River, which presented a bank-to-bank dredging remedy selected by the agency for the lower 8 miles and which EPA estimates will cost approximately $1.38 billion to implement.

On March 31, 2016, EPA sent the Company and more than ninety other PRPs a Notice of Potential Liability under 42 U.S.C. § 9607(a) and Commencement of Negotiations for Remedial Design of the remedy selected in the ROD. The March 2016 Notice stated EPA's intent to enter into an Administrative Order on Consent and Settlement Agreement for such Remedial Design (the "RD AOC") with one party, Occidental Chemical Corporation ("OCC"). The March 2016 Notice further stated that, after execution of the RD AOC, EPA intends to begin negotiation of a remedial action consent decree, "under which Occidental Chemical Corporation and the other 'major PRPs' will implement and/or pay for EPA's selected remedy for the lower 8.3 miles of the Lower Passaic River and to reimburse EPA's costs incurred for the Lower Passaic River." Finally, the March 2016 Notice stated EPA's belief that some PRPs "may be eligible for a cash out settlement with EPA for the lower 8.3 miles of the Lower Passaic River." EPA's March 2016 Notice provides no guidance as to the agency's definition of a "major PRP," which PRPs may be eligible for a "cash out" settlement, or the potential amount or range of such cash out settlements.

On September 30, 2016, OCC and EPA entered into the RD AOC under which OCC agreed to perform the Remedial Design for implementation of the Remedial Action selected in the ROD for the lower 8.3 miles of the Lower Passaic River. That work is ongoing. The Company is not currently subject to any obligation to undertake any work that may be contemplated by the ROD, including the RD AOC, nor has the Company determined its allocable share, if any, of such ROD costs or of the selected remedy.

On June 17, 2016, Maxus, an alleged indemnitor of OCC with respect to the LPRSA and alleged successor to Diamond Shamrock Chemicals Company, and certain affiliates filed for reorganization under Chapter 11 of the U.S. Bankruptcy Code. On July 14, 2017, an amended Chapter 11 Plan of Liquidation became effective. In connection with that Plan, Maxus, OCC, and certain other parties, including the Company, entered into a mutual contribution release agreement mutually releasing contribution claims under CERCLA or other applicable law with respect to certain, but not all, costs.

On March 30, 2017, EPA sent the Company and the other recipients of the agency's March 31, 2016 correspondence a letter entitled "Notice regarding Next Steps Including Initial Cash Out Settlement." In that letter, EPA provided notice that it had identified twenty parties, not including the Company, as candidates for early cash out settlements. EPA further stated that it would provide subsequent notice to parties that the agency considered to be associated with the release of dioxins, furans, or PCBs into the Lower Passaic River, which parties, EPA stated, should participate in implementing or funding the remedy selected for the lower 8.3 miles of the Lower Passaic River. Finally, EPA stated that a cash out settlement may be appropriate for parties who are neither candidates for early cash out settlements nor associated with the release of dioxins, furans, or PCBs into the Lower Passaic River. EPA stated that, because such a determination would require additional complex settlement analysis, the agency expected to use the services of a third-party allocator before extending cash out settlement offers to any such party. EPA stated that it would identify the parties that should be part of such an allocation process in a subsequent letter.

In September 18, 2017 correspondence, EPA concluded that all recipients of the agency's March 31, 2016 correspondence, except parties participating in the agency's early cash out settlements and five public entities, should participate in an allocation process overseen by a third-party allocator. The Company is participating in that allocation process, which is ongoing. Under the schedule developed by EPA and the allocator, the allocation is scheduled to be completed by summer 2020.

On June 30, 2018, OCC filed litigation in the U.S. District Court for the District of New Jersey styled *Occidental Chemical Corp. v. 21st Century Fox America, Inc., et al.*, Civil Action No. 2:18-CV-11273 (D.N.J.), that names the Company and approximately 119 other parties as defendants. OCC's Complaint alleges claims under CERCLA against all defendants for cost recovery, contribution, and declaratory judgment for costs OCC allegedly has incurred and will incur at the Diamond Alkali Superfund Site, including costs OCC allegedly has incurred and will incur under the RD AOC (other than those costs subject to the above-described mutual contribution release agreement). The litigation is in its early stages. The Company, through its joint defense group, the Small Parties Group, filed a Motion to Dismiss OCC's Complaint on November 30, 2018 and the Company has also joined two other Motions to Dismiss filed by other defendants in the litigation. The Court has not ruled on such motions.

Due to uncertainties inherent in these matters, management is unable to estimate the Company's potential exposure, including possible remediation or other environmental responsibilities that may result from these matters at this time. These uncertainties primarily include how EPA proceeds in connection with the issuance of the ROD, its March 2016 Notice, and the EPA-commenced allocation process; the completion and outcome of the RI/FS for the entire LPRSA; uncertainties as to the outcome of the OCC litigation and the potential for further litigation concerning costs and cost allocation; and the percentage of contamination/natural resource damage, if any, ultimately determined to be attributable to the Company and other parties. It is possible that the Company's ultimate liability resulting from these issues could be material.

8. STOCK-BASED COMPENSATION

The Company is authorized to issue 13,565 shares of common stock, par value $0.001 per share, to key employees, directors and consultants to the Company, and pursuant to the terms of awards granted under a management equity plan adopted by the Board of Directors of the Company. As of December 31, 2018 and 2017, there were 1,288 shares and 1,213 shares available, respectively, to be granted under this plan. The Company's policy for issuing shares upon an exercise of options is to issue new shares.

During the years ended December 31, 2018 and 2017, the Company granted 143 and 1,086 options, respectively. The weighted-average grant-date fair value for options granted during the years ended December 31, 2018 and 2017 was $2,927 and $251, respectively. The Company recorded approximately $214 thousand and $985 thousand of compensation expense for stock options for the years ended December 31, 2018 and 2017, respectively. As of December 31, 2018, there was approximately $1.6 million of unrecognized compensation cost related to non-vested stock options. The Company expects to expense the remaining unrecognized cost over a weighted-average period of 0.8 years. The Company has elected to amortize awards using the graded-vesting method.

The summary of the stock option activity for the year ended December 31, 2018 is as follows:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Life (In Years)
Outstanding - December 31, 2017	12,677	$ 1,340	6.4
Granted	143	2,500	
Forfeited or expired	(434)	2,006	
Exercised	(109)	1,233	
Outstanding - December 31, 2018	12,277	$ 1,331	5.4
Vested and expected to vest - December 31, 2018	12,277	$ 1,331	5.4
Options exercisable - December 31, 2018	9,912	$ 1,096	4.8

The fair value of the stock options at the date of the grant was estimated using the Black-Scholes option- pricing model with the following weighted average assumptions:

	2018	2017
Risk-free interest rate	2.53% - 2.60%	1.52% - 1.92%
Expected dividend yield	—%	—%
Expected option lives (years)	4.3 - 9.5	5.3 - 9.9
Expected volatility	34.5% - 37.8%	53.0% - 54.7%

The risk-free interest rate is based on U.S. Treasury interest rates whose term is consistent with the expected life of the stock options. Expected volatility is based on an analysis of historical and implied volatility of comparable companies. Expected option life is based on the simplified method. Expected dividend yield was not considered in the option pricing formula since the Company's debt agreements contain certain limitations on the payment of dividends and currently preclude the Company from declaring dividends, other than the dividend discussed in Note 6.

9. PENSION PLAN AND OTHER POSTRETIREMENT BENEFITS

Pension Plan and Supplemental Executive Retirement Plan - The Company accounts for its defined benefit pension plan pursuant to ASC 715 "Compensation - Retirement Benefits", which requires the Company's Consolidated Balance Sheet to reflect the funded status of the defined benefit pension plan (the "Pension Plan"), the Supplemental Executive Retirement Plan (SERP), and Other Postretirement Benefits plans. The funded status of the plans is measured as the difference between the plan assets at fair value and the projected benefit obligation.

Substantially all of the Company's Caraustar employees hired prior to December 31, 2004, participate in a noncontributory defined benefit Pension Plan. As part of the acquisition of The Newark Group, Inc., in 2015, the Company assumed a noncontributory defined benefit pension plan liability covering certain Newark employees hired before May 1, 2006. Effective January 1, 2016, the Company merged the Caraustar and Newark Pension Plans into a single consolidated Pension Plan. The Pension Plan calls for benefits to be paid to all eligible employees at retirement based primarily on years of service with the Company and compensation rates in effect near retirement. The Pension Plan's assets consist of shares held in collective investment funds. The Company's policy is to fund benefits attributed to employees' service to date as well as service expected to be earned in the future. The Company made contributions to the Pension Plan of $7.6 million for the year ended December 31, 2018. The Company made no contributions to the Pension Plan for the year ended December 31, 2017. Based on estimates at December 31, 2018, the Company expects to make contributions of $4.1 million during calendar year 2019.

In September 2004, the Company announced the suspension of any further pension benefits for certain employees covered by the defined benefit pension plan. The suspension was effective December 31, 2004, and froze the accrued pension benefits for employees not subject to a collective bargaining agreement and employees that did not qualify for continued benefits based on years of service and age requirements.

Certain executives and former executives, participate in a SERP, which provides retirement benefits to participants based on average compensation and years of credited service. Certain executives were given credited service for prior-industry services. In June 2010, the Company announced the suspension of any further SERP benefit accruals for all employees covered by the SERP. The suspension was effective June 23, 2010, and no additional benefits shall accrue under the plan for service or compensation earned on or after that date.

The SERP is unfunded at December 31, 2017 and 2016. The Company made contributions of $340 thousand and $278 thousand for the years ended December 31, 2018 and 2017, respectively. The Company expects to make contributions of $340 thousand in 2019. All contributions are made for benefit payments required under the plan.

Pension benefit for the Pension Plan includes the following components for the years ended December 31, 2018 and 2017, as follows (in thousands):

	Pension Plan	
	2018	2017
Service cost of benefits earned	$ 3,993	$ 691
Interest cost on projected benefit obligation	14,981	16,062
Expected return on plan assets	(24,477)	(23,304)
Amortization of prior service cost	10	10
Net pension benefit	$ (5,493)	$ (6,541)

Pension expense for the SERP includes the following components for the years ended December 31, 2018 and 2017, as follows (in thousands):

	SERP	
	2018	2017
Interest cost on projected benefit obligation	$ 139	$ 130
Amortization of prior service cost and loss	49	9
Net pension benefit	$ 188	$ 139

The components of net periodic benefit cost other than the service cost component are included within Other income (expense), net in the income statement.

Total net pension expense for 2019 is estimated to be $198 thousand for the SERP and a benefit of $2.8 million for the Pension Plan. The following amounts in accumulated other comprehensive income are expected to be recognized as components of the 2019 net pension expense (in thousands):

	Pension Plan	SERP
Estimated actuarial loss	$ —	$ 14
Prior service cost	10	44

Below is a summary of benefits for the Pension Plan and SERP that the Company expects to pay over the next 10 years (in thousands):

	Pension Plan	SERP
2019	$ 20,308	$ 340
2020	21,047	318
2021	21,578	310
2022	21,889	302
2023	22,367	292
2024-2028	115,312	1,288

The table below presents various obligation, plan asset and financial statement information for the Pension Plan and the SERP as of the Company's measurement dates, December 31, 2018 and 2017 (in thousands):

	Pension Plan		SERP	
	2018	2017	2018	2017
Change in benefit obligation:				
Projected benefit obligation — end of prior year	$ 399,283	$ 380,585	$ 3,728	$ 3,156
Service cost	487	691	—	—
Interest cost	14,981	16,062	138	130
Amendment - addition of three retired participants	—	—	—	610
Actuarial loss (gain)	(19,008)	20,613	(30)	110
Benefits paid	(19,519)	(18,668)	(340)	(278)
Projected benefit obligation — end of year	$ 376,224	$ 399,283	$ 3,496	$ 3,728
Change in plan assets:				
Fair value of plan assets — end of prior year	$ 343,554	$ 309,805	$ —	$ —
Actual return on plan assets	(21,670)	56,669	—	—
Employer contributions	7,650	—	340	278
Expenses	(2,792)	(4,252)	—	—
Benefits paid	(19,519)	(18,668)	(340)	(278)
Fair value of plan assets — end of year	$ 307,223	$ 343,554	$ —	$ —
Funded status of the plans — ending funded status	$ (69,001)	$ (55,730)	$ (3,496)	$ (3,728)
Amounts recognized in the consolidated balance sheets — accrued pension liability	$ (69,001)	$ (55,730)	$ (3,496)	$ (3,728)
Plans with accumulated benefit obligations in excess of plan assets:				
Projected benefit obligation	$ 376,224	$ 399,283	$ 3,496	$ 3,728
Accumulated benefit obligation	376,142	399,152	3,496	3,728
Plan assets	307,223	343,554	—	—
Pre-tax amounts in accumulated other comprehensive (income) loss:				
Prior service cost	$ (10)	$ (10)	$ (44)	$ 610
Net actuarial loss	26,423	(8,500)	(52)	101
Total	$ 26,413	$ (8,510)	$ (96)	$ 711

The determination of the Company's pension projected benefit obligation is dependent on its selection of certain assumptions used by actuaries in calculating such amounts. Those assumptions include, among others, the weighted-average discount rate, the weighted-average expected rate of return on plan assets, and the weighted-average rate of compensation increase. The summary of the significant assumptions used to determine the projected benefit obligations at December 31, 2018 and 2017, is as follows:

	Pension Plan		SERP	
	2018	2017	2018	2017
Weighted-average discount rate	4.24%	3.84%	4.24%	3.84%
Weighted-average rate of compensation increase	2.50%	2.50%	N/A	N/A

The following table is a summary of the significant assumptions to determine net periodic pension expense (benefit) for the years ended December 31, 2018 and 2017, as follows:

	2018	2017
Weighted-average discount rate	3.84%	4.30%
Weighted-average expected rate of return on plan assets	7.25%	7.75%
Weighted-average rate of compensation increase	2.50%	2.50%

	SERP	
	2018	2017
Weighted-average discount rate	3.84%	4.30%
Weighted-average expected rate of return on plan assets	N/A	N/A
Weighted-average rate of compensation increase	N/A	N/A

In developing the discount rate for the Pension Plan, the Company evaluated input from its actuaries, including estimated timing of its obligation payments and yields for investment grade long-term bonds with maturities that approximate the weighted-average term of the obligations of the pension plan. The weighted-average discount rate, determined on this basis was 4.24% and 3.84% at December 31, 2018 and 2017, respectively. Future actual net pension expense (benefit) and projected benefit obligations will depend on future investment performance, changes in future discount rates, and various other factors related to current and former participating employees in the Company's pension plan.

In developing the Company's weighted-average expected rate of return on plan assets for the Pension Plan, the Company evaluated such criteria as return expectations by asset class, historical returns by asset class, and long-term inflation assumptions. The Company concluded that the expected weighted-average rate of return 7.25% and 7.75% for the years ended December 31, 2018 and 2017, respectively, was appropriate.

The weighted-average asset allocations for the Pension Plan at December 31, 2018 and 2017, were as follows (in thousands):

	2018		2017	
Large capitalization U.S. equity	$ 92,673	30 %	$ 107,659	31 %
Mid capitalization U.S. Equity	8,022	3	9,614	3
Small capitalization U.S. Equity	7,993	3	9,529	3
International Equity	59,479	19	63,854	19
Total Equity	168,167	55	190,656	56
Total fixed income	139,056	45	152,898	44
Total assets	$ 307,223	100 %	$ 343,554	100 %

The following table summarizes the level within the fair value hierarchy used to determine the fair value of the assets of the Company's Pension Plan at December 31, 2018 (in thousands):

	Carrying Amount	Prices in Active Markets For Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Large capitalization U.S. equity	$ 92,673	$—	$ 92,673	$—
Mid capitalization U.S. Equity	8,022	—	8,022	—
Small capitalization U.S. Equity	7,993	—	7,993	—
International Equity	59,479	—	59,479	—
Fixed Income (intermediate-term maturities)	139,056	—	139,056	—
Total assets	$ 307,223	$—	$ 307,223	$—

The following table summarizes the level within the fair value hierarchy used to determine the fair value of the assets of the Company's Pension Plan at December 31, 2017 (in thousands):

	Carrying Amount	Quoted Prices in Active Markets For Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Large capitalization U.S. equity	$ 107,659	$—	$ 107,659	$—
Mid capitalization U.S. Equity	9,614	—	9,614	—
Small capitalization U.S. Equity	9,529	—	9,529	—
International Equity	63,854	—	63,854	—
Fixed Income (intermediate-term maturities)	152,898	—	152,898	—
Total assets	$ 343,554	$—	$ 343,554	$—

The equity funds in the table above classified as Level 2 include underlying assets consisting of traded mutual funds that are invested within a privately managed separate investment account that uses pooled funds to purchase the underlying assets.

The Company's investment policy includes the following objectives:

- Provide a long-term investment return greater than the actuarial assumptions.
- Maximize investment return commensurate with appropriate levels of risk.
- Comply with the Employee Retirement Income Security Act of 1974 (ERISA) by investing the funds in a manner consistent with ERISA's fiduciary standards.

The Company's defined benefit pension committee has implemented a liability-driven investments (LDI) model for investing pension plan assets over the next three to four years. The LDI model attempts to match the liability terms associated with the Pension Plan to the assets of the Pension Plan by investing in fixed income investments with maturity dates that approximate the maturity dates of the Plan's liabilities. All future contributions and transfers of non-contract investments will be allocated to the fixed income investments. All future benefit payments and expenses and transfers to non-contract investments are paid out of the fixed income investments. Within ten days of each quarter-end, the fixed income investments are rebalanced, based on a pre-determined allocation of bond funds with varying maturity dates and the equity investments are rebalanced, based on a pre-determined allocation of equity funds. There is no rebalancing between the equity and fixed income asset classes, only rebalancing within each class.

Other Postretirement Benefits - The Company provides postretirement medical benefits to retired employees of certain of its subsidiaries. The Company accounts for these postretirement medical benefits in accordance with ASC 715 "Compensation - Retirement Benefits".

Net periodic postretirement benefit cost for the years ended December 31, 2018 and 2017 included the following components (in thousands):

	2018	2017
Service cost of benefits earned	$ 2	$ 10
Amortization of gain	(55)	(37)
Interest cost on accumulated post-retirement benefit obligation	27	45
Net pension benefit	$ (26)	$ 18

Postretirement benefits totaling $116 thousand and $123 thousand were paid for the years ended December 31, 2018 and 2017, respectively. Contributions of $102 thousand are estimated for 2019.

Total net postretirement benefits expense for 2019 is estimated to be $58 thousand for the other postretirement benefit plans. A credit of $83 thousand for net gain in accumulated other comprehensive income is expected to be recognized as a component of the 2019 net postretirement benefit plan expense.

Below is a summary of postretirement benefits that the Company expects to pay over the next 10 years (in thousands):

	Postretirement Benefits
2019	$ 102
2020	94
2021	87
2022	79
2023	72
2024 - 2028	260

The accrued postretirement benefit cost at December 31, 2018 and 2017, is a component of other long-term liabilities and consists of the following (in thousands):

	2018	2017
Change in benefit obligation:		
Projected benefit obligation — end of prior year	$ 951	$ 1,321
Service cost	2	9
Interest cost	27	45
Actuarial gain	(142)	(301)
Benefits paid	(116)	(123)
Projected benefit obligation — end of year	$ 722	$ 951
Net amount recognized in balance sheet - Other long-term liabilities	$ (722)	$ (951)
Pre-tax amounts in accumulated other comprehensive loss:		
Prior service credit	$ 20	$ 22
Net actuarial gain	(762)	(675)
Total	$ (742)	$ (653)

The accumulated postretirement benefit obligations at December 31, 2018 and 2017, were determined using a weighted-average discount rate of 3.66% and 3.07%, respectively. Increasing the assumed health care costs trend rate by one percentage point would have no effect on the accumulated postretirement benefit obligation or the net periodic postretirement benefit for the year ended December 31, 2018. Decreasing the assumed health care costs trend rate by one percentage point would have no effect on the accumulated postretirement benefit obligation or the net periodic postretirement benefit for the year ended December 31, 2018.

401(k) Retirement Savings Plan - Legacy Caraustar 401(k) Plan - The Company sponsors and maintains a 401(k) retirement savings plan that permits participants to make contributions by salary deductions pursuant to Section 401(k) of the Internal Revenue Code. During 2018 and 2017, the Company matched 100% of contributions up to 3% of an employee's salary and 50% of all contributions that are greater than 3% of the employee's salary but less than or equal to 5% of an employee's salary.

For the years ended December 31, 2018 and 2017, the Company recorded matching expense of approximately $7.6 million and $6.8 million, respectively, related to the 401(k) plan. In addition, the Company also makes an additional "Co-retirement contribution" to all nonunion employees 401(k) accounts based upon each employee's years of service ranging from 1% for employees with less than five years of service up to 4% for employees with 25 or more years of service. For the years ended December 31, 2018 and 2017, the Company recorded "Co-retirement contribution" expense of approximately $5.4 million and $3.3 million, respectively, related to the 401(k) plan.

10. INCOME TAXES

On December 22, 2017, the Tax Cuts and Jobs Act (the “Tax Act”) was enacted into law. Among its many provisions, the Tax Act reduced the U.S. federal corporate tax rate from 35% to 21%, effective in 2018. GAAP requires the impact of tax legislation to be recorded in the period of enactment. Accordingly, in 2017, the Company recorded a one-time income tax benefit of ($21.2 million) related to the re-measurement of the deferred taxes associated with the corporate tax rate reduction.

Shortly after enactment of the Tax Act, the SEC issued guidance under Staff Accounting Bulletin No. 118 (SAB 118) allowing for a measurement period of up to one year after the enactment date of the Tax Act to finalize the accounting of the related tax impacts under ASC 740. We applied the guidance in SAB 118 when accounting for the enactment-date effects of the Act in 2017 and throughout 2018. As of December 31, 2017, we had not completed our accounting for all of the enactment-date income tax effects of the Act under ASC 740, Income Taxes, for the following aspects: one-time transition tax and tax on global intangible low-taxed income. As of December 31, 2018, the Company had completed its accounting for the tax effects of The Act.

The Tax Act imposed a one-time repatriation transition tax on certain undistributed earnings of foreign subsidiaries, effective for years ended on or before December 31, 2017. The repatriation transition tax is a tax on previously untaxed accumulated and current earnings and profits (E&P) generated by our foreign subsidiaries. To determine the amount of the transition tax, we must determine, in addition to other factors, the amount of post-1986 E&P of the relevant subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings. At December 31, 2017, the Company recorded a cumulative charge of $2.3 million which was fully offset against net operating losses.

For tax years beginning after December 31, 2017, The Act introduces new provisions for U.S. taxation of certain global intangible low-taxed income (“GILTI”). The Company has made the policy election to record taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the “period cost method”). At December 31, 2018, the Company recorded a gross period adjustment of $1.2 million.

Income tax benefit (provision) for the years ended December 31, 2018 and 2017 consisted of the following (in thousands):

	2018	2017
Current:		
Federal	$ 157	$ —
State	(2,195)	(829)
Foreign	(398)	(828)
Uncertain tax position benefits	—	—
	$ (2,436)	$ (1,656)
Deferred:		
Federal	$ (1,337)	$ 43,661
State	(2,095)	(266)
Foreign	61	61
Uncertain tax position benefits	(107)	(142)
	$ (3,478)	$ 43,314
Income tax benefit (provision)	$ (5,914)	$ 41,658

The following summary reconciles taxes from the federal statutory rate to the effective income tax rate for the years ended December 31, 2018 and 2017:

	2018	2017
Federal	21.0 %	35.0 %
State taxes, net of federal benefit	35.3 %	(0.3)%
Other permanent differences	(0.1)%	(17.8)%
Valuation allowance	(9.8)%	16.3 %
Tax credits	(12.4)%	6.4 %
Federal tax rate differential	— %	38.8 %
Uncertain tax positions	0.7 %	(0.2)%
Expiring capital losses	— %	(12.7)%
Other	4.6 %	(0.5)%
Effective tax rate	39.3 %	65.0 %

While the effective tax rate for the year ended December 31, 2018 is higher than expected due to state taxes, net of federal benefit, the effective tax rate for the year ended December 31, 2018 decreased from the year ended December 31, 2017 primarily due to the reduction in the federal statutory tax rate related to the passage of the Act. The effective tax rate for the year ended December 31, 2017 increased primarily due to the re-measurement of the deferred taxes associated with the corporate tax rate reduction (federal tax rate differential).

Significant components of the Company's deferred income tax assets and liabilities at December 31, 2018 and 2017 are summarized as follows (in thousands):

	2018	2017
Deferred income tax assets:		
Pension liabilities	$ 15,314	$ 12,553
Postretirement benefits other than pension	166	225
Compensation accruals	4,986	3,616
Accrued liabilities	2,807	2,195
Debt issuance costs	3,717	4,856
Original issue discount	441	—
Net operating losses and credits	24,877	38,680
Capital loss carryforward	—	—
Inventory capitalization	1,012	996
Interest limitation (IRC Section 163(j))	8,455	—
Other	459	401
Total gross deferred income tax assets	62,234	63,522
Valuation allowance	(6,446)	(7,918)
Total deferred income tax assets	55,788	55,604
Deferred income tax liabilities:		
Depreciation and amortization	(83,192)	(83,917)
Total deferred income tax liabilities	(83,192)	(83,917)
Net deferred income taxes	$ (27,404)	$ (28,313)

At December 31, 2017, the Company adopted ASU 2016-09, "Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting," which simplified several aspects of the accounting for share-based payment transactions, including the income tax consequences, forfeitures, classification of awards as either equity or liabilities, and classification of awards on the statement of cash flows. The adoption of ASU 2016-09 resulted in a $417,000 reduction to the deferred tax liability at December 31, 2017.

In February 2018, the FASB issued ASU No. 2018-02, Income Statement-Reporting Comprehensive Income (Topic 220) Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, to address a specific consequence of The Act by allowing a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from The Act's reduction of the U.S. federal corporate income tax rate. The ASU is effective for all entities for annual periods beginning after December 15, 2018, with early adoption permitted, and is to be applied either in the period of adoption or retrospectively to each period in which the effect of the change in the U.S. federal corporate income tax rate in The Act is recognized. The Company early adopted ASU 2018-02 on January 1, 2018 and as a result recorded a net increase to beginning retained earnings and decrease to accumulated other comprehensive income (loss) of $1.7 million to reclassify the income tax effects of The Act on the Company's pension plans.

The use of federal and certain state net operating loss carry forwards may be limited if there is an ownership change as defined by Internal Revenue Code Section 382. The Company completed Section 382 studies and concluded that ownership changes occurred on December 31, 2007, August 20, 2009, May 1, 2013, and February 17, 2015. As a result, the future utilization of the Company's federal and certain state net operating losses is subject to limitations under Internal Revenue Code Section 382. Pre- acquisition federal net operating losses as of December 31, 2018 are $272 thousand and are subject to an annual Section 382 limitation of $3.8 million. The pre-acquisition federal net operating losses will expire in 2029, if unutilized.

With the acquisition of The Newark Group on February 17, 2015, the Company acquired federal operating loss carry forwards of $134.5 million. These losses are subject to a Section 382 annual limitation of $6.0 million. The acquisition of The Newark Group generated net unrealized built-in gains of $240.4 million substantially increasing utilization of operating losses beginning in 2015 through 2019. Acquired federal operating loss carry forwards remaining at December 31, 2018 were $8.0 million and will begin to expire in varying amounts in 2026, if unutilized.

State net operating losses are similarly limited by Internal Revenue Code Section 382, however, in varying amounts dependent on state tax laws. The amount of the Company's gross net operating losses, for state and local reporting purposes, were $13.3 million and $15.3 million at December 31, 2018 and 2017, respectively, and these operating losses will expire in varying amounts between 2018 and 2037, if not utilized. Of the $13.3 million of state gross net operating losses remaining as of December 31, 2018, $2.9 million of the state losses were acquired from The Newark Group. The tax-affected amounts of the Company's state net operating losses were $10.5 million ($2.3 million from The Newark Group) and $12.1 million ($3.4 million from The Newark Group) at December 31, 2018 and 2017, respectively. The valuation allowance related to certain state net operating losses which are not expected to be utilized due to expiration and Section 382 limitation is $6.4 million and $6.6 million at December 31, 2018 and December 31, 2017, respectively.

As of December 31, 2017, the Company had recorded a valuation allowance of $1.4 million related to various state credits that were not expected to be utilized prior to expiration. As December 31, 2018, due to changing facts and circumstances impacting the realization of the state credits, the deferred tax asset associated with the credits was written off. Accordingly, the valuation allowance associated with the state credits was reversed to income tax benefit.

As of December 31, 2018 and 2017, the Company has generated deferred tax assets related to research and development credits of $8.4 million and $6.9 million. These credits would begin to expire in 2034, respectively.

As of December 31, 2018 and 2017, the total uncertain tax positions were $579 thousand and $472 thousand, respectively. These unrecognized tax benefits are presented in the financial statements as a reduction to a deferred tax asset associated with federal tax credits pursuant to the accounting standards set forth in ASU 2013-11.

The Company recognizes accrued interest and penalties related to liabilities associated with uncertain tax positions in the income tax provision. As of December 31, 2018 and 2017, accrued interest and penalties related to liabilities associated with uncertain tax positions was $33 thousand and $77 thousand, respectively. As of December 31, 2018, the Company does not expect its liabilities associated with uncertain tax positions to change significantly over the next 12 months, other than expiration of statutes of limitations. The years that remain subject to examination by the Internal Revenue Service include 2014 through 2018.

ASC 740-30-25 provides that a US company should record a temporary difference for book over tax basis differences on foreign subsidiaries if they are presumed to reverse in the foreseeable future. The most common book over tax basis difference is undistributed earnings. The establishment of deferred taxes is generally required on book over tax basis differences attributable to undistributed earnings of a foreign subsidiary, unless the indefinite reversal criteria of ASC 740-30-25-17 are met.

The Tax Act imposes a one-time deemed repatriation transition tax on a U.S. shareholder's pro-rata share of certain undistributed and previously untaxed post-1986 foreign earnings and profits of specified foreign corporations in which the shareholder has an investment. The imposition of this tax may eliminate, in part or in whole, the need for U.S. federal deferred taxes on what is often

the largest component of a company's overall outside basis difference in its foreign investments (i.e., unremitted earnings). However, it does not eliminate the potential need for deferred taxes related to withholding taxes, states taxes, or other income taxes that might be incurred from the reversal of an entity's overall outside basis difference as described in ASC 740-30-25-6 and ASC 740-30-25-18(a). The Company has recorded a deferred tax liability of $16 thousand in 2018 for the current and future potential tax impacts related to withholding taxes on future distributions of income from the Company's foreign subsidiaries.

11. RESTRUCTURING AND IMPAIRMENT COSTS

The Company incurs restructuring costs, including severance and other termination costs, and other exit costs related to the closure of certain facilities and redeployment of resources between facilities.

The summary of asset impairment charges and losses on disposal, restructuring and other costs and the restructuring liability as of and for the years ended December 31, 2018 and 2017, is as follows (in thousands):

	Asset impairment charges and loss on disposals	Severance and other termination costs	Other exit costs	Restructuring liability total	Total
Liability balance at December 31, 2016		$ 896	$ 182	$ 1,078	
2017 costs	$ 4,886	61	1,435	1,496	$ 6,382
2017 payments		(91)	(1,835)	(1,926)	
Liability balance at December 31, 2017		$ 866	$ (218)	$ 648	
2018 costs	$ (302)	74	724	797	$ 495
2018 payments		(183)	(809)	(992)	
Liability balance at December 31, 2018		$ 757	$ (303)	$ 454	

Asset impairment charges and loss on disposals, severance and other termination benefit costs and other exit costs are aggregated and reported as restructuring and impairment costs in the Consolidated Statements of Comprehensive Loss.

Certain facilities were closed in years prior to 2017. Some of these facilities are still being marketed for sale and will continue to incur utility, maintenance and security costs until the properties are sold. Upon sale, these restructuring activities will be completed.

The following table summarizes restructuring and impairment costs for those plans initiated, but not completed as of December 31, 2018, and accounted for under ASC 420 "Exit or Disposal Cost Obligations" (in thousands):

	2018
Cumulative costs	$ 31,658
Estimated costs to complete initiatives	467
Total estimated costs of initiatives	$ 32,125

12. RELATED PARTY TRANSACTIONS

The Company pays an annual management fee to HIG Capital Management, Inc., the principal shareholder of the Company. For each of the years ended December 31, 2018 and 2017, the Company paid management fees in the amount of $4.0 million, which is recognized in Selling, General and Administrative expenses on the Consolidated Statements of Comprehensive Loss.

13. ACCUMULATED OTHER COMPREHENSIVE LOSS

The following table summarizes the changes in accumulated other comprehensive loss by component for the years ended December 31, 2018 and 2017 (in thousands):

	Defined benefit pension and postretirement plans	Foreign currency items	Total
Balance at December 31, 2016	$ (8,063)	$ (5,818)	$ (13,881)
Other comprehensive income (loss) before reclassifications	6,323	3,784	10,107
Amounts reclassified from accumulated other comprehensive income (loss)	(19)	—	(19)
Balance at December 31, 2017	$ (1,759)	$ (2,034)	$ (3,793)
Other comprehensive income (loss) before reclassifications	(20,528)	(1,018)	(21,546)
Amounts reclassified from accumulated other comprehensive income (loss)	(59)	—	(59)
Impact of accounting standard adoption	(1,745)	—	(1,745)
Balance at December 31, 2018	$ (24,091)	$ (3,052)	$ (27,143)

14. SUBSEQUENT EVENTS

In accordance with authoritative guidance, the Company evaluates all events and transactions that occur after the consolidated balance sheet date, but before financial statements are issued for possible recognition or disclosure.

On December 20, 2018, Greif, Inc., a global leader in industrial packaging products and services, announced that it has entered into a definitive agreement to acquire Paperboard Parent, Inc. and its subsidiaries, in a cash transaction valued at $1.8 billion. The transaction closed on February 11, 2019. The Company’s outstanding principal balances and accrued interest of its senior credit facility and term loan were satisfied with proceeds from the transaction.

Subsequent events have been evaluated through April 19, 2019, the date the financial statements were issued.

Exhibit 99.2

UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

On December 20, 2018, two subsidiaries of Greif, Inc. (the “Company” and, together with its subsidiaries, “Greif” or “we”), Greif Packaging LLC, a Delaware limited liability company and a wholly owned subsidiary of the Company (“Buyer”), and Greif USA II LLC, a Delaware limited liability company and a wholly owned subsidiary of Buyer (“MergerSub”), entered into a definitive Agreement and Plan of Merger (the “Merger Agreement”) with Paperboard Parent, Inc., a Delaware corporation (“Paperboard Parent” and, together with its subsidiaries, “Paperboard”), and Peach Representative LLC, a Delaware limited liability company, solely in its capacity as the sellers’ representative. The Merger Agreement provided that Buyer was to acquire Paperboard pursuant to a transaction in which MergerSub was to be merged with and into Paperboard Parent, with Paperboard Parent surviving the merger as the surviving corporation (the “Caraustar Acquisition”). On February 11, 2019, the Company completed the Caraustar Acquisition.

As a result of the Caraustar Acquisition, the Company acquired Caraustar Industries, Inc. (“Caraustar”), a wholly owned subsidiary of Paperboard Parent, for a total merger consideration of $1,862.3 million, which reflects the purchase price of $1,800.00 million and adjustments as set forth in the Merger Agreement. We refer to the closing date of the Caraustar Acquisition as the “Acquisition Closing Date.”

We financed the purchase price payable in connection with the Caraustar Acquisition with the proceeds from the sale of $500.0 million in unsecured senior notes issued by the Company on the Acquisition Closing Date (the “Notes”) and borrowings under the new senior secured credit facilities described below (the “New Senior Secured Credit Facilities”). In addition, a portion of the proceeds from the New Senior Secured Credit Facilities and the Notes was used to finance the redemption of the Company’s existing 7.75% senior unsecured notes due August 1, 2019 (the “2019 Senior Notes”).

On the Acquisition Closing Date, we amended and restated the credit agreement governing our existing senior secured credit facilities (our “Existing Senior Secured Credit Facilities”) to establish the New Senior Secured Credit Facilities consisting of:
- a $800.0 million senior secured revolving credit facility (consisting of a $600.0 million multicurrency facility and a $200.0 million U.S. dollar facility) expiring 2024 (the “New Senior Secured Revolving Facility”);
- a $1,275.0 million senior secured term loan A facility maturing 2024 (the “New Term Loan A-1”); and
- a $400.0 million senior secured term loan A facility maturing 2026 (the “New Term Loan A-2”).

We refer to any debt financing (including the New Senior Secured Credit Facilities and the Notes) that we incurred to fund the Caraustar Acquisition as the “Debt Financing.” We refer to the Caraustar Acquisition and the related Debt Financing as the "Caraustar Transactions."

The unaudited pro forma condensed combined financial statements show the historical financial positions and results of operations of Greif and Paperboard and have been prepared to illustrate the effect of the Caraustar Acquisition, including pro forma adjustments related to the Caraustar Transactions, as described in these accompanying notes to the unaudited pro forma condensed combined financial statements.

The unaudited pro forma condensed combined financial information gives effect to the following:
- application of the acquisition method of accounting under the provision of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 805 "Business Combinations" ("ASC 805") to reflect the total merger consideration of $1,862.3 million (the purchase price, as adjusted);
- the incurrence of borrowings of $1,275.0 million under the New Term Loan A-1 and borrowings of $400.0 million under the New Term Loan A-2, along with utilization of $334.0 million of the New Senior Secured Revolving Facility;
- the refinancing of, and repayment of borrowings under, our Existing Senior Secured Credit Facilities;
- the issuance of $500.0 million of Notes;
- the redemption of the 2019 Senior Notes, including payment of the make whole premium in connection therewith;
- the payment of all existing indebtedness of Paperboard, including Caraustar’s existing credit agreement dated as of May 1, 2013, as amended, and Caraustar’s existing ABL credit agreement dated as of May 1, 2013, as amended; and
- payment of fees and expenses incurred in connection with the Caraustar Transactions.

Greif used the net proceeds from the sale of the Notes, in lieu of any borrowings under a $700 million bridge facility that had been provided by various lenders (“the Bridge Facility”), to finance a portion of the Caraustar Acquisition. As the Bridge Facility was not funded, only the immediate write-off of the costs associated with the Bridge Facility is reflected in the unaudited pro forma condensed combined financial information.

The unaudited pro forma condensed combined balance sheet as of October 31, 2018 is presented as if the Caraustar Transactions occurred on October 31, 2018. The unaudited pro forma condensed combined statement of operations for the year ended October 31, 2018, is presented as if the Caraustar Transactions occurred on first day of the fiscal period. As Greif and Paperboard have different fiscal year-ends, the Greif statement of operations has been reflected for the year ended October 31, 2018. The Paperboard statement of operations has been reflected for the twelve-month period ended December 31, 2018. The historical consolidated financial information has been adjusted on a pro forma basis to reflect factually supportable items that are directly attributable to the Caraustar Transactions and, with respect to the statements of operations only, expected to have a continuing impact on consolidated results of operations.

The unaudited pro forma condensed combined financial statements have been prepared using the acquisition method of accounting for business combinations under generally accepted accounting principles of the United States of America (“US GAAP”). Under this method of accounting, Greif is the acquirer and the purchase price for Paperboard is allocated to the underlying assets acquired and liabilities assumed based on their respective fair values with any excess purchase price allocated to goodwill.

Certain reclassifications have been made to the historical financial statements of Paperboard to conform to the presentation in Greif’s financial statements.

The pro forma adjustments to the historical financial statements are based on currently available information, and in many cases are based on estimates and preliminary information. The assumptions underlying the pro forma adjustments are described in the accompanying notes to these unaudited pro forma financial statements. The Company believes such assumptions are reasonable under the circumstances and reflect the best currently available estimates and judgments.

In connection with the plan to integrate the operations of Greif and Paperboard, Greif anticipates that nonrecurring charges, such as costs associated with systems implementation, severance and other costs related to exit or disposal activities, will be incurred. Greif is not able to determine the timing, nature and amount of these charges as of the date of filing this Form 8-K/A. However, these charges will affect the results of operations of Greif and Paperboard, as well as those of the combined company following the completion of the Caraustar Transactions, in the period in which they are recorded. The unaudited pro forma condensed combined statements of earnings do not include the effects of the costs associated with any restructuring or integration activities resulting from the Caraustar Acquisition, as they are nonrecurring in nature and not factually supportable at this time. Additionally, the unaudited pro forma adjustments do not give effect to any nonrecurring or unusual restructuring charges that may be incurred as a result of the integration of Greif and Paperboard. The unaudited pro forma condensed combined financial statements do not reflect any revenue enhancements, anticipated synergies, operating efficiencies, or cost savings that may be achieved related to these transactions, nor do they reflect any costs or expenditures that may be required to achieve any possible synergies.

Management has made significant estimates and assumptions in its determination of the pro forma adjustments and the preliminary allocation of consideration transferred. In the opinion of management, all adjustments necessary to present fairly the unaudited pro forma condensed combined financial information have been made. As the unaudited pro forma condensed combined financial information has been prepared based on these preliminary estimates, the final amounts recorded may differ materially from the information presented.

The unaudited pro forma condensed combined financial information is not necessarily indicative of the combined financial position or results of operations that would have been realized had the Caraustar Transactions occurred as of the dates indicated, nor is it meant to be indicative of any anticipated combined financial position or future results of operations that Greif will experience after the Caraustar Transactions. The preparation of the unaudited pro forma condensed combined financial statements and related adjustments required management to make certain assumptions and estimates.

The unaudited pro forma condensed combined financial statements should be read together with:

- the accompanying notes to the unaudited pro forma condensed combined financial statements;
- Greif’s historical audited financial statements and accompanying notes included in the Company’s Annual Report on Form 10-K for the year ended October 31, 2018, filed with the Securities and Exchange Commission ("SEC") on December 20, 2018; and
- Paperboard’s historical audited financial statements and accompanying notes as of and for the years ended December 31, 2018 and 2017, included as Exhibit 99.1 to this Form 8-K/A.

Greif, Inc.

Unaudited Pro Forma Condensed Combined Statement of Income

For the Twelve Months Ended October 31, 2018

(in millions, except per share amounts)	Historical Greif for the year ended 10/31/2018	Historical Paperboard for the year ended 12/31/2018	Pro Forma Adjustments	Notes	Pro Forma Condensed Combined
Net sales	$ 3,873.8	$ 1,373.8	$ (12.6)	5a	$ 5,235.0
Costs of products sold	3,084.9	1,107.4	(10.0)	5a	4,182.3
Gross profit	788.9	266.4	(2.6)		1,052.7
Selling, general and administrative expenses	397.9	182.2	22.6	5b	602.7
Restructuring charges	18.6	0.5	—		19.1
Non-cash asset impairment charges	8.3	—	—		8.3
(Gain) loss on disposal of properties, plants and equipment, net	(5.6)	2.2	—		(3.4)
(Gain) loss on disposal of businesses, net	(0.8)	—	—		(0.8)
Operating profit	370.5	81.5	(25.2)		426.8
Interest expense, net	51.0	73.8	19.4	5c	144.2
Pension settlement charge	1.3	—	—		1.3
Other expense (income), net	18.4	(5.4)	—		13.0
Income (loss) before income tax expense and equity earnings of unconsolidated affiliates, net	299.8	13.1	(44.6)		268.3
Income tax expense (benefit)	73.3	5.9	(11.6)	5d	67.6
Equity earnings of unconsolidated affiliates, net of tax	(3.0)	—	—		(3.0)
Net income (loss)	229.5	7.2	(33.0)		203.7
Net income attributable to noncontrolling interests	(20.1)	—	—		(20.1)
Net income attributable to Greif, Inc.	$ 209.4	$ 7.2	$ (33.0)		$ 183.6
Basic earnings per share attributable to Greif, Inc.:					
Class A common stock	$ 3.56			5e	$ 3.12
Class B common stock	$ 5.33			5e	$ 4.67
Diluted earnings per share attributed to Greif, Inc.:					
Class A common stock	$ 3.55			5e	$ 3.12
Class B common stock	$ 5.33			5e	$ 4.67

Greif, Inc.

Unaudited Pro Forma Condensed Combined Statement of Financial Position

As of October 31, 2018

(in millions)	Historical Greif as of 10/31/2018	Adjusted Historical Paperboard as of 12/31/2018 (Note 2)	Pro Forma Adjustments	Notes	Pro Forma Condensed Combined
Pro Forma Combined Balance Sheet:					
ASSETS					
Current assets					
Cash and cash equivalents	$ 94.2	$ 8.3	$ 57.5	4a, 4b	$ 160.0
Trade accounts receivable, net	456.7	143.6	—		600.3
Inventories, net	289.5	98.4	9.3	4c	397.2
Assets held for sale	4.4	—	—		4.4
Prepaid expenses	39.8	6.4	—		46.2
Other current assets	92.1	2.4	—		94.5
	976.7	**259.1**	**66.8**		**1,302.6**
Long-term assets					
Goodwill	776.0	263.1	596.7	4d	1,635.8
Other intangible assets, net of amortization	80.6	127.7	558.9	4e	767.2
Deferred tax assets	7.9	6.6	—		14.5
Assets held by special purpose entities	50.9	—	—		50.9
Pension assets	10.4	—	—		10.4
Other long-term assets	100.4	1.4	—		101.8
	1,026.2	**398.8**	**1,155.6**		**2,580.6**
Properties, plants and equipment, net	**1,191.9**	**458.6**	**—**	4f	**1,650.5**
Total assets	**$ 3,194.8**	**$ 1,116.5**	**$ 1,222.4**		**$ 5,533.7**

(in millions)	Historical Greif as of 10/31/2018	Adjusted Historical Paperboard as of 12/31/2018 (Note 2)	Pro Forma Adjustments	Notes	Pro Forma Condensed Combined
LIABILITIES AND SHAREHOLDERS' EQUITY					
Current liabilities					
Accounts payable	$ 403.8	$ 101.2	$ —		$ 505.0
Accrued payroll and employee benefits	114.4	20.4	—		134.8
Restructuring reserves	4.4	—	—		4.4
Current portion of long-term debt	18.8	8.6	56.4	4g	83.8
Short-term borrowings	7.3	—	—		7.3
Other current liabilities	121.5	34.5	—		156.0
	670.2	**164.7**	**56.4**		**891.3**
Long-term liabilities					
Long-term debt	884.1	856.1	1,025.0	4h	2,765.2
Deferred tax liabilities	179.8	34.0	145.3	4i	359.1
Pension liabilities	78.0	72.2	(5.0)	4j	145.2
Postretirement benefit obligations	10.7	0.7	—		11.4
Liabilities held by special purpose entities	43.3	—	—		43.3
Contingent liabilities and environmental reserves	6.8	—	—		6.8
Mandatorily redeemable noncontrolling interests	8.6	—	—		8.6
Long-term income tax payable	46.1	—	—		46.1
Other long-term liabilities	77.5	7.5	—		85.0
	1,334.9	**970.5**	**1,165.3**		**3,470.7**
Commitments and Contingencies					
Redeemable Noncontrolling Interests	35.5	—	—		35.5
Equity					
Total Paperboard shareholders' deficit	—	(18.7)	18.7	4k	—
Total Greif, Inc. shareholders' equity	1,107.8	—	(18.0)	4k	1,089.8
Noncontrolling interests	46.4	—	—		46.4
Total shareholders' equity	**1,154.2**	**(18.7)**	**0.7**		**1,136.2**
Total liabilities and shareholders' equity	**$ 3,194.8**	**$ 1,116.5**	**$ 1,222.4**		**$ 5,533.7**

Note 1 - Basis of Presentation

The unaudited pro forma condensed combined financial statements show the historical financial positions and results of operations of Greif and Paperboard and have been prepared to illustrate the effect of the Caraustar Acquisition, including pro forma assumptions and adjustments related to the Caraustar Acquisition and contemporaneous financing transactions, as described in these accompanying notes to the unaudited pro forma condensed combined financial statements.

The Caraustar Acquisition is being accounted for as a business combination using the acquisition method of accounting under the provisions of Accounting Standards Codification Topic 805, “Business Combinations”, and using the fair value concepts defined in ASC Topic 820, “Fair Value Measurements” (“ASC 820”). ASC 820 defines the term “fair value” and sets forth the valuation requirements for any asset or liability measured at fair value, expands related disclosure requirements and specifies a hierarchy of valuation techniques based on the nature of the inputs used to develop fair value measures. Fair value is defined in ASC 820 as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date”. This is an exit price concept for the valuation of the asset or liability. In addition, market participants are assumed to be buyers and sellers in the principal (or the most advantageous) market for the asset or liability. Many of these fair value measurements can be highly subjective, and it is possible that other professionals, applying reasonable judgment to the same facts and circumstances, could develop and support a range of alternative estimated amounts. Under ASC 805, all assets acquired and liabilities assumed are recorded at their acquisition date fair value.

The allocation of the purchase price as reflected in the unaudited pro forma condensed combined financial statements is based upon management’s preliminary estimates of the fair market value of the assets acquired and liabilities assumed in the Caraustar Acquisition. This allocation of the purchase price depends upon certain estimates and assumptions, all of which are preliminary and, in some instances, are incomplete and have been made solely for the purpose of developing the unaudited pro forma condensed combined financial statements. Any adjustments to the preliminary estimated fair value amounts could have a significant impact on the unaudited pro forma condensed combined financial statements contained herein and our future results of operations and financial position.

Assets acquired and liabilities assumed in a business combination that arise from contingencies must be recognized at fair value if the fair value can be reasonably estimated. If the fair value of an asset or liability that arises from a contingency cannot be determined, the asset or liability would be recognized in accordance with ASC 450, “Contingencies” (“ASC 450”). If the fair value is not determinable and the ASC 450 criteria are not met, no asset or liability would be recognized. At this time, to the extent they exist, management does not have sufficient information to determine the fair value of contingencies of Paperboard that have been acquired. If information becomes available which would permit management to determine the fair value of these acquired contingencies, these amounts will be adjusted in accordance with ASC 820.

The unaudited pro forma condensed combined balance sheet as of October 31, 2018 is presented as if the Caraustar Transactions occurred on October 31, 2018. The unaudited pro forma condensed combined statement of operations is presented as if the Caraustar Transactions occurred on November 1, 2017. As Greif and Paperboard have different fiscal year-ends, the Greif statement of operations has been reflected for the year ended October 31, 2018. The Paperboard statement of operations has been reflected for the year ended December 31, 2018. The historical consolidated financial information has been adjusted on a pro forma basis to reflect factually supportable items that are directly attributable to the Caraustar Transactions and, with respect to the statements of operations only, expected to have a continuing impact on consolidated results of operations.

As stated above, the unaudited pro forma condensed combined balance sheet gives effect to the Caraustar Acquisition as if the Caraustar Acquisition occurred on October 31, 2018. The pro forma adjustments to reflect the acquired assets and assumed liabilities of Paperboard are based on the fair value of Paperboard assets and liabilities as of December 31, 2018, which is the last day of Paperboard’s 2018 fiscal year. Given the proximity of these balance sheet dates, no adjustment was deemed necessary to align these dates in the presentation of the unaudited pro forma condensed combined balance sheet. Similarly, the unaudited historical Paperboard statement of operations information is based upon the year ending December 31, 2018. Management is not aware of any material transactions entered into by Paperboard from November 1, 2017 to December 31, 2017. All amounts presented within these notes to the unaudited pro forma condensed combined financial statements are in millions, except per share data.

Note 2 - Reclassification Adjustments

Acquisition accounting rules require evaluation of certain assumptions, estimates or determination of financial statement classifications which are completed during the measurement period as defined in current accounting standards. Certain balances were reclassified from the Paperboard audited financial statements so that their presentation would be consistent with that of the Company. These adjustments and reclassifications are based on management’s preliminary analysis. When management completes

a final review as required by acquisition accounting rules, additional differences or reclassifications may be identified that, when conformed, could have a material impact on these unaudited pro forma combined financial statements.

Refer to the table below for a summary of reclassification adjustments made to present Paperboard's consolidated balance sheet as of December 31, 2018 to conform with that of Greif:

Paperboard Parent, Inc.
Consolidated Balance Sheet
as of December 31, 2018
(in millions)

Paperboard Historical Consolidated Balance Sheet Line Items	Greif Historical Consolidated Balance Sheet Line Items	Paperboard Historical Consolidated Balance Sheet	Reclassification Adjustments	Tickmark	Paperboard Adjusted Historical Consolidated Balance Sheet
ASSETS	**ASSETS**				
Current assets	**Current assets**				
Cash and cash equivalents	Cash and cash equivalents	$ 8.3			$ 8.3
Receivables - net of allowances for doubtful accounts, returns, and discounts of $2.9	Trade accounts receivable, net	143.6			143.6
Inventories, net	Inventories, net	98.4			98.4
Prepaid expenses	Prepaid expenses	5.0	1.4	(i)	6.4
Prepaid income taxes		1.4	(1.4)	(i)	—
Other current assets	Other current assets	2.4			2.4
		259.1	**—**		**259.1**
Long-term assets	**Long-term assets**				
Goodwill	Goodwill	263.1			263.1
Other intangible assets, net of amortization	Other intangible assets, net of amortization	127.7			127.7
Deferred tax assets	Deferred tax assets	6.6			6.6
Restricted cash and cash equivalents		1.4	(1.4)	(ii)	—
Other long-term assets	Other long-term assets	—	1.4	(ii)	1.4
		398.8	**—**		**398.8**
Properties, plants and equipment	**Properties, plants and equipment**				
Land	Land	66.2			66.2
Buildings	Buildings	87.3			87.3
Machinery and equipment	Machinery and equipment	449.7			449.7
Capital projects in progress	Capital projects in progress	49.4			49.4
Total property, plant, and equipment		**652.6**	**—**		**652.6**
Accumulated depreciation	Accumulated depreciation	(194.0)			(194.0)
Property, plant, and equipment, net		**458.6**	**—**		**458.6**
Total assets	**Total assets**	**$ 1,116.5**	**$ —**		**$ 1,116.5**

(i) Reclassified all prepaid income taxes to prepaid expenses to conform with Greif's presentation.

(ii) Reclassified restricted cash and cash equivalents to other long-term assets to conform with Greif's presentation.

Paperboard Historical Consolidated Balance Sheet Line Items	Greif Historical Consolidated Balance Sheet Line Items	Paperboard Historical Consolidated Balance Sheet	Reclassification Adjustments	Tickmark	Paperboard Adjusted Historical Consolidated Balance Sheet
LIABILITIES AND SHAREHOLDERS' EQUITY	**LIABILITIES AND SHAREHOLDERS' EQUITY**				
Current liabilities	**Current liabilities**				
Accounts payable	Accounts payable	$ 101.2			$ 101.2
Accrued payroll and employee benefits	Accrued payroll and employee benefits	20.4			20.4
Current portion of long-term debt	Current portion of long-term debt	8.6			8.6
Other current liabilities	Other current liabilities	34.5			34.5
		164.7	**—**		**164.7**
Long-term liabilities	**Long-term liabilities**				
Long-term debt, less current maturities	Long-term debt	856.1			856.1
Deferred tax liabilities	Deferred tax liabilities	34.0			34.0
Pension liabilities	Pension liabilities	72.2			72.2
	Postretirement benefit obligations	—	0.7	(iii)	0.7
Other long-term liabilities	Other long-term liabilities	8.2	(0.7)	(iii)	7.5
		970.5	**—**		**970.5**
Total Paperboard shareholders' deficit	**Total Paperboard shareholders' deficit**	(18.7)			(18.7)
Total liabilities and shareholders' equity	**Total liabilities and shareholders' equity**	**$ 1,116.5**	**$ —**		**$ 1,116.5**

(iii) Reclassified postretirement benefit obligations out of other long-term liabilities to conform with Greif's presentation.

Note 3 - Fair Value of Consideration Transferred in Connection with the Acquisition

(in millions)

Calculation of consideration	Amount	Note
Consideration paid to Paperboard shareholders, per Merger Agreement	$ 957.6	
Cash paid for repayment of Paperboard's historical debt	888.4	(i)
Aggregate exercise price of Paperboard vested options settled as part of the Caraustar Transactions	16.3	(ii)
Preliminary fair value of estimated total merger consideration	$ 1,862.3	

(i) All of the outstanding historical debt of Paperboard was repaid in connection with the merger. Based on the amounts of historical debt reflected as outstanding on Paperboard's balance sheet as of December 31, 2018, a total of $888.4 million was repaid, comprised of short-term debt of $8.6 million and long-term debt of $870.9 million. In addition, accrued interest and related fees of approximately $8.9 million associated with the debt was paid in connection with such repayment.

(ii) In connection with the merger, all outstanding Paperboard options immediately prior to the acquisition date became fully vested and were settled by Greif as prescribed by the Merger Agreement.

Note 4 - Unaudited Pro Forma Condensed Combined Statement of Financial Position Adjustments

The estimated purchase price and the allocation of the estimated purchase discussed below are preliminary. An independent third-party appraiser has performed a preliminary valuation. The final allocation of the purchase price will be determined at a later date and is dependent on a number of factors, including the final evaluation of the fair value of Paperboard's tangible and identifiable intangible assets acquired and liabilities assumed. Such final adjustments may be material.

(4a) Reflects the sources and uses of funds relating to the Caraustar Transactions as follows:

(in millions)

Description		Amount	Tickmark
Sources:			
New Term Loan A-1	$	1,275.0	(i)
New Term Loan A-2		400.0	(i)
Notes		500.0	(ii)
New Senior Secured Revolving Facility		334.0	(iii)
	$	2,509.0	
Uses:			
Cash consideration paid	$	(1,846.0)	(iv)
Refinancing of Existing Senior Secured Credit Facilities and 2019 Senior Notes		(531.3)	(v)
Transaction costs		(65.9)	(vi)
	$	(2,443.2)	
Pro forma adjustment	$	65.8	

(i) Greif borrowed $1,275.0 million by entering into a New Term Loan A-1 under the New Senior Secured Credit Facilities with various financial institutions and $400.0 million by entering into a New Term Loan A-2 under the New Senior Secured Credit Facilities.

(ii) Greif issued $500.0 million of Notes in connection with the Caraustar Acquisition.

(iii) Upon closing of the transaction, Greif borrowed $80.0 million under the $800.0 million New Senior Secured Revolving Facility, which is part of the New Senior Secured Credit Facilities. An additional $254.0 million was borrowed under the New Senior Secured Revolving Facility for redemption of the 2019 Senior Notes.

(iv) Reflects the cash consideration paid to Paperboard's shareholders described in Note 3.

(v) As part of the Caraustar Acquisition, Greif prepaid on April 1, 2019, the 2019 Senior Notes and on February 11, 2019, refinanced its Existing Senior Secured Credit Facilities with the New Senior Secured Credit Facilities.

(vi) Reflects the cash paid for transaction costs related to the Caraustar Acquisition incurred or to be incurred by Greif, including debt issuance, investment banking, attorney, consultant, independent accountant, and other external costs. A portion of the financing costs were capitalized as described in Note 4h.

(4b) Elimination of Paperboard's cash, as the cash was not part of the consideration:

(in millions)

Adjust Cash to zero from December 31, 2018 balance:		Historical Paperboard as of 12/31/2018		Pro Forma Adjustment
Eliminate Cash and Cash Equivalents	$	8.3	$	(8.3)

(4c) The fair value of finished goods and work-in-process inventory represents the estimated selling price less cost to dispose and a reasonable profit allowance for completing the selling effort.

(in millions)

Adjust inventory to fair market value per valuation:		Historical Paperboard as of 12/31/2018		Fair Value		Pro Forma Adjustment
Inventories, net	$	98.4	$	107.7	$	9.3

(4d) Prior to the Caraustar Acquisition, Paperboard's historical balance sheet included $263.1 million of goodwill. As a result of the Caraustar Acquisition, goodwill is calculated as the difference between the fair value of the consideration expected to be transferred and the values assigned to the identifiable tangible and intangible assets acquired and liabilities assumed.

(in millions)		
Consideration	$	1,862.3
Book value of net assets acquired		(18.7)
Adjusted for:		
Repayment of historical Paperboard debt as of December 31, 2018		864.7
Elimination of historical Paperboard goodwill as of December 31, 2018		(263.1)
Elimination of historical Paperboard cash and cash equivalents as of December 31, 2018		(8.3)
Adjusted book value of net assets acquired:		574.6
Adjustments to:		
Inventories, net		9.3
Intangibles		558.9
Deferred income tax liabilities		(145.3)
Pension liabilities		5.0
FV of assets/liabilities assumed, excluding goodwill		1,002.5
Goodwill		859.8
Historical Paperboard goodwill as of December 31, 2018	$	(263.1)
Goodwill pro forma adjustment	$	596.7

(4e) The fair value of the customer relationships is determined using the "multi-period excess earnings model", which estimates value based on the excepted future excess earnings stream attributable to a particular asset. The fair value of other intangible assets is determined using the "income approach", which is a valuation technique that provides an estimate of the fair value of an asset based on market participant expectation of the cash flows an asset would generate over its remaining useful life. The fair value of the trademarks is determined using the "relief from royalties method", which uses the net present value of all forecast royalties to represent the value of the brand.

Some of the more significant assumptions inherent in the development of the identifiable intangible assets valuations, from the perspective of a market participant, include the estimated after tax cash flows that will be received for the intangible asset, the appropriate discount rate selected in order to measure the inherent risk in each future cash flow stream, the assessment of each asset's life cycle, competitive trends impacting the asset and each cash flow stream, as well as other factors. For these and other reasons, actual results may vary significantly from estimated results. The methodologies and significant assumptions utilized to value the intangible assets are as follows:

(in millions)

Intangible asset adjustments:	**Historical Paperboard as of 12/31/2018**	**Fair Value**	**Pro Forma Adjustment**
Customer relationships	$ 109.9	$ 670.0	$ 560.1
Other intangible assets	0.9	1.6	0.7
Trademarks	16.9	15.0	(1.9)
Total	$ 127.7	$ 686.6	$ 558.9

(4f) The Company has not yet determined the fair value of property and equipment acquired, and accordingly the historical carrying value has been used in the preliminary price allocation reflected in the unaudited pro forma condensed combined statement of financial position. No adjustment was made to the unaudited pro forma condensed combined statements of income, but any difference between the fair value and the historical carrying value will have a direct impact to future earnings through depreciation expense.

(4g) Reflects the extinguishment of the current portion of Paperboard's and Greif's long term debt and the establishment of the current portion of Greif's new long term debt.

(in millions)

Current portion of long term debt adjustments:		**Amount**
Proceeds		
Add New Term Loan A-1 current portion of long term debt	$	63.8
Add New Term Loan A-2 current portion of long term debt		20.0
	$	83.8
Repayments		
Eliminate Paperboard's historical current portion of long term debt as of December 31, 2018	$	(8.6)
Eliminate Greif's historical current portion of long term debt as of October 31, 2018		(18.8)
	$	(27.4)
Pro forma adjustment	$	56.4

(4h) Reflects the extinguishment of Paperboard's long term debt, Greif's Existing Senior Secured Credit Facilities and Greif's 2019 Senior Notes and the establishment of Greif's New Senior Secured Credit Facilities and new Notes.

(in millions)

Long-term debt adjustments:		**Amount**
Proceeds		
New Term Loan A-1	$	1,211.2
New Term Loan A-2		380.0
Notes		500.0
New Senior Secured Revolving Facility		334.0
Less: new deferred financing fees to be capitalized		(37.1)
	$	2,388.1
Repayments		
Paperboard Historical Debt as of December 31, 2018		
Eliminate Paperboard's historical long term debt (gross)	$	(870.9)
Eliminate Paperboard's historical deferred financing fees		10.1
Eliminate Paperboard's historical discount		4.7
	$	(856.1)
Greif Historical Debt as of October 31, 2018		
Eliminate Greif's 2019 Senior Notes		(250.0)
Eliminate Greif's 2017 credit agreement (gross; term portion)		(258.7)
Eliminate Greif's 2017 credit agreement (revolver portion)		(3.8)
Eliminate Greif's 2019 Senior Notes discount		0.9
Eliminate Greif's historical deferred financing fees		4.6
	$	(507.0)
Pro forma adjustment	$	1,025.0

(4i) Reflects deferred income tax liabilities resulting from preliminary fair value adjustments. The estimate of deferred tax liabilities was determined based on the book and tax basis differences of the net assets acquired using the current statutory rate

of Greif of 26%. This estimate of deferred income tax liabilities is preliminary and is subject to change based upon the Company’s final determination of the fair values of tangible and identifiable intangible assets acquired and liabilities assumed by jurisdiction.

(4j) Reflects an adjustment to pension liabilities based on a preliminary fair value assessment:

(in millions)

Pension liabilities adjustments:	**Historical Paperboard as of 12/31/2018**	**Fair Value**	**Pro Forma Adjustment**
Pension liabilities	$ 72.2	$ 67.2	$ (5.0)

(4k) Reflects an adjustment to equity based upon the following:

(in millions)

Retained earnings adjustments:	**Amount**
Eliminate Paperboard's accumulated deficit as of December 31, 2018	$ 119.1
Eliminate Paperboard's historical minimum pension liabilities balance as of December 31, 2018	24.1
Eliminate Paperboard's historical foreign currency translation balance as of December 31, 2018	3.1
Eliminate Paperboard's historical additional paid in capital balance as of December 31, 2018	(127.6)
Removal of total Paperboard historical shareholders' deficit	$ 18.7
Eliminate historical Greif 2019 Senior Notes discount as of October 31, 2018	(0.9)
Eliminate historical Greif deferred financing costs as of October 31, 2018	(4.6)
Aggregate exercise price of Paperboard vested options attributable to precombination service	16.3
Estimated transaction expenses	(28.8)
Pro forma adjustment	$ 0.7

Note 5 - Unaudited Pro Forma Condensed Combined Statement of Income Adjustments

Refer to the items below for reconciliation of the adjustments reflected in the unaudited pro forma condensed combined statements of income:

(5a) Sales, cost of goods sold, and gross profit eliminated due to the business activity between Greif and Paperboard.

(in millions)

Intercompany Sales, Cost of Goods Sold, and profit elimination	**Sales**	**Cost of Goods Sold**	**Margin**
Historical Greif, Inc. sales to historical Paperboard	$ (3.1)	$ (2.3)	$ (0.8)
Historical Paperboard sales to historical Greif, Inc.	(9.5)	(7.7)	(1.8)
Pro forma adjustments	$ (12.6)	$ (10.0)	$ (2.6)

(5b) The newly acquired intangible assets, which consist of customer relationships, trademarks, non-compete agreements, and leases will be amortized on a straight-line basis over their expected useful lives of 1 - 15 years. Pro forma amortization expense includes amortization expense for the newly identified intangible assets less the amortization expense on Paperboard's historical intangible assets.

(in millions)

Intangible asset adjustments:	**Fair Value**	**Estimated Useful Life (years)**	**Amortization Expense**
Customer Relationships	$ 670.0	15	$ 44.7
Trademarks	15.0	3	5.0
Other	1.6	1	1.6
	$ 709.6		$ 51.3
Less: Paperboard historical amortization for the twelve month period ended December 31, 2018			28.7
Pro forma net adjustment to selling, general and administrative expense			$ 22.6

(5c) To consummate the Caraustar Acquisition, Greif incurred approximately $2,509.0 million of new indebtedness. Based on the assumed interest rates on the Debt Financing related to the Caraustar Acquisition, the pro forma adjustment to interest expense was calculated as follows:

(in millions)	**Twelve Month Period**
Changes to interest expense:	
Add: Estimated interest expense incurred related to Debt Financing	$ 120.7
Add: Estimated amortization of deferred financing costs	6.5
Less: Historical Greif interest expense incurred related to the 2019 Senior Notes, the Existing Senior Secured Credit Facilities, and the related amortization of debt cost	34.0
Less: Historical Paperboard interest expense incurred, inclusive of amortization of debt costs	73.8
Pro forma adjustment to interest expense:	$ 19.4

Greif estimates the weighted-average interest rate on the new indebtedness to be approximately 4.8%. A hypothetical 1/8 percent increase or decrease in the expected weighted-average interest rate, including from an increase in LIBOR, would increase or decrease interest expense on Greif's financing by approximately $3.1 million annually.

(5d) Represents the income tax effect of the Caraustar Acquisition pro forma adjustments using an estimated statutory rate of 26%. Because the adjustments contained in this unaudited pro forma combined financial information are based on estimates, the effective tax rate will likely vary from the effective rate in periods subsequent to the Caraustar Acquisition. Adjustments to established deferred tax assets and liabilities as well as the recognition of additional deferred tax assets and liabilities upon detailed analysis of the acquired assets and assumed liabilities may occur in conjunction with the finalization of the purchase accounting, and these items could be material.

(5e) The unaudited pro forma condensed combined basic and diluted earnings per share calculations are based on the consolidated basic and diluted weighted average shares of Greif. The pro forma basic and diluted weighted average shares outstanding are based on the historic weighted average of Greif's shares.

(in millions, except per share amounts)		**Year ended 10/31/2018**
Numerator		
Numerator for basic and diluted EPS –		
Pro Forma net income attributable to Greif, Inc.	$	183.6
Cash dividends		100.0
Undistributed net income (loss) attributable to Greif, Inc.		83.6
Denominator		
Denominator for basic EPS –		
Class A common stock		25.90
Class B common stock		22.00
Denominator for diluted EPS –		
Class A common stock		26.00
Class B common stock		22.00
Pro Forma EPS Basic		
Class A common stock	$	3.12
Class B common stock	$	4.67
Pro Forma EPS Diluted		
Class A common stock	$	3.12
Class B common stock	$	4.67