ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors

Ingredion Incorporated:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Ingredion Incorporated and subsidiaries (the Company) as of December 31, 2024 and 2023, the related consolidated statements of income, comprehensive income, equity and redeemable equity, and cash flows for each of the years in the three-year period ended December 31, 2024, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2024 and 2023, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2024, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2024, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 20, 2025 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Reportable Segments

As discussed in Notes 3 and 12 to the consolidated financial statements, the Company had a change in its reportable segments as of January 1, 2024.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Evaluation of the fair value of certain reporting units to reassign goodwill as a result of the Company's reorganization of its reporting structure

As discussed in Note 3 to the consolidated financial statements, the carrying value of the Company's goodwill was $906 million as of December 31, 2024. On January 1, 2024, the Company announced the reorganization of its business operations, which resulted in changes to the Company's reportable segments and in the composition of its reporting units. As part of the reorganization, on January 1, 2024, the Company performed a quantitative assessment to reassign goodwill to its reporting units using a relative fair value allocation approach. The fair value of the reporting units was determined using a combination of the income and market approaches.

We identified the evaluation of the fair value of certain reporting units as of January 1, 2024 as a result of the reorganization of its reporting structure as a critical audit matter. Subjective and challenging auditor judgment was required to evaluate certain assumptions used in determining the fair value of certain reporting units, including projected revenue growth rates and discount rates as they were based on subjective determinations of market and economic conditions. Changes to these assumptions could have had a significant impact to the fair value used for purposes of the reassignment of goodwill. Additionally, the audit effort associated with the evaluation of the discount rates required specialized skills and knowledge.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's segment reorganization process, including controls over the development of the projected revenue growth rates and the discount rates used in the determination of the fair value of certain reporting units. We evaluated the Company's projected revenue growth rates by comparing to industry and market data and to the historical results of the business. In addition, we involved valuation professionals with specialized skills and knowledge, who assisted in evaluating the Company's discount rates used in the valuation by comparing them against discount rate ranges that were independently developed using publicly available market data for comparable entities.

Sufficiency of audit evidence over inventory

As discussed in Notes 1 and 14 to the consolidated financial statements, the Company held $1,187 million of inventory as of December 31, 2024. Inventories are comprised of raw materials, work-in-process, finished goods, and manufacturing supplies that are physically located at certain of the Company's locations.

We identified the evaluation of the sufficiency of audit evidence over raw materials and finished goods inventory as a critical audit matter. Evaluating the sufficiency of audit evidence obtained required subjective auditor judgment because of the geographical dispersion of the Company's raw materials and finished goods inventory and the need to determine the nature and extent of procedures to be performed.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over raw materials and finished goods inventory, including determining the Company locations for which those procedures were performed. For locations where procedures were performed, we evaluated the design and tested the operating effectiveness of certain internal controls over the inventory process. We also involved IT professionals with specialized skills and knowledge, who assisted in testing certain general IT and application controls related to the Company's process of recording raw materials and finished goods inventory. We selected a sample of raw materials and finished goods inventory and counted inventory quantities through location visits during the year. For a selection of raw materials and finished goods inventory held at certain third-party warehouse locations, we confirmed the quantity held with third-party vendors. We also selected a sample of transactions used in the calculation of raw materials and finished goods inventory and compared inventory prices to underlying documentation, including third-party invoices. In addition, we evaluated the overall sufficiency of audit evidence obtained over raw materials and finished goods inventory by assessing the results of procedures performed, including the appropriateness of the nature and extent of audit effort.

/s/ KPMG LLP

We have served as the Company's auditor since 1997.

Chicago, Illinois
February 20, 2025

Ingredion Incorporated
Consolidated Statements of Income
(dollars and shares in millions, except per share amounts)

	Year Ended December 31,		
	2024	2023	2022
Net sales	$ 7,430	$ 8,160	$ 7,946
Cost of sales	5,639	6,411	6,452
Gross profit	1,791	1,749	1,494
Operating expenses	782	789	715
Other operating (income) expense, net	(1)	(8)	13
Restructuring/impairment charges	127	11	4
Operating income	883	957	762
Financing costs	39	114	99
Net gain on sale of business	(90)	—	—
Other non-operating expense (income)	3	4	(5)
Income before income taxes	931	839	668
Provision for income taxes	277	188	166
Net income	654	651	502
Less: Net income attributable to non-controlling interests	7	8	10
Net income attributable to Ingredion	$ 647	$ 643	$ 492
Earnings per common share attributable to Ingredion common shareholders:			
Weighted average common shares outstanding:			
Basic	65.5	66.0	66.2
Diluted	66.6	67.0	67.0
Earnings per common share of Ingredion:			
Basic	$ 9.88	$ 9.74	$ 7.43
Diluted	$ 9.71	$ 9.60	$ 7.34

See the Notes to the Consolidated Financial Statements.

Ingredion Incorporated
Consolidated Statements of Comprehensive Income
(dollars in millions)

	Year Ended December 31,		
	2024	2023	2022
Net income	$ 654	$ 651	$ 502
Other comprehensive income:			
(Losses) gains on cash flow hedges, net of income tax effect of $12, $40 and $53	(36)	(111)	157
Losses (gains) on cash flow hedges reclassified to earnings, net of income tax effect of $32, $21 and $69	88	57	(199)
Actuarial gains (losses) on pension and other postretirement obligations, settlements and plan amendments, net of income tax effect of $6, $— and $1	17	(2)	(4)
Losses on pension and other postretirement obligations reclassified to earnings, net of income tax effect of $—	1	1	—
Currency translation adjustment	(100)	47	(105)
Comprehensive income	624	643	351
Less: Comprehensive income attributable to non-controlling interests	8	2	—
Comprehensive income attributable to Ingredion	$ 616	$ 641	$ 351

See the Notes to the Consolidated Financial Statements.

Ingredion Incorporated
Consolidated Balance Sheets
(dollars and shares in millions, except per share amounts)

	As of December 31,	
	2024	2023
Assets		
Current assets:		
Cash and cash equivalents	$ 997	$ 401
Short-term investments	11	8
Accounts receivable, net	1,093	1,279
Inventories	1,187	1,450
Prepaid expenses and assets held for sale	67	261
Total current assets	3,355	3,399
Property, plant and equipment, net	2,264	2,370
Intangible assets, net	1,264	1,303
Other non-current assets	561	570
Total assets	$ 7,444	$ 7,642
Liabilities and stockholders' equity		
Current liabilities:		
Short-term borrowings	$ 44	$ 448
Accounts payable	604	778
Accrued liabilities and liabilities held for sale	633	546
Total current liabilities	1,281	1,772
Long-term debt	1,787	1,740
Other non-current liabilities	486	480
Total liabilities	3,554	3,992
Share-based payments subject to redemption	60	55
Redeemable non-controlling interests	7	43
Ingredion stockholders' equity:		
Preferred stock — authorized 25.0 shares — $0.01 par value, none issued	—	—
Common stock — authorized 200.0 shares — $0.01 par value, 77.8 issued at December 31, 2024 and 2023	1	1
Additional paid-in capital	1,152	1,146
Less: Treasury stock (common stock: 13.3 and 12.6 shares at December 31, 2024 and 2023) at cost	(1,355)	(1,207)
Accumulated other comprehensive loss	(1,086)	(1,056)
Retained earnings	5,092	4,654
Total Ingredion stockholders' equity	3,804	3,538
Non-redeemable non-controlling interests	19	14
Total stockholders' equity	3,823	3,552
Total liabilities and stockholders' equity	$ 7,444	$ 7,642

See the Notes to the Consolidated Financial Statements.

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Ingredion Incorporated
Consolidated Statements of Equity and Redeemable Equity
(dollars in millions)

	Total Equity								
	Preferred Stock	Common Stock	Additional Paid-In Capital	Treasury Stock	Accumulated Other Comprehensive Loss	Retained Earnings	Non-Redeemable Non-Controlling Interests	Share-based Payments Subject to Redemption	Redeemable Non-Controlling Interests
Balance as of December 31, 2021	$ —	$ 1	$ 1,158	$ (1,061)	$ (897)	$ 3,899	$ 18	$ 36	$ 71
Net income attributable to Ingredion	—	—	—	—	—	492	—	—	—
Net income attributable to non-controlling interests	—	—	—	—	—	—	9	—	1
Dividends declared	—	—	—	—	—	(181)	(5)	—	—
Repurchases of common stock, net	—	—	—	(112)	—	—	—	—	—
Share-based compensation, net of issuance	—	—	3	25	—	—	—	12	—
Fair market value adjustment to non-controlling interests	—	—	(29)	—	—	—	—	—	29
Purchases of non-controlling interests	—	—	—	—	—	—	—	—	(46)
Other comprehensive (loss)	—	—	—	—	(151)	—	(6)	—	(4)
Balance as of December 31, 2022	—	1	1,132	(1,148)	(1,048)	4,210	16	48	51
Net income attributable to Ingredion	—	—	—	—	—	643	—	—	—
Net income attributable to non-controlling interests	—	—	—	—	—	—	7	—	1
Dividends declared	—	—	—	—	—	(199)	(3)	—	—
Repurchases of common stock, net	—	—	—	(101)	—	—	—	—	—
Share-based compensation, net of issuance	—	—	7	42	—	—	—	7	—
Fair market value adjustment to non-controlling interests	—	—	7	—	—	—	—	—	(7)
Purchases of non-controlling interests	—	—	—	—	—	—	—	—	(2)
Other comprehensive (loss)	—	—	—	—	(8)	—	(6)	—	—
Balance as of December 31, 2023	—	1	1,146	(1,207)	(1,056)	4,654	14	55	43
Net income attributable to Ingredion	—	—	—	—	—	647	—	—	—
Net income attributable to non-controlling interests	—	—	—	—	—	—	9	—	(2)
Dividends declared	—	—	—	—	—	(209)	(5)	—	—
Repurchases of common stock, net	—	—	—	(216)		—	—	—	—
Share-based compensation, net of issuance	—	—	12	68	—	—	—	5	—
Fair market value adjustment to non-controlling interests	—	—	(6)	—	—	—	—	—	6
Purchases of non-controlling interests	—	—	—	—	—	—	—	—	(40)
Other comprehensive (loss)	—	—	—	—	(30)	—	1	—	—
Balance as of December 31, 2024	$ —	$ 1	$ 1,152	$ (1,355)	$ (1,086)	$ 5,092	$ 19	$ 60	$ 7

See the Notes to the Consolidated Financial Statements.

Ingredion Incorporated
Consolidated Statements of Cash Flows
(dollars in millions)

	Year Ended December 31,		
	2024	2023	2022
Cash from operating activities			
Net income	$ 654	$ 651	$ 502
Non-cash charges to net income:			
Depreciation and amortization	214	219	215
Mechanical stores expense	62	62	55
Net gain on sale of business	(90)	—	—
Deferred income taxes	(15)	(6)	(3)
Impairment charges	109	10	—
Other non-cash charges	32	59	57
Changes in working capital:			
Accounts receivable and prepaid expenses	148	77	(310)
Inventories	228	69	(468)
Accounts payable and accrued liabilities	20	(79)	158
Margin accounts	21	10	(44)
Other	53	(15)	(10)
Cash provided by operating activities	1,436	1,057	152
Cash from investing activities			
Capital expenditures and mechanical stores purchases	(301)	(316)	(300)
Proceeds from disposal of manufacturing facilities and properties	6	2	7
Proceeds from sale of business	255	—	—
Payments for acquisitions, net of cash acquired	—	—	(29)
Other	(7)	(15)	2
Cash used for investing activities	(47)	(329)	(320)
Cash from financing activities			
Proceeds from borrowings	773	720	825
Payments on debt	(791)	(949)	(532)
Commercial paper borrowings, net	(327)	(63)	140
Repurchases of common stock, net	(216)	(101)	(112)
Issuances of common stock for share-based compensation, net	46	20	9
Purchases of non-controlling interests	(40)	(2)	(46)
Dividends paid, including to non-controlling interests	(210)	(194)	(181)
Cash used for financing activities	(765)	(569)	103
Effects of foreign exchange rate changes on cash and cash equivalents	(28)	6	(27)
Increase (decrease) in cash and cash equivalents	596	165	(92)
Cash and cash equivalents, beginning of period	401	236	328
Cash and cash equivalents, end of period	$ 997	$ 401	$ 236

See the Notes to the Consolidated Financial Statements.

1. Description of the Business and Summary of Significant Accounting Policies

Unless the context otherwise requires, all references herein to the “Company,” “Ingredion,” “we,” “us,” and “our” shall mean Ingredion Incorporated and its consolidated subsidiaries.

Description of the business: We primarily manufacture and sell sweeteners, starches, nutrition ingredients and biomaterial solutions derived from wet milling and processing corn and other starch-based materials to a wide range of industries, both domestically and internationally.

Basis of presentation: The Consolidated Financial Statements consist of the accounts of Ingredion, including all subsidiaries. Intercompany accounts and transactions are eliminated in consolidation.

Use of estimates: The preparation of the accompanying Consolidated Financial Statements in conformity with U.S. Generally Accepted Accounting Principles (“GAAP”) requires management to make estimates and assumptions about future events. These estimates and the underlying assumptions affect the amounts of assets and liabilities reported, disclosures about contingent assets and liabilities, and reported amounts of revenues and expenses. Such estimates and assumptions impact the value of purchase consideration, accounts receivable, inventories, certain investments, goodwill, intangible assets and other long-lived assets, legal contingencies, income taxes, and pension and other postretirement benefits, among others. These estimates and assumptions are based on our best estimates and judgment. We evaluate our estimates and assumptions on an ongoing basis using historical experience and other factors, including the current economic environment, which we believe to be reasonable under the circumstances. We will adjust such estimates and assumptions when facts and circumstances dictate. Corn price volatility, adverse changes in the global economic environment, foreign currency devaluations versus the U.S. dollar, and access to credit markets increase the uncertainty inherent in such estimates and assumptions. As future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates. Changes in these estimates will be reflected in the financial statements in future periods.

Foreign currency translation: Assets and liabilities of foreign subsidiaries, other than those whose functional currency is the U.S. dollar, are translated at current exchange rates with the related translation adjustments reported in equity as a component of Accumulated other comprehensive loss (“AOCL”), and income statement accounts are translated at the average exchange rate during the period. The U.S. dollar is the functional currency for our subsidiaries in Mexico and Argentina, and we translate their monetary assets and liabilities at current exchange rates with the related adjustment included in financing costs in our Consolidated Statements of Income. Non-monetary assets and liabilities are translated at historical exchange rates with the related translation adjustments included in AOCL in our Consolidated Balance Sheets.

Revenue recognition: Ingredion recognizes revenue under the core principle to depict our transfer of products and solutions to customers in amounts that reflect the consideration we expect to receive. To achieve that core principle, we apply the following five-step approach: (1) identify the contract with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the performance obligations in the contract; and (5) recognize revenue when a performance obligation is satisfied.

We identify customer purchase orders, which in some cases are governed by a master sales agreement, as the contracts with our customers. For each contract, we consider the transfer of products, each of which is distinct, to be the identified performance obligation. The pricing model can be fixed or variable within the contract. The variable pricing model is based on historical commodity pricing and is determinable before we complete the performance obligation. To determine the transaction price for the contract performance obligations, we also evaluate whether the price could be adjusted, and we may reduce the transaction price for certain sales adjustments such as volume incentive discounts and other discount arrangements. We estimate transaction price adjustments using the expected value method based on our analysis of historical volume incentives or discounts over a period considered adequate to account for current pricing and business trends. Historically, actual volume incentives and discounts relative to those estimated and included when determining the transaction price have not materially differed. We accrue volume incentives and discounts in Accrued liabilities and liabilities held for sale in the Consolidated Balance Sheets when we satisfy the performance obligation. We consider the product price as specified in the contract, net of any discounts, as the standalone selling price as it is an observable input that represents the price if we sold the product to a similar customer in similar circumstances. We do not recognize any significant financing components since payment is due shortly after we satisfy our performance obligation.

We recognize revenue when we satisfy our performance obligation and control is transferred to the customer, which occurs at a point in time, either upon delivery to an agreed upon location or to the customer. Further, in determining whether control has transferred, we consider if there is a present right to payment and legal title, along with risks and rewards of ownership having transferred to the customer.

Shipping and handling activities related to contracts with customers represent fulfillment costs and are recorded in Cost of sales in the Consolidated Statements of Income. Taxes assessed by governmental authorities and collected from customers are accounted for on a net basis and excluded from net sales. We expense costs to obtain a contract when we incur the costs since most contracts are one year or less. These costs primarily include our internal sales force compensation. Under the terms of these programs, the compensation is generally earned, and the costs are recognized when we recognize the revenue.

From time to time, we may enter into long-term contracts with our customers. Historically, such contracts do not result in significant contract assets or liabilities. Any such arrangements are accounted for in Other non-current assets or Accrued liabilities and liabilities held for sale in the Consolidated Balance Sheets.

Cash and cash equivalents: Cash equivalents consist of all instruments purchased with an original maturity of three months or less and that have virtually no risk of loss in value.

Accounts receivable: Accounts receivable consists of trade and other receivables carried at approximate fair value, net of an allowance for credit losses. The allowance for credit losses is determined using our best estimate of expected credit losses based on historical loss experience and current forecasts of future economic conditions, and we adjust this estimate over the life of the receivable as needed.

Inventories: Inventories are stated at the lower of cost or net realizable value. Costs are predominantly determined using the weighted average method.

Long-term investments: We hold marketable securities and equity investments, which we include in Other non-current assets in the Consolidated Balance Sheets. Marketable securities are carried at fair value and we record changes in fair value to Other operating (income) expense, net in the Consolidated Statements of Income if we maintain the securities for processing transactions that directly support operating activities; otherwise, we record changes in fair value to Other non-operating expense (income) in the Consolidated Statements of Income.

Equity investments in companies for which we do not have the ability to exercise significant influence are accounted for at fair value, with changes in fair value recorded in Other non-operating expense (income) in the Consolidated Statements of Income. Equity securities without readily determinable fair values are carried at cost, less impairments, if any, and adjusted for observable price changes for the identical or a similar investment of the same issuer. We perform a qualitative impairment assessment to determine if such investments are impaired, which considers all available information, including declines in the financial performance of the issuing entity, the issuing entity’s operating environment and general market conditions. Impairments of equity securities without readily determinable fair value are recorded in Other non-operating expense (income) in the Consolidated Statements of Income.

Equity investments in companies for which we have the ability to exercise significant influence, but not control, are accounted for using the equity method of accounting. Our share of the earnings or losses reported by equity method investees is recognized in Other operating (income) expense, net in the Consolidated Statements of Income, and we generally recognize our share of income or expense one month in arrears due to the timing of when results are available. Each reporting period, we evaluate declines in the fair value of equity method investments below carrying value to determine if any are other-than-temporary and if so, we write down the investment to its estimated fair value. Impairments are recognized in Restructuring/impairment charges in the Consolidated Statements of Income.

Leases: We determine if an arrangement contains a lease, as well as its classification as an operating lease or finance lease, at the inception of the agreement. Lease assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Lease assets and liabilities are recognized at the lease commencement date based on the present value of future lease payments over the lease term. As most of our leases do not provide an implicit rate, we use an incremental borrowing rate based on the information available at the commencement date to determine the present value of lease payments. The lease asset value includes in our calculation any prepaid lease payments made and any lease incentives received from the arrangement as a reduction of the asset. Certain leases have options to terminate or extend the life of the lease, which we include in the lease asset and lease liability calculation when we have sole discretion to exercise the option, and it is reasonably certain we will. We do not separate lease and non-lease components for our leases when it is impracticable to separate them, such as leases with variable payment arrangements. We have certain leases that have variable payments based solely on output or usage of the leased asset, which we do not record in our Consolidated Balance Sheets, but expense as incurred. Lease expense is recognized on a straight-line basis over the lease term. Leases with an initial term of twelve months or less are not recorded on the Consolidated Balance Sheets.

Property, plant and equipment, net and definite-lived intangible assets: Property, plant and equipment ("PP&E") is stated at cost less accumulated depreciation and definite-lived intangible assets are stated at cost less accumulated amortization. For PP&E, depreciation is generally computed on the straight-line basis over the estimated useful lives of depreciable assets, which range from 25 to 50 years for buildings and from two to 25 years for machinery and equipment. Costs for mechanical stores represent costs for spare parts used in the production process that are capitalized in PP&E as part of machinery and equipment until they are utilized in the manufacturing process and expensed as a period cost. Where permitted by law, accelerated depreciation methods are used for tax purposes. For definite-lived intangible assets, we recognize the cost of these amortizable assets in operations over their estimated useful life, which range from two to 30 years. We review the recoverability of the net book value of PP&E and definite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset group may not be recoverable. If this review indicates that the carrying values of the asset group will not be recovered, we reduce the carrying values to fair value and recognize an impairment charge. The impairment analysis for long-lived assets occurs before the goodwill impairment assessment described below.

Assets and liabilities held for sale: We classify long-lived assets or disposal groups as held for sale in the period when all of the following conditions have been met:

- we have approved and committed to a plan to sell the assets or disposal group,
- the asset or disposal group is available for immediate sale in its present condition,
- an active program to locate a buyer and other actions required to complete the sale have been initiated,
- the sale of the asset or disposal group is probable and expected to be completed within one year,
- the asset or disposal group is being actively marketed for sale at a price that is reasonable in relation to its current fair value, and
- it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

When all the held for sale criteria are met, we initially measure a long-lived asset or disposal group that is classified as held for sale at the lower of its carrying value or the fair value less any costs to sell, recognize any resulting losses, and cease depreciation and amortization of the long-lived asset or assets within a disposal group. Until the date of sale or until the asset or disposal group are no longer classified as held for sale, we assess fair value less any costs to sell and recognize any resulting losses at each reporting period. Gains are not recognized until the date of the sale.

Indefinite-lived intangible assets and goodwill: We have certain indefinite-lived intangible assets in the form of tradenames, trademarks, and goodwill. Our methodology for allocating the purchase price of acquisitions to tradenames and trademarks is based on established valuation techniques that reflect the consideration of a number of factors, including valuations performed by third-party appraisers when appropriate. Goodwill represents the excess of the cost of an acquired entity over the fair value assigned to identifiable assets acquired and liabilities assumed. We assess indefinite-lived intangible assets and goodwill for impairment annually (or other circumstances requiring assessment), which we perform as of July 1 of each year.

In testing indefinite-lived intangible assets for impairment, we first assess qualitative factors to determine whether it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is greater than its carrying amount. If not, then we determine the fair value of the indefinite-lived intangible assets by performing a quantitative impairment analysis that considers various factors, including net sales derived from these intangibles and certain market and industry conditions.

In testing goodwill for impairment, we first assess qualitative factors to determine whether it is more-likely-than-not that the fair value of a reporting unit is greater than its carrying amount. If not, then an impairment exists for the difference between the fair value and carrying value of the reporting unit. This difference is not to exceed the goodwill recorded at the reporting unit.

Hedging instruments: We use derivative financial instruments consisting primarily of commodity futures, swaps and option contracts, forward currency contracts and options, interest rate swaps, and Treasury lock agreements (“T-Locks”).

When we enter a derivative contract, we designate the derivative as a hedge of variable cash flows to be paid related to certain forecasted transactions (“a cash flow hedge”), as a hedge of the fair value of certain fixed (“firm”) commitments (“a fair value hedge”), or as a non-designated hedging instrument. This process includes linking all derivatives that are designated as cash flow or fair value hedges to specific assets and liabilities on the Consolidated Balance Sheets, or to specific firm commitments or forecasted transactions. For all hedging relationships, we document the hedging relationships and our risk-management objective and strategy for undertaking the hedge transactions, the hedging instrument, the hedged item, the nature of the risk being hedged, how we will assess the hedging instrument’s effectiveness in offsetting the hedged risk, and a description of the method to measure ineffectiveness. We also formally assess, both at the hedge’s inception and on an ongoing basis, whether the derivative that is used in a hedging transaction is highly effective in offsetting changes in cash flows or fair values of hedged items.

For hedging instruments designated as cash flow hedges, unrealized gains and losses associated with marking cash flow hedging contracts to market (fair value) are recorded as a component of other comprehensive loss (“OCL”) and included in the equity section of the Consolidated Balance Sheets as part of AOCL. These amounts, as well as their related tax effects, are subsequently reclassified into earnings in the same line item affected by the hedged transaction and in the same period or periods during which the hedged transaction affects earnings, or in the period a hedge is determined to be ineffective. Gains and losses from cash flow hedging instruments reclassified from AOCL to earnings are reported as Cash provided by operating activities on the Consolidated Statements of Cash Flows.

For hedging instruments designated as fair value hedges, unrealized gains and losses associated with marking fair value hedging contracts to market (fair value) are recorded in earnings each period. Unrealized gains and losses on hedged items in designated and highly effective fair value hedges are also recorded in earnings each period.

For hedging instruments not designated as hedging instruments for accounting purposes, all realized and unrealized gains and losses from these instruments are recognized in earnings during each accounting period.

We assess the effectiveness of hedging contracts based on changes in the contract’s fair value. The changes in the market value of our hedging contracts have historically been, and are expected to be, highly effective at offsetting changes in the price of hedged items. We discontinue hedge accounting prospectively when it is unlikely or not probable that a forecasted transaction will occur or when we determine that the designation of the derivative as a hedging instrument is no longer appropriate, since the derivative is no longer effective in offsetting changes in the cash flows or fair value of the originally intended hedged transaction. When we discontinue hedge accounting, we continue to carry the derivative on the Consolidated Balance Sheets at its fair value and freeze the deferred gains or losses into AOCL. Changes in the fair value of the derivative are recognized in earnings in the same line item as the original hedged transaction instead of AOCL. Any accumulated gains and losses that were included in AOCL in the period we determined the hedge to be ineffective are also released to earnings.

Pension and other postretirement benefits: All U.S. pension and postretirement benefit plans and most non-U.S. pension and postretirement benefit plans value the vested benefit obligation based on the actuarial present value of the vested benefits to which employees are currently entitled based on their expected date of separation or retirement.

For defined benefit plans, the service cost component of net periodic benefit cost is presented within either Cost of sales or Operating expenses on the Consolidated Statements of Income. The interest cost, expected return on plan assets, amortization of actuarial loss, amortization of prior service credit and settlement loss components of net periodic benefit cost are presented as Other non-operating expense (income) on the Consolidated Statements of Income.

Actuarial gains and losses in excess of 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets are classified in AOCL, along with the related tax impact, and recognized as a component of net periodic benefit cost over the average remaining service period of a plan’s active employees for active defined benefit pension plans and over the average remaining life of a plan’s active employees for frozen defined benefit pension plans.

Share-based compensation: We have a stock incentive plan that provides for share-based employee compensation, including the granting of stock options, shares of restricted stock, restricted stock units and performance shares to certain key employees. Compensation expense is generally recognized in the Consolidated Statements of Income on a straight-line basis for all awards over the requisite service period. We estimate a forfeiture rate at the time of certain grants, and we update the estimate throughout the vesting of certain awards within the amount of compensation costs recognized in each period.

Earnings per common share: Basic earnings per common share (“EPS”) is computed by dividing Net income attributable to Ingredion by the weighted average number of shares outstanding. Diluted EPS is calculated using the treasury stock method, computed by dividing Net income attributable to Ingredion by the weighted average number of shares outstanding, including the dilutive effect of outstanding stock options and other instruments associated with long-term incentive compensation plans.

Risks and uncertainties: We operate domestically and internationally, and our business and assets in each country are subject to varying degrees of risk and uncertainty. We insure our business and assets in each country against insurable risks in a manner that we deem appropriate. Because of our geographic dispersion, we believe that a loss from a non-insured event in any one country would not have a material adverse effect on our operations as a whole. Additionally, we believe there is no significant concentration of risk with any single customer or supplier whose failure or non-performance would materially affect our results. We do not consider the potential for insurance recoveries if we record accruals for estimated probable costs from events or circumstances that may be insured.

New Accounting Standards

In September 2022, the Financial Accounting Standards Board (“FASB”) issued Accounting Standard Update (“ASU”) No. 2022-04, *Liabilities - Supplier Finance Programs (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations*. This ASU requires filers to disclose information about supplier finance programs that is sufficient to allow financial statement users to understand their nature, activity during the period, changes from period to period and potential magnitude. This ASU was effective for annual periods beginning after December 15, 2022, except for the amendment on rollforward information, which was effective for fiscal years beginning after December 15, 2023. We adopted this ASU at the beginning of our 2023 fiscal year and adopted the amendment on rollforward information at the beginning of our 2024 fiscal year. The disclosure required by the recently adopted accounting standard is reflected in Note 14.

In August 2023, the FASB issued ASU No. 2023-05, *Business Combinations - Joint Venture Formations (Subtopic 805-60).* This ASU requires that a joint venture apply a new basis of accounting upon formation. By applying a new basis of accounting, a joint venture, upon formation, must recognize and initially measure its assets and liabilities at fair value (with exceptions to fair value measurement that are consistent with the business combinations guidance). This ASU is effective prospectively for all joint venture formations with a formation date on or after January 1, 2025. A joint venture that was formed before January 1, 2025 may elect to apply the amendments retrospectively. We intend to adopt this ASU at the beginning of our 2025 fiscal year on a prospective basis for any joint ventures we enter in the future. We do not believe this ASU will have a material impact on our future Consolidated Financial Statements.

In November 2023, the FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280)*. This ASU improves reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses. This ASU was effective for annual periods beginning after December 15, 2023, and is effective for interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. Entities must apply the amendments in this ASU retrospectively to all prior periods presented in the financial statements. We adopted this ASU during our 2024 fiscal year as reflected in Note 12.

In December 2023, the FASB issued ASU No. 2023-09, *Income Taxes (Topic 740)*: *Improvements to Income Tax Disclosures.* This ASU requires public business entities on an annual basis to disclose specific categories in the rate reconciliation and provide additional information for reconciling items that meet a quantitative threshold. Additionally, this ASU requires information pertaining to taxes paid (net of refunds received) to be disaggregated by federal, state, and foreign taxes with further disaggregation for specific jurisdictions to the extent the related amounts exceed a quantitative threshold. This ASU is effective for annual periods beginning after December 15, 2024, with early adoption permitted. We are currently assessing the impact of this ASU on our Consolidated Financial Statements.

(dollars in millions, except per share data, unless otherwise noted)

In November 2024, the FASB issued ASU no. 2024-03, *Income Statement - Reporting Comprehensive Income - Expense Disaggregation Disclosure (Subtopic 220-40)*. The amendments in this update enhance disclosures about a public business entity's expenses and provide more detailed information about the types of expenses included in certain notes in the Consolidated Financial Statements. This ASU is effective for annual periods beginning after December 15, 2026, with early adoption permitted. We are currently assessing the impact of this ASU on our Consolidated Financial Statements.

2. Acquisitions and Divestitures

South Korea Divestiture

On November 10, 2023, we entered into a definitive agreement for the sale of our South Korea business to an affiliate of the Sajo Group, a leading food company headquartered in Seoul, South Korea, for 384 billion South Korean won, or approximately $294 million. Upon completion of the sale on February 1, 2024, we received 330 billion South Korean won, or $247 million, net of certain transaction costs and an incremental $8 million working capital true-up in the third quarter of 2024. We will receive the remaining consideration in equal, annual payments that Sajo began in February 2025 and committed to continue through February 2027. As a result, we recognized net pre-tax gains of $90 million in 2024, which consisted of an $82 million gain in the first quarter of 2024 and the $8 million working capital adjustment in the third quarter of 2024, both within Net gain on sale of business in the Consolidated Statements of Income. The South Korea business generated operating profits of $2 million in 2024, $30 million in 2023 and $14 million in 2022.

In connection with this divestiture, we reclassified the assets and liabilities of our South Korea business, which is in our All Other segment, as held for sale during the fourth quarter of 2023 in our Consolidated Financial Statements. The following table presents the major classes of assets and liabilities classified as held for sale for the South Korea divestiture. Assets classified as held for sale are included in Prepaid expenses and assets held for sale, and liabilities held for sale are included in Accrued liabilities and liabilities held for sale on the Consolidated Balance Sheets as of December 31, 2023.

	December 31, 2023
Accounts receivable, net	$ 38
Inventories	69
Property, plant and equipment, net	100
Other assets	4
Assets held for sale	$ 211
Short-term borrowings	$ 2
Accounts payable	30
Accrued liabilities	14
Non-current liabilities	5
Liabilities held for sale	$ 51

Acquisitions

During 2024, we purchased shares from minority shareholders in PureCircle Limited ("PureCircle") for $40 million, which increased our ownership percentage to 98 percent as of December 31, 2024, from 88 percent as of December 31, 2023.

3. Intangible Assets

Goodwill

Changes to our reportable segments effective January 1, 2024, as described in Note 12, resulted in a change to our reporting units. As of this effective date, we performed a qualitative assessment of the goodwill under our former reporting units to determine if it was more likely than not that the reporting unit's goodwill was impaired. As a result of this analysis, we did not identify any indications that any of the carrying amounts of the reporting units exceeded their respective fair values. We then performed a quantitative assessment to reallocate goodwill to our new reporting units using a relative fair value approach. The fair value of the reporting units was determined using a combination of the income and market approaches. We evaluated these new reporting units for impairment as of January 1, 2024, and determined the fair value was in excess of carrying value for all our reporting units, which indicated no impairments were present.

(dollars in millions, except per share data, unless otherwise noted)

The original carrying value of goodwill by reportable segment and All Other as of December 31, 2024 is presented below. There were no accumulated impairment charges by reportable segment.

	T&HS	F&II - LATAM	F&II - U.S. /Canada	All Other	Total
Balance as of January 1, 2024	388	146	296	88	918
Cumulative translation adjustment	(6)	(4)	(1)	(1)	(12)
Balance as of December 31, 2024	$ 382	$ 142	$ 295	$ 87	$ 906

We concluded that as of our January 1, 2024 and July 1, 2024 impairment assessments, there were no impairments to goodwill.

Other Intangible Assets

A summary of other intangible assets was as follows:

December 31, 2024	Gross	Accumulated Amortization	Net
Trademarks/tradenames (indefinite-lived)	$ 143	$ —	$ 143
Patents	31	(12)	19
Customer relationships	356	(188)	168
Technology	111	(104)	7
Other	41	(20)	21
Total other intangible assets	$ 682	$ (324)	$ 358

December 31, 2023	Gross	Accumulated Amortization	Net
Trademarks/tradenames (indefinite-lived)	$ 143	$ —	$ 143
Patents	31	(9)	22
Customer relationships	358	(170)	188
Technology	111	(103)	8
Other	41	(17)	24
Total other intangible assets	$ 684	$ (299)	$ 385

(dollars in millions, except per share data, unless otherwise noted)

Amortization expense related to intangible assets was $26 million in 2024, 2023, and 2022. Based on the results of our impairment assessments as of January 1, 2024 and July 1, 2024, we concluded that there were no impairments to our indefinite-lived other intangible assets.

Estimated future amortization expense related to intangible assets is as follows:

Years ending December 31,	Estimated Future Amortization Expense
2025	$ 26
2026	26
2027	26
2028	26
2029	26

4. Restructuring/Impairment Charges

During 2024, we recorded $127 million of restructuring and impairment charges that consisted of $109 million for impairment charges and $18 million for organizational restructuring and resegmentation activities related to discontinuing certain manufacturing operations.

During 2023, we recorded $11 million of pre-tax restructuring and impairment charges primarily related to our equity method investments and the sale of our South Korea business.

During 2022, we recorded $4 million of pre-tax restructuring charges, which included $3 million of costs associated with our Cost Smart selling, general and administrative expense program and $1 million of costs as part of our Cost Smart Cost of sales program.

Impairment charges

During the second quarter of 2024, we recorded an $18 million impairment charge in the Consolidated Statements of Income, which represented an other-than-temporary impairment on our investment with Amyris, Inc. (the “Amyris joint venture”), which we account for as an equity method investment. Refer to Note 14 for additional information.

During the third quarter of 2024, we announced our intent to discontinue certain manufacturing operations at our Goole facility in the United Kingdom in 2025 and recognized an impairment charge of $9 million in the Consolidated Statements of Income primarily for property, plant and equipment at that manufacturing facility in the third quarter of 2024.

During the fourth quarter of 2024, we committed to a plan to discontinue the manufacturing operations at our plant-based protein concentrates and flour facility in Vanscoy, Canada. As a result of this plan, we recognized an impairment charge of $65 million in the Consolidated Statements of Income primarily related to the property, plant and equipment. We reclassified the assets and liabilities of the disposal group to held for sale, which are included in Prepaid expenses and assets held for sale and Accrued liabilities and liabilities held for sale, respectively, on the Consolidated Balance Sheets as of December 31, 2024.

During the fourth quarter of 2024, we made a decision to close our Alcantara manufacturing facility in Brazil in 2025. As a result of this decision, we recognized an impairment charge of $9 million in the Consolidated Statements of Income.

5. Derivative Instruments and Hedging Activities

We are exposed to market risk stemming from changes in commodity prices (primarily corn and natural gas), foreign currency exchange rates and interest rates. In the normal course of business, we actively manage our exposure to these market risks by entering various hedging transactions authorized under established policies that place controls on these activities. These transactions utilize exchange-traded derivatives or over-the-counter derivatives with investment grade counterparties. We use derivative financial instruments that consist of commodity-related futures, options and swap contracts, foreign currency-related forward contracts, interest rate swaps and treasury locks ("T-Locks").

Commodity price hedging: Our principal use of derivative financial instruments is to manage commodity price risk relating to anticipated purchases of corn and natural gas that we intend to use in the manufacturing process, generally over the next twelve to twenty-four months. We maintain a commodity-price risk management strategy that uses derivative instruments to minimize significant, unanticipated earnings fluctuations caused by commodity-price volatility. To manage price risk related to corn purchases primarily in North American countries in each of our F&II and T&HS segments, we use corn futures and option contracts that trade on regulated commodity exchanges to lock in corn costs associated with fixed-priced customer sales contracts. We use soybean oil and soybean meal futures contracts in North American countries in each of our F&II segments that trade on regulated commodity exchanges to hedge sales of our co-products. We also use over-the-counter natural gas swaps, primarily in North American countries in each of our F&II and T&HS segments, to hedge a portion of our natural gas usage. These derivative financial instruments limit the impact that volatility resulting from fluctuations in market prices will have on corn and natural gas purchases, as well as co-product sales. Our natural gas, soybean meal and the majority of our corn and soybean oil derivatives have been designated as cash flow hedging instruments. A portion of our corn and soybean oil derivatives are not designated as hedging instruments for accounting purposes.

We had outstanding futures and option contracts that hedged the forecasted purchase of approximately 105 million and 109 million bushels of corn as of December 31, 2024 and 2023. We also had outstanding swap contracts that hedged the forecasted purchase of approximately 24 million and 28 million mmbtus of natural gas as of December 31, 2024 and 2023.

Foreign currency hedging: Due to our global operations, including operations in many emerging markets, we are exposed to fluctuations in foreign currency exchange rates. As a result, we have exposure to translational foreign-exchange risk when the results of our foreign net assets and operations are translated to U.S. dollars and to transactional foreign-exchange risk when transactions not denominated in the functional currency are revalued. Our foreign-exchange risk management strategy uses derivative financial instruments such as foreign currency forward contracts, swaps and options to manage our transactional foreign-exchange risk. We enter into foreign currency derivative instruments that are designated as cash flow hedging instruments as well as instruments not designated as hedging instruments for accounting purposes in order to mitigate transactional foreign-exchange risk.

We hedge certain assets using foreign currency derivatives not designated as hedging instruments, which had a notional value of $408 million and $694 million as of December 31, 2024 and 2023. We also hedge certain liabilities using foreign currency derivatives not designated as hedging instruments, which had a notional value of $113 million and $182 million as of December 31, 2024 and 2023.

We hedge certain assets using foreign currency cash flow hedging instruments, which had a notional value of $447 million and $449 million as of December 31, 2024 and 2023. We also hedge certain liability positions using foreign currency cash flow hedging instruments, which had a notional value of $448 million and $621 million as of December 31, 2024 and 2023.

Interest rate hedging: We assess our exposure to variability in interest rates by identifying and monitoring changes in interest rates that may adversely impact future cash flows and the fair value of existing debt instruments and by evaluating hedging opportunities. Our risk management strategy is to monitor interest rate risk attributable to our outstanding and forecasted debt obligations as well as our offsetting hedge positions. Derivative financial instruments that we have used to manage our interest rate risk consist of interest rate swaps and T-Locks.

We periodically enter into T-Locks to hedge our exposure to interest rate changes. We have settled T-Locks associated with the issuance of our senior notes due in 2030 and 2050. The realized loss upon settlement of these T-Locks was recorded in AOCL and is amortized into earnings over the term of the senior notes. We did not have open T-Locks as of December 31, 2024 and 2023.

(dollars in millions, except per share data, unless otherwise noted)

The derivative instruments designated as cash flow hedges included in AOCL as of December 31, 2024 and 2023 were as follows:

	Gains (Losses) included in AOCL as of December 31, 2024	2023
Commodity contracts, net of income tax effect of $— and $17	$ (1)	$ (46)
Foreign currency contracts, net of income tax effect of $4 and $1	7	—
Interest rate contracts, net of income tax effect of $1	(2)	(2)
Total	$ 4	$ (48)

As of December 31, 2024, AOCL included $5 million of net gains (net of income taxes of $2 million) on commodities-related derivative instruments, T-Locks and foreign currency hedges designated as cash flow hedges that are expected to be reclassified into earnings during the next twelve months.

The fair value and balance sheet location of our derivative instruments, presented gross in the Consolidated Balance Sheets, were as follows:

	Fair Value of Hedging Instruments as of December 31, 2024					
	Designated Hedging Instruments			Non-Designated Hedging Instruments		
Balance Sheet Location	Commodity Contracts	Foreign Currency Contracts	Total	Commodity Contracts	Foreign Currency Contracts	Total
Accounts receivable, net	$ 18	$ 15	$ 33	$ 1	$ 11	$ 12
Other non-current assets	1	4	5	—	2	2
Assets	19	19	38	1	13	14
Accounts payable	8	8	16	1	2	3
Other non-current liabilities	—	2	2	—	—	—
Liabilities	8	10	18	1	2	3
Net Assets/(Liabilities)	$ 11	$ 9	$ 20	$ —	$ 11	$ 11

	Fair Value of Hedging Instruments as of December 31, 2023					
	Designated Hedging Instruments			Non-Designated Hedging Instruments		
Balance Sheet Location	Commodity Contracts	Foreign Currency Contracts	Total	Commodity Contracts	Foreign Currency Contracts	Total
Accounts receivable, net	$ 6	$ 11	$ 17	$ —	$ 5	$ 5
Other non-current assets	—	4	4	—	—	—
Assets	6	15	21	—	5	5
Accounts payable	44	14	58	2	12	14
Other non-current liabilities	2	2	4	—	—	—
Liabilities	46	16	62	2	12	14
Net Assets/(Liabilities)	$ (40)	$ (1)	$ (41)	$ (2)	$ (7)	$ (9)

(dollars in millions, except per share data, unless otherwise noted)

Additional information relating to our derivative instruments were as follows:

Derivatives in Cash Flow Hedging Relationships	(Losses) Gains Recognized in OCL on Derivatives 2024	2023	2022	Income Statement Location	(Losses) Gains Reclassified from AOCL into Income 2024	2023	2022
Commodity contracts	$ (62)	$ (161)	$ 202	*Cost of sales*	$ (124)	$ (87)	$ 261
Foreign currency contracts	14	10	8	*Net sales/Cost of sales*	4	10	7
Interest rate contracts	—	—	—	*Financing costs*	—	(1)	—
Total	$ (48)	$ (151)	$ 210		$ (120)	$ (78)	$ 268

6. Fair Value Measurements

We measure certain assets and liabilities at fair value, which is defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., the "exit price") in an orderly transaction between market participants at the measurement date. In determining fair value, we use various valuation approaches. The hierarchy of those valuation approaches is in three levels based on the reliability of inputs. Assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. Below is a summary of the hierarchy levels:

- Level 1 inputs consist of quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly for substantially the full term of the financial instrument. Level 2 inputs are based on quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable for the asset or liability or can be derived principally from or corroborated by observable market data.
- Level 3 inputs are unobservable inputs for the asset or liability. Unobservable inputs are used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date.

Assets and liabilities measured at fair value on a recurring basis are presented below:

	As of December 31, 2024				As of December 31, 2023			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Marketable securities	$ 5	$ 5	$ —	$ —	$ 4	$ 4	$ —	$ —
Derivative assets	52	48	4	—	26	26	—	—
Derivative liabilities	21	17	4	—	76	43	33	—
Long-term debt	1,633	—	1,633	—	1,591	—	1,591	—

The carrying values of cash equivalents, short-term investments, accounts receivable, accounts payable and short-term borrowings approximate fair values. Commodity futures, options and swap contracts are recognized at fair value. Foreign currency forward contracts, swaps and options are also recognized at fair value. The fair value of our Long-term debt is estimated based on quotations of major securities dealers who are market makers in the securities. See Note 10 for information on the fair value of pension plan assets.

(dollars in millions, except per share data, unless otherwise noted)

7. Financing Arrangements

We had total debt outstanding of $1.8 billion and $2.2 billion at December 31, 2024 and 2023. As of December 31, 2024, our other long-term borrowings and other short-term borrowings consisted primarily of amounts outstanding under various term loans or unsecured local country operating lines of credit. In 2023, we paid the outstanding principal in full and without penalty under our term loan credit agreement that was due on December 16, 2024.

In 2021, we established a commercial paper program under which we may issue senior unsecured notes of short maturities up to a maximum aggregate principal amount of $1.0 billion outstanding at any time. The notes may be sold from time to time on customary terms in the U.S. commercial paper market. We use the note proceeds for general corporate purposes. During 2024, the average amount of commercial paper outstanding was $31 million with an average interest rate of 5.51 percent and a weighted average maturity of 8 days. As of December 31, 2024, we had no commercial paper outstanding. During 2023, the average amount of commercial paper outstanding was $397 million with an average interest rate of 5.30 percent and a weighted average maturity of 11 days. As of December 31, 2023, $327 million of commercial paper was outstanding with an average interest rate of 5.50 percent and a weighted average maturity of 11 days. The amount of commercial paper outstanding under this program in 2025 is expected to fluctuate.

Presented below are our debt carrying amounts, net of related discounts, premiums and debt issuance costs and fair values as of December 31, 2024 and 2023:

	2024		2023	
	Carrying Value	Fair Value	Carrying Value	Fair Value
2.900% senior notes due June 1, 2030	$ 597	$ 540	$ 596	$ 536
3.200% senior notes due October 1, 2026	499	486	499	479
3.900% senior notes due June 1, 2050	391	292	391	300
6.625% senior notes due April 15, 2037	253	268	253	275
Revolving credit agreement	—	—	—	—
Other long-term borrowings	47	47	1	1
Total long-term debt	1,787	1,633	1,740	1,591
Commercial paper	—	—	327	327
Other short-term borrowings	44	44	121	121
Total short-term borrowings	44	44	448	448
Total debt	$ 1,831	$ 1,677	$ 2,188	$ 2,039

We guarantee certain obligations of our consolidated subsidiaries, which aggregated to $35 million and $49 million at December 31, 2024 and 2023.

8. Leases

The components of lease expense were as follows:

	2024	2023	2022
Operating lease expense	$ 67	$ 63	$ 59
Variable operating lease expense	17	26	27
Short term lease expense	4	3	3
Total lease expense	$ 88	$ 92	$ 89

(dollars in millions, except per share data, unless otherwise noted)

We have operating leases for certain rail cars, office spaces, warehouses and machinery and equipment. We currently have no finance leases. The following is a reconciliation of future undiscounted cash flows to the operating lease liabilities and the related operating lease assets as presented within Other non-current liabilities and Other non-current assets, on our Consolidated Balance Sheets as of December 31, 2024:

2025	$ 64
2026	57
2027	40
2028	21
2029	12
Thereafter	26
Total future lease payments	220
Less: imputed interest	16
Present value of future lease payments	204
Less: current lease liabilities	59
Non-current operating lease liabilities	$ 145
Operating lease assets	$ 199

Supplemental cash flow information arising from lease transactions is as follows:

	Year Ended December 31,	
	2024	2023
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 68	$ 64
Right-of-use assets obtained in exchange for lease liabilities:		
Operating leases	$ 55	$ 72

	Year Ended December 31,	
	2024	2023
Lease term and discount rate		
Weighted average remaining lease term	4.8 years	5.3 years
Weighted average discount rate	4.6 %	4.6 %

(dollars in millions, except per share data, unless otherwise noted)

9. Income Taxes

The components of income before income taxes and the provision for income taxes for the years indicated are presented below:

	2024	2023	2022
Income before income taxes:			
U.S.	$ 396	$ 244	$ 111
Foreign	535	595	557
Total income before income taxes	931	839	668
Provision for income taxes:			
Current tax expense:			
U.S. federal	31	6	8
State and local	6	5	2
Foreign	255	183	159
Total current tax expense	292	194	169
Deferred tax expense (benefit):			
U.S. federal	11	—	5
State and local	2	1	(1)
Foreign	(28)	(7)	(7)
Total deferred tax (benefit)	(15)	(6)	(3)
Total provision for income taxes	$ 277	$ 188	$ 166

(dollars in millions, except per share data, unless otherwise noted)

Deferred income taxes are provided for the tax effects of temporary differences between the financial reporting basis and tax basis of assets and liabilities. Significant temporary differences as of December 31, 2024 and 2023 are summarized as follows:

	2024	2023
Deferred tax assets attributable to:		
Employee benefit accruals	$ 31	$ 32
Pensions and postretirement plans	9	16
Lease liabilities	51	54
Bad debt	3	5
Inventory reserve	16	16
Net operating loss carryforwards	51	58
Tax credit carryforwards	7	5
Derivative contracts	—	16
Uniform capitalization	8	12
Equity method investments	9	4
Other	46	31
Total deferred tax assets	231	249
Valuation allowances	(60)	(46)
Net deferred tax assets	171	203
Deferred tax liabilities attributable to:		
Property, plant and equipment	161	184
Identified intangibles	25	33
Right-of-use lease assets	48	51
Foreign withholding and state taxes on unremitted earnings	1	1
Goodwill	38	35
Derivative contracts	3	—
Total deferred tax liabilities	276	304
Net deferred tax liabilities	$ 105	$ 101

Of the $51 million of tax-effected net operating loss carryforwards as of December 31, 2024, $34 million are for foreign loss carryforwards, $14 million for state loss carryforwards, and $3 million for U.S. federal loss carryforwards. Of the $34 million of foreign loss carryforwards, $24 million are related to Canada, $4 million to Malaysia, $3 million to Argentina, and $1 million to the United Kingdom, with carryforward periods of 20 years, 10 years, 5 years, and indefinite. U.S. federal and state loss carryforwards have various expiration periods beginning in 2025.

A valuation allowance is established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. Prior to establishing a valuation allowance, we consider historical taxable income, scheduled reversal of deferred tax liabilities, tax planning strategies, tax carryovers and projected future taxable income. As of December 31, 2024, we maintained valuation allowances of $60 million, consisting of $22 million primarily related to foreign loss carryforwards, $14 million for state loss carryforwards, $11 million primarily related to equity method investments, $7 million for state credits and carryforwards, $4 million for U.S. federal loss carryforwards and net deferred tax assets and $2 million for certain foreign tax credits, all of which we have determined will more likely than not expire prior to realization.

Net operating loss carryforwards disclosed in the financial statements differ from the as-filed tax returns due to an unrecognized tax benefit. Foreign net operating loss carryforwards and valuation allowances would increase $10 million absent the unrecognized tax benefit.

(dollars in millions, except per share data, unless otherwise noted)

A reconciliation of the U.S. federal statutory tax rate to our effective tax rate follows:

	2024	2023	2022
Provision for tax at U.S. statutory rate	21.0 %	21.0 %	21.0 %
Tax rate difference on foreign income	5.4	6.1	7.2
Foreign currency foreign exchange	1.9	(1.8)	(0.3)
Inflation adjustments	(0.4)	(0.5)	(0.6)
Tax benefit of intercompany financing	(0.3)	(0.4)	(0.4)
U.S. international tax implications	1.4	1.0	2.2
Valuation allowance in Argentina	—	—	—
Favorable judgment on the treatment of credits and interest on indirect taxes	—	(0.2)	(0.3)
Sale of our South Korea business	(1.6)	—	—
Unfavorable judgement and related reserve on transfer pricing matters	1.6	—	—
Valuation allowance on investments	1.2	—	—
Foreign-derived intangible income (“FDII”)	(1.6)	(1.5)	(1.0)
Brazil exclusion of certain tax incentives	(0.3)	(1.2)	(4.0)
Other items, net	1.5	(0.1)	1.1
Provision at effective tax rate	29.8 %	22.4 %	24.9 %

The 2024 statutory tax rates (including surcharges and local jurisdictional taxes when applicable) were 30 percent in Mexico, 32 percent in Germany, 35 percent in Colombia, 39 percent in Pakistan, and 26 percent in Canada, where we have significant operations. In addition, our subsidiary in Brazil has a statutory tax rate of 34 percent before the application of local incentives that vary each year.

As of December 31, 2024, we had a $1 million accrual for foreign withholding on certain unremitted earnings from foreign subsidiaries. No foreign withholding taxes, federal and state taxes or foreign currency gains or losses have been provided on distributions of approximately $2.5 billion of unremitted earnings of our foreign subsidiaries, as such amounts are considered permanently reinvested. It is not practicable to estimate the additional income taxes, including applicable foreign withholding taxes, which would be due upon the repatriation of these earnings.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits, excluding interest and penalties, for 2024 and 2023 were as follows:

	2024	2023
Balance at January 1	$ 31	$ 30
Additions for tax positions related to prior years	7	1
Reductions for tax positions related to prior years	(1)	(1)
Additions based on tax positions related to the current year	3	1
Balance at December 31	$ 40	$ 31

Of the $40 million of unrecognized tax benefits as of December 31, 2024, $29 million represents the amount that, if recognized, could affect the effective tax rate in future periods. The remaining $11 million includes $10 million of net operating loss carryforwards that would have otherwise had a valuation allowance and $1 million of U.S. federal benefits.

We account for interest and penalties related to income tax matters within the provision for income taxes. We have accrued $8 million of interest expense and penalties related to unrecognized tax benefits as of December 31, 2024.

We are subject to U.S. federal income tax as well as income tax in multiple states and non-U.S. jurisdictions. The U.S. federal tax returns are subject to audit for the years 2020 through 2023. In general, our foreign subsidiaries remain subject to audit for years 2013 and later.

It is reasonably possible that the total amount of unrecognized tax benefits including interest and penalties will increase or decrease within twelve months of December 31, 2024. We believe it is reasonably possible that $7 million of the unrecognized tax benefits may be recognized within twelve months of December 31, 2024, as a result of the expiration of a statute of limitations period and potential settlement.

10. Pension and Other Postretirement Benefits

We sponsor noncontributory defined benefit pension plans (qualified and non-qualified) covering a portion of our employees in the U.S. and Canada and certain employees in other foreign countries. Plans for most salaried employees provide pay-related benefits based on years of service. Plans for hourly employees generally provide benefits based on flat dollar amounts and years of service. Our general funding policy is to make contributions to the plans that comply with minimum funding requirements and are within the limits of deductibility under current tax regulations. Certain foreign countries allow income tax deductions without regard to contribution levels and our policy in those countries is to make contributions required by the terms of the applicable plan.

Included in our pension obligation are nonqualified supplemental retirement plans for certain key employees. Benefits provided under these plans are unfunded and we make direct payments to plan participants. We also provide healthcare and/or life insurance benefits for retired employees in the U.S., Canada and Brazil. Healthcare benefits for retirees outside the U.S., Canada and Brazil are generally covered through local government plans.

(dollars in millions, except per share data, unless otherwise noted)

Pension Plans

Pension Obligation and Funded Status: The changes in pension benefit obligations and plan assets during 2024 and 2023, as well as the funded status and the amounts recognized in our Consolidated Balance Sheets related to our pension plans at December 31, 2024 and 2023, were as follows:

	U.S. Plans		Non-U.S. Plans	
	2024	2023	2024	2023
Benefit obligation				
At January 1	$ 305	$ 300	$ 200	$ 188
Divestiture *(i)*	—	—	(14)	—
Service cost	3	3	3	4
Interest cost	14	15	9	10
Benefits paid	(20)	(18)	(11)	(13)
Actuarial (gain) loss	(14)	5	—	8
Curtailment/settlement/amendments	—	—	(1)	(1)
Foreign currency translation	—	—	(16)	4
Benefit obligation at December 31	$ 288	$ 305	$ 170	$ 200
Fair value of plan assets				
At January 1	$ 325	$ 317	$ 200	$ 189
Divestiture *(i)*	—	—	(16)	—
Actual return on plan assets	10	25	14	17
Employer contributions	—	1	4	6
Benefits paid	(20)	(18)	(11)	(13)
Plan settlements	—	—	(2)	(1)
Foreign currency translation	—	—	(15)	2
Fair value of plan assets at December 31	$ 315	$ 325	$ 174	$ 200
Funded status	$ 27	$ 20	$ 4	$ —

(i) As of February 1, 2024. we completed the sale of our South Korea business.

As of December 31, 2024, the actuarial gain for the U.S plans was primarily driven by an increase in the discount rate compared to the prior year. As of December 31, 2023, the actuarial loss for the U.S. and non-U.S. plans was primarily driven by a decrease in the discount rate compared to the prior year.

Amounts recorded in the Consolidated Balance Sheets as of December 31, 2024 and 2023 were as follows:

	U.S. Plans		Non-U.S. Plans	
	2024	2023	2024	2023
Non-current asset	$ 35	$ 28	$ 46	$ 47
Current liabilities	(1)	(1)	(1)	(2)
Non-current liabilities	(7)	(7)	(41)	(45)
Net asset (liability) recognized	$ 27	$ 20	$ 4	$ —

(dollars in millions, except per share data, unless otherwise noted)

Amounts recorded in AOCL, excluding tax effects that have not yet been recognized as components of net periodic benefit cost at December 31, 2024 and 2023, were as follows:

	U.S. Plans		Non-U.S. Plans	
	2024	2023	2024	2023
Net actuarial loss	$ 25	$ 32	$ 16	$ 24
Prior service (credit) cost	(2)	(2)	1	—
Net amount recognized	$ 23	$ 30	$ 17	$ 24

The amount recognized in AOCL at December 31, 2024 decreased compared to the prior year for the U.S. pension plans mainly due to the increase in discount rates used to measure our obligations under U.S. plans, partially offset because the actual return on assets was less than the expected return on assets. The net amount recognized in AOCL at December 31, 2024 for the non-U.S. pension plans decreased as compared to December 31, 2023 because the actual return on assets was higher than the expected return on assets and because of favorable foreign currency translation.

The accumulated benefit obligation for all defined benefit pension plans was $442 million and $485 million at December 31, 2024 and 2023. Information for pension plans with a projected benefit obligation in excess of plan assets and an accumulated benefit obligation in excess of plan assets is as follows:

	U.S. Plans		Non-U.S. Plans	
	2024	2023	2024	2023
Projected benefit obligation	$ (8)	$ (8)	$ (46)	$ (51)
Accumulated benefit obligation	(8)	(8)	(36)	(40)
Fair value of plan assets	—	—	4	4

Components of net periodic benefit cost consist of the following for 2024, 2023 and 2022:

	U.S. Plans			Non-U.S. Plans		
	2024	2023	2022	2024	2023	2022
Service cost	$ 3	$ 3	$ 4	$ 3	$ 4	$ 3
Interest cost	14	15	9	9	10	9
Expected return on plan assets	(17)	(17)	(16)	(9)	(9)	(7)
Amortization of actuarial loss	—	1	—	1	1	1
Amortization of prior service credit	—	(1)	(1)	—	—	—
Net periodic benefit cost	$ —	$ 1	$ (4)	$ 4	$ 6	$ 6

(dollars in millions, except per share data, unless otherwise noted)

Total pre-tax amounts recorded in other comprehensive income and net periodic benefit cost were as follows:

	U.S. Plans			Non-U.S. Plans		
	2024	2023	2022	2024	2023	2022
Net actuarial (gain) loss	$ (7)	$ (3)	$ 25	$ (5)	$ —	$ (11)
Prior service cost	—	—	—	1	—	—
Amortization of actuarial loss	—	(1)	—	(1)	(1)	(1)
Amortization of prior service credit	—	1	1	—	—	—
Foreign currency translation	—	—	—	(2)	1	(2)
Total recorded in other comprehensive (income) loss	(7)	(3)	26	(7)	—	(14)
Net periodic benefit cost	—	1	(4)	4	6	6
Total recorded in other comprehensive (income) loss and net periodic benefit cost	$ (7)	$ (2)	$ 22	$ (3)	$ 6	$ (8)

The weighted average assumptions used to determine our obligations for the pension plans were as follows:

	U.S. Plans		Non-U.S. Plans	
	2024	2023	2024	2023
Discount rate	5.64 %	5.00 %	5.42 %	5.24 %
Rate of compensation increase	3.75	3.83	4.16	3.76
Cash balance interest credit rate	4.63	4.53	—	—

The weighted average assumptions used to determine our net periodic benefit cost for the pension plans were as follows:

	U.S. Plans			Non-U.S. Plans		
	2024	2023	2022	2024	2023	2022
Discount rate	5.00 %	5.19 %	2.91 %	5.32 %	5.67 %	3.66 %
Expected long-term return on plan assets	5.50	5.50	4.10	4.97	5.05	3.50
Rate of compensation increase	3.83	3.92	4.18	3.73	3.83	3.77
Cash balance interest crediting rate	4.53	4.21	4.11	—	—	—

For 2024, we assumed an expected long-term rate of return on assets of 5.50 percent for U.S. plans and 4.58 percent for Canadian plans. In developing the expected long-term rate of return assumption on plan assets, which consist mainly of U.S. and Canadian debt and equity securities, we evaluated historical rates of return achieved on plan assets and the asset allocation of the plans, input from our independent actuaries and investment consultants, and historical trends in long-term inflation rates. Projected return estimates are based upon broad equity and bond indices.

The discount rate reflects a rate of return on high-quality fixed-income investments that match the duration of the expected benefit payments. We typically use returns on long-term, high-quality corporate AA bonds as a benchmark in establishing this assumption, and we elect to use a full yield curve approach to estimate these components of benefit cost by applying the specific spot rates along the yield curve used to determine the benefit obligation to the relevant projected cash flows.

Plan Assets: Our investment policy for our pension plans is to balance risk and return through diversified portfolios of fixed income securities, equity instruments and short-term investments. Maturities for fixed income securities are managed such that sufficient liquidity exists to meet near-term benefit payment obligations. For U.S. pension plans, the weighted average target range allocation of assets was 7 to 14 percent in equity instruments and 86 to 93 percent in fixed income securities, inclusive of other short-term investments. The asset allocation is reviewed regularly, and portfolio investments are rebalanced to the targeted allocation when considered appropriate.

(dollars in millions, except per share data, unless otherwise noted)

Our weighted average asset allocations as of December 31, 2024 and 2023 for U.S. and non-U.S. pension plan assets were as follows:

	U.S. Plans		Non-U.S. Plans	
	2024	2023	2024	2023
Equity securities	7 %	12 %	9 %	8 %
Debt securities	91	86	84	78
Cash and other	2	2	7	14
Total	100 %	100 %	100 %	100 %

With the exception of cash, which is considered Level 1 in the fair value hierarchy, all significant pension plan assets are held in collective trusts by our U.S. and non-U.S. plans. The fair values of shares of collective trusts are based upon the net asset value ("NAV") of the fund reported by the fund managers based on quoted market prices of the underlying securities as of the balance sheet date and are considered to be Level 2 fair value measurements. Investments measured at NAV as a practical expedient for fair value are excluded from the fair value hierarchy. This may produce a fair value measurement that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while we believe our valuation methods are appropriate and consistent with those of other market participants, different methods could result in different fair value measurements at the reporting date.

(dollars in millions, except per share data, unless otherwise noted)

The fair values of our plan assets by asset category were as follows:

	Fair Value Measurements at December 31, 2024							
	NAV		Level 1		Level 2		Total	
	2024	2023	2024	2023	2024	2023	2024	2023
U.S. Plans:								
Equity index:								
U.S. *(i)*	$ —	$ —	$ —	$ —	$ 14	$ 24	$ 14	$ 24
International *(ii)*	—	—	—	—	7	16	7	16
Fixed income index:								
Long bond *(iii)*	—	—	—	—	125	133	125	133
Government bond *(iv)*	—	—	—	—	100	89	100	89
Other fixed income *(v)*	63	57	—	—	—	—	63	57
Cash & Short-term Investments *(vi)*	—	—	—	—	6	6	6	6
Total U.S. Plans	$ 63	$ 57	$ —	$ —	$ 252	$ 268	$ 315	$ 325
Non-U.S. Plans:								
Equity index:								
U.S. *(i)*	$ —	$ —	$ —	$ —	$ 10	$ 10	$ 10	$ 10
International *(ii)*	—	—	—	—	5	6	5	6
Fixed income index:								
Government bond *(vii)*	—	—	—	—	73	78	73	78
Corporate bond *(viii)*	—	—	—	—	74	79	74	79
Other *(ix)*	—	—	—	—	10	25	10	25
Cash & Short-term Investments *(vi)*	—	—	2	2	—	—	2	2
Total Non-U.S. Plans	$ —	$ —	$ 2	$ 2	$ 172	$ 198	$ 174	$ 200

(i) This category consists of both passively and actively managed equity index funds that track the return of large capitalization U.S. equities.

(ii) This category consists of both passively and actively managed equity index funds that track an index of returns on international developed and emerging market equities.

(iii) This category consists of an actively managed fixed income index fund that invests in a diversified portfolio of fixed-income securities with maturities generally exceeding 10 years.

(iv) This category consists of both passively and actively managed fixed income index funds that invest in a diversified portfolio of fixed income government debt securities with varying maturities.

(v) This category consists of an actively managed common collective fund that invests in government bonds, collateralized mortgage obligations, investment grade private credit and real estate debt. This fund is priced monthly at the aggregated market value of the underlying investments and may be fully redeemed with 95 days notice.

(vi) This category represents cash, cash equivalents or highly liquid short-term investments.

(vii) This category consists of both passively and actively managed fixed income index funds that track the return of government bonds with varying maturities.

(viii) This category consists of actively managed fixed income index funds that track the return of investment grade corporate bonds with varying maturities.

(ix) This category mainly consists of investment products provided by insurance companies that offer returns that are subject to a minimum guarantee and mutual funds.

(dollars in millions, except per share data, unless otherwise noted)

During 2024, we made an insignificant cash contribution to our U.S. pension plans and $4 million to our non-U.S. pension plans. We anticipate that in 2025 we will make cash contributions of $1 million to our U.S. pension plans and $2 million to our non-U.S. pension plans. Cash contributions in subsequent years will depend on a number of factors, including the performance of plan assets.

We expect to pay the following benefit payments to beneficiaries, which reflect anticipated future service, as appropriate:

	U.S. Plans	Non-U.S. Plans
2025	$ 28	$ 10
2026	28	11
2027	28	12
2028	25	12
2029	24	12
Thereafter	113	69

We also maintain defined contribution plans. We make matching contributions to these plans that are subject to certain vesting requirements and are based on a percentage of employee contributions. The expense for defined contribution plans was $30 million in 2024, $28 million for 2023, and $22 million in 2022.

Postretirement Benefit Plans

Our postretirement benefit plans currently are not funded. The information presented below includes plans in the U.S., Brazil and Canada. The changes in the benefit obligations of the plans during 2024 and 2023, as well as the amounts recognized in our Consolidated Balance Sheets at December 31, 2024 and 2023, were as follows:

	2024	2023
Accumulated postretirement benefit obligation		
At January 1	$ 64	$ 58
Service cost	—	1
Interest cost	4	4
Amendments	—	2
Actuarial (gain) loss	(7)	1
Benefits paid	(3)	(4)
Foreign currency translation (loss) gain	(6)	2
At December 31	52	64
Fair value of plan assets	—	—
Funded status	$ (52)	$ (64)

As of December 31, 2024, the decrease in the postretirement benefit obligation was mainly driven by higher actuarial gains and favorable foreign currency. As of December 31, 2023, the actuarial loss was insignificant.

Amounts recorded in the Consolidated Balance Sheets at December 31, 2024 and 2023 were as follows:

	2024	2023
Current liabilities	$ (4)	$ (4)
Non-current liabilities	(48)	(60)
Net liability recognized	$ (52)	$ (64)

(dollars in millions, except per share data, unless otherwise noted)

Amounts recorded in AOCL, excluding tax effects that have not yet been recognized as components of net periodic benefit cost at December 31, 2024 and 2023, were as follows:

	2024	2023
Net actuarial (gain) loss	$ (5)	$ 4
Prior service cost	5	6
Net amount recognized	$ —	$ 10

Components of net periodic benefit cost consisted of the following for 2024, 2023 and 2022:

	2024	2023	2022
Service cost	$ —	$ 1	$ 1
Interest cost	4	4	3
Amortization of actuarial (gain) loss	—	(1)	—
Amortization of prior service cost	1	1	—
Net periodic benefit cost	$ 5	$ 5	$ 4

Total pre-tax amounts recorded in other comprehensive income and net periodic benefit cost for 2024, 2023 and 2022 were as follows:

	2024	2023	2022
Net actuarial loss (gain)	$ (7)	$ 1	$ (7)
Prior service cost	—	2	—
Amortization of prior service (cost)	(1)	(1)	—
Amortization of actuarial gain	—	1	—
Foreign currency translation (loss) gain	(2)	1	—
Total recorded in other comprehensive loss (income)	(10)	4	(7)
Net periodic benefit cost	5	5	4
Total recorded in other comprehensive (income) loss and net periodic benefit cost	$ (5)	$ 9	$ (3)

We used the following weighted average assumptions to determine our postretirement benefit obligations for 2024 and 2023:

	2024	2023
Discount rate	7.75 %	7.37 %

The following weighted average assumptions were used to determine our net postretirement benefit cost:

	2024	2023	2022
Discount rate	7.37 %	7.30 %	4.22 %

The discount rate reflects a rate of return on high-quality fixed-income investments that match the duration of expected benefit payments. We typically use returns on long-term, high-quality corporate AA bonds as a benchmark in establishing this assumption.

(dollars in millions, except per share data, unless otherwise noted)

The healthcare cost trend rates used in valuing our postretirement benefit obligations are established based upon actual healthcare trends and consultation with actuaries and benefit providers. We used the following assumptions as of December 31, 2024:

	U.S.	Canada	Brazil
2024 increase in per capita cost	8.40 %	5.25 %	8.42 %
Ultimate trend	4.50 %	4.05 %	8.42 %
Year ultimate trend reached	2034	2040	2024

We expect to make the following benefit payments to beneficiaries under our postretirement benefit plans, which reflect anticipated future service, as appropriate:

2025	$ 4
2026	4
2027	4
2028	4
2029	4
Thereafter	20

Multi-employer Plan

We participate in and contribute to one multi-employer benefit plan under the terms of collective bargaining agreements that cover certain union-represented employees and retirees in the U.S. The plan covers medical and dental benefits for active hourly employees and retirees represented by the United Steelworkers Union for certain U.S. locations. The risks of participating in this multi-employer plan are different from risk of participating in single-employer plans. This plan receives contributions from two or more unrelated employers pursuant to one or more collective bargaining agreements, and the assets contributed by one employer may be used to fund the benefits of all employees covered within the plan.

We are required to make contributions to this multi-employer plan as determined by the terms and conditions of the collective bargaining agreements and plan terms, but we do not provide more than five percent of the total contributions to the plan. We made regular contributions to the plan of $10 million in 2024, $11 million in 2023, and $10 million in 2022. We cannot currently estimate the amount of multi-employer plan contributions that will be required in 2025 and future years, but these contributions could increase due to healthcare cost trends. The remaining collective bargaining agreements associated with the multi-employer plan expire during 2027 and 2028.

11. Equity

Preferred stock: We have authorized 25 million shares of $0.01 par value preferred stock, none of which were issued or outstanding at December 31, 2024 and 2023.

Treasury stock: On September 26, 2022, the Board of Directors approved a stock repurchase program authorizing us to purchase up to 6.0 million shares of our outstanding common stock until December 31, 2025. We may repurchase shares from time to time in the open market, in privately negotiated transactions, or otherwise, at prices we deem appropriate. We are not obligated to repurchase any shares under the authorization, and the repurchase program may be suspended, discontinued or modified at any time, for any reason and without notice. The parameters of our stock repurchase program are not established solely with reference to the dilutive impact of shares issued under our stock incentive plan. However, we expect that, over time, share repurchases will offset the dilutive impact of shares issued under the stock incentive plan.

During 2024, we repurchased 1.7 million outstanding shares of common stock in open market transactions at a net cost of $216 million. During 2023, we repurchased 1.0 million shares of common stock in open market transactions at a net cost of $101 million. During 2022, pursuant to our previous stock repurchase program that has since been terminated, we repurchased 1.3 million shares of common stock in open market transactions at a net cost of $112 million.

Common stock share activity for 2024, 2023 and 2022 was as follows:

(Shares of common stock, in thousands)	Issued	Held in Treasury	Outstanding
Balance at December 31, 2021	77,811	11,154	66,657
Issuance of restricted stock units as compensation	—	(95)	95
Performance shares and other share-based awards	—	(43)	43
Stock options exercised	—	(182)	182
Purchase/acquisition of treasury stock	—	1,283	(1,283)
Balance at December 31, 2022	77,811	12,117	65,694
Issuance of restricted stock units as compensation	—	(108)	108
Performance shares and other share-based awards	—	(51)	51
Stock options exercised	—	(386)	386
Purchase/acquisition of treasury stock	—	1,000	(1,000)
Balance at December 31, 2023	77,811	12,572	65,239
Issuance of restricted stock units as compensation	—	(127)	127
Performance shares and other share-based awards	—	(145)	145
Stock options exercised	—	(635)	635
Purchase/acquisition of treasury stock	—	1,652	(1,652)
Balance at December 31, 2024	77,811	13,317	64,494

Share-based payments: Share-based compensation expense for 2024, 2023 and 2022 was as follows:

	2024	2023	2022
Stock options:			
Pre-tax compensation expense	$ 5	$ 4	$ 4
Income tax benefit	—	—	—
Stock option expense, net of income taxes	5	4	4
Restricted stock units ("RSUs"):			
Pre-tax compensation expense	18	15	13
Income tax benefit	(2)	(2)	(1)
RSUs, net of income taxes	16	13	12
Performance shares and other share-based awards:			
Pre-tax compensation expense	14	14	12
Income tax benefit	(1)	(1)	(1)
Performance shares and other share-based compensation expense, net of income taxes	13	13	11
Total share-based compensation:			
Pre-tax compensation expense	37	33	29
Income tax benefit	(3)	(3)	(2)
Total share-based compensation expense, net of income taxes	$ 34	$ 30	$ 27

We have a stock incentive plan ("SIP") that was approved on May 19, 2023 and which is administered by the People, Culture and Compensation Committee ("Compensation Committee") of our Board of Directors that provides for the granting of stock options, restricted stock, restricted stock units and other share-based awards to certain key employees. A maximum of 5.4 million shares were originally authorized for awards under the SIP. As of December 31, 2024, 5.1 million shares were available for future grants under the SIP. Shares covered by awards under the SIP and a prior stock incentive plan that expire, terminate or lapse will again be available for the grant of awards under the SIP.

Stock Options: Under the SIP, stock options are granted at exercise prices that equal the market value of the underlying common stock on the date of grant. The options have a 10-year term and are exercisable upon vesting, which occurs over a three-year period at the anniversary dates of the date of grant.

We granted non-qualified options to purchase 178 thousand, 197 thousand and 281 thousand shares for 2024, 2023 and 2022. The fair value of each option grant was estimated using the Black-Scholes option-pricing model with the following assumptions:

	For the Year Ended December 31,		
	2024	2023	2022
Expected life (in years)	5.5	5.5	5.5
Risk-free interest rate	4.2 %	4.0 %	2.0 %
Expected volatility	28.1 %	28.3 %	23.8 %
Expected dividend yield	2.9 %	2.9 %	2.9 %

The expected life of options represents the weighted average period for which we expect options granted to be outstanding giving consideration to vesting schedules and our historical exercise patterns. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the grant date for the period corresponding to the expected life of the options. Expected volatility is based on historical volatilities of our common stock, and dividend yields are based on our dividend yield at the date of issuance.

Stock option activity in 2024 was as follows:

	Number of Options (in thousands)	Weighted Average Exercise Price per Share	Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in millions)
Outstanding as of December 31, 2023	1,953	$ 96.61	5.0	$ 29
Granted	178	108.38		
Exercised	(635)	91.71		
Cancelled	(43)	101.45		
Outstanding as of December 31, 2024	1,453	$ 100.04	5.6	$ 55
Exercisable as of December 31, 2024	1,103	$ 99.67	5.7	$ 42

For 2024, 2023 and 2022, cash received from the exercise of stock options was $58 million, $28 million and $11 million. As of December 31, 2024, the unrecognized compensation cost related to non-vested stock options totaled $2 million, which is expected to be amortized over the weighted-average period of approximately 1.6 years.

Additional information pertaining to stock option activity is as follows:

	Year Ended December 31,		
	2024	2023	2022
Weighted average grant date fair value of stock options granted (per share)	$ 26.33	$ 23.80	$ 15.04
Total intrinsic value of stock options exercised	24	13	6

Restricted Stock Units: We have granted restricted stock units ("RSUs") to certain key employees. The RSUs are primarily subject to cliff vesting, generally after three years, provided the employee remains in our service. The fair value of the RSUs is determined based upon the number of shares granted and the quoted market price of our common stock at the grant date.

RSU activity in 2024 was as follows:

	Number of Restricted Shares (in thousands)	Weighted Average Fair Value per Share
Non-vested as of December 31, 2023	552	$ 92.05
Granted	213	109.04
Vested	(180)	87.75
Cancelled	(47)	95.84
Non-vested as of December 31, 2024	538	$ 99.58

The total fair value of RSUs that vested was $16 million in 2024, and $12 million in both 2023 and 2022.

At December 31, 2024, the total remaining unrecognized compensation cost related to RSUs was $19 million, which will be amortized on a weighted-average basis over approximately 1.7 years. Recognized compensation cost related to unvested RSUs is included in Share-based payments subject to redemption in the Consolidated Balance Sheets and totaled $32 million and $28 million for December 31, 2024 and 2023.

Performance Shares: We have a long-term incentive plan for senior management in the form of performance shares. For the 2024 performance shares, fifty percent of the performance shares awarded vest based on our total shareholder return as compared to the total shareholder return of our performance peer group and the remaining fifty percent vest based on the calculation of our three-year average Adjusted Return on Invested Capital (“Adjusted ROIC”) against an established ROIC target.

For the 2024 performance shares awarded based on our total shareholder return, the number of shares that ultimately vest can range from zero to 200 percent of the grant depending on our total shareholder return as compared to the total shareholder return of our peer group. The share award vesting will be calculated at the end of the three-year period and is subject to approval by management and the Compensation Committee. Compensation expense is based on the fair value of the performance shares at the grant date, established using a Monte Carlo simulation model. The total compensation expense for these awards is amortized over a three-year graded vesting schedule.

For the 2024 performance shares awarded based on Adjusted ROIC, the number of shares that ultimately vest can range from zero to 200 percent of the grant depending on our Adjusted ROIC performance against the target. The share award vesting will be calculated at the end of the three-year period and is subject to approval by management and the Compensation Committee. Compensation expense is based on the market price of our common stock on the grant date and the final number of shares that ultimately vest. We estimate the potential share vesting at least annually to adjust the compensation expense for these awards over the vesting period to reflect our estimated Adjusted ROIC performance against the target. The total compensation expense for these awards is amortized over a three-year graded vesting schedule.

We awarded 86 thousand, 93 thousand and 86 thousand performance shares in 2024, 2023 and 2022. The weighted average per share fair value of the shares granted during 2024, 2023 and 2022 was $127.97, $114.26 and $138.85.

The 2021 performance share awards that vested in February 2024 achieved a 200 percent payout of the granted performance shares. As of December 31, 2024, the 2022 performance share awards are estimated to pay out at 200 percent. Additionally, there were 17 thousand shares cancelled during 2024.

As of December 31, 2024, the unrecognized compensation cost relating to these plans was $9 million, which will be amortized over the remaining requisite service periods of 1.8 years. Recognized compensation cost related to these unvested awards is included in Share-based payments subject to redemption in the Consolidated Balance Sheets and totaled $28 million and $27 million for December 31, 2024 and 2023.

Other Share-based Awards Under the SIP: Under the compensation agreement with the Board of Directors, $160,000 of a non-employee director’s annual retainer is paid in Ingredion common stock. A director may elect to defer all or a portion of the director’s common stock or cash compensation in shares of restricted stock units. These restricted units may not be transferred until a date not less than six months and no more than ten years and six months after the director’s termination of service from the Board of Directors, at which time the restricted units will be settled by delivering shares of common stock. The compensation expense relating to this plan included in the Consolidated Statements of Income was $2 million in each of 2024, 2023 and 2022. At December 31, 2024, there were approximately 205 thousand restricted stock units outstanding under this plan at a carrying value of approximately $11 million.

(dollars in millions, except per share data, unless otherwise noted)

Accumulated Other Comprehensive Loss: A summary of Accumulated other comprehensive loss (“AOCL”) for 2024, 2023 and 2022 is presented below:

	Cumulative Translation Adjustment	Hedging Activities	Pension and Postretirement Adjustment	AOCL
Balance as of December 31, 2021	$ (903)	$ 48	$ (42)	$ (897)
Other comprehensive (loss) income before reclassification adjustments	(105)	210	(5)	100
(Income) reclassified from AOCL	—	(268)	—	(268)
Tax benefit	—	16	1	17
Net other comprehensive (loss)	(105)	(42)	(4)	(151)
Balance as of December 31, 2022	(1,008)	6	(46)	(1,048)
Other comprehensive income (loss) before reclassification adjustments	47	(151)	(2)	(106)
Loss reclassified from AOCL	—	78	1	79
Tax benefit	—	19	—	19
Net other comprehensive income (loss)	47	(54)	(1)	(8)
Balance as of December 31, 2023	(961)	(48)	(47)	(1,056)
Other comprehensive (loss) income before reclassification adjustments	(100)	(48)	23	(125)
Loss reclassified from AOCL	—	120	1	121
Tax (provision)	—	(20)	(6)	(26)
Net other comprehensive (loss) income	(100)	52	18	(30)
Balance as of December 31, 2024	$ (1,061)	$ 4	$ (29)	$ (1,086)

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Supplemental Information: The following table provides the computation of basic and diluted earnings per common share ("EPS").

	2024			2023			2022		
	Net Income Attributable to Ingredion	Weighted Average Shares	Per Share Amount	Net Income Attributable to Ingredion	Weighted Average Shares	Per Share Amount	Net Income Attributable to Ingredion	Weighted Average Shares	Per Share Amount
Basic EPS	$ 647	65.5	$ 9.88	$ 643	66.0	$ 9.74	$ 492	66.2	$ 7.43
Effect of Dilutive Securities *(i)*		1.1			1.0			0.8	
Diluted EPS	$ 647	66.6	$ 9.71	$ 643	67.0	$ 9.60	$ 492	67.0	$ 7.34

(i) Incremental shares from assumed exercise of dilutive stock options, vesting of dilutive stock options, vesting of dilutive RSUs and other awards.

Approximately 0.2 million, 0.5 million and 1.4 million share-based awards of common stock were excluded for 2024, 2023 and 2022 from the calculation of the weighted average number of shares outstanding for diluted EPS because their effects were anti-dilutive.

12. Segment and Geographical Information

Effective January 1, 2024, we changed our reportable segments to align them with changes in how our Chief Operating Decision Maker ("CODM"), James P. Zallie, our president and chief executive officer, evaluates performance, makes strategic decisions, and allocates resources.

We are principally engaged in the production and sale of starches and sweeteners for a wide range of industries, and our reportable segments are T&HS, F&II - LATAM and F&II - U.S./Canada. Businesses of multiple operating segments that are not individually or collectively classified as reportable segments are included in All Other. The T&HS segment has a global focus and primarily manufactures texturizing food ingredients. The F&II - LATAM segment has a local focus and primarily manufactures food, ingredient, and industrial products, which we process from raw materials that we primarily source within South America and Mexico. The F&II - U.S./Canada segment has a local focus and primarily manufactures food, ingredient, and industrial products, which we process from raw materials sourced within the U.S. and Canada. Revenues from All Other are generated primarily by sweetener and starch sales from our Pakistan business, sales of stevia and other ingredients from our PureCircle and Sugar Reduction businesses, and pea protein ingredients from our Protein Fortification business. All Other also included the sale of our South Korea business, which we divested on February 1, 2024, as more fully described in Note 2.

Net sales by product are not presented because such presentation is not practicable. No customer or group of related customers accounted for 10 percent or more of our net sales in 2024, 2023 or 2022.

Adjusted Operating Income presented by segment includes an arms-length profit margin for sales of manufactured products sold to other segments. We exclude specified and certain corporate items from our reportable segments and All Other because the CODM evaluates each segment's performance exclusive of these items.

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The following tables present information about our net sales, significant segment costs and adjusted operating income by reportable segment and All Other for the periods presented:

	December 31, 2024					
	T&HS	F&II - LATAM	F&II - U.S./Canada	All Other	Corporate	Total
Segment net sales	$ 2,417	$ 2,497	$ 2,244	$ 475	$ —	
Inter-segment net sales	(51)	(47)	(89)	(16)	—	
Net sales to unaffiliated customers	$ 2,366	$ 2,450	$ 2,155	$ 459	$ —	$ 7,430
Segment cost of sales	$ 1,715	$ 1,820	$ 1,691	$ 407	—	
Other operating expenses	301	147	91	74	168	
Adjusted operating income (loss)	$ 350	$ 483	$ 373	$ (22)	$ (168)	$ 1,016
Unallocated (costs) *(i)*						(133)
Operating income						$ 883

	December 31, 2023					
	T&HS	F&II - LATAM	F&II - U.S./Canada	All Other	Corporate	Total
Segment net sales	$ 2,566	$ 2,668	$ 2,429	$ 743	$ —	
Inter-segment net sales	(106)	(35)	(94)	(11)	—	
Net sales to unaffiliated customers	$ 2,460	$ 2,633	$ 2,335	$ 732	$ —	$ 8,160
Segment cost of sales	$ 1,759	$ 2,054	$ 1,951	$ 647	$ —	
Other operating expenses	307	127	86	87	173	
Adjusted operating income (loss)	$ 394	$ 452	$ 298	$ (2)	$ (173)	$ 969
Unallocated (costs) *(i)*						(12)
Operating income						$ 957

	December 31, 2022					
	T&HS	F&II - LATAM	F&II - U.S./Canada	All Other	Corporate	Total
Segment net sales	$ 2,527	$ 2,628	$ 2,303	$ 893	$ —	
Inter-segment net sales	(185)	(59)	(101)	(60)	—	
Net sales to unaffiliated customers	$ 2,342	$ 2,569	$ 2,202	$ 833	$ —	$ 7,946
Segment cost of sales	$ 1,771	$ 2,018	$ 1,916	$ 747	$ —	
Other operating expenses	274	114	77	92	150	
Adjusted operating income (loss)	$ 297	$ 437	$ 209	$ (6)	$ (150)	$ 787
Unallocated (costs) *(i)*						(25)
Operating income						$ 762

(i) Unallocated (costs):	2024	2023	2022
Acquisition/integration costs	$ —	$ —	$ (1)
Restructuring and resegmentation costs	(18)	(1)	(4)
Impairment charges	(109)	(10)	—
Other matters	(6)	(1)	(20)
Total unallocated (costs)	$ (133)	$ (12)	$ (25)

(dollars in millions, except per share data, unless otherwise noted)

Property, plant and equipment, net, by reportable segment and All Other as of December 31, 2024 and 2023 were as follows:

	As of December 31, 2024	As of December 31, 2023
Texture & Healthful Solutions	$ 884	$ 855
Food & Industrial Ingredients - LATAM	508	552
Food & Industrial Ingredients - U.S./Canada	556	548
All Other *(i)*	316	415
Total property, plant and equipment, net	$ 2,264	$ 2,370

(i) For purposes of presentation, All Other includes Corporate assets.

Property, plant and equipment, net by country as of December 31, 2024 and 2023 were as follows:

	2024	2023
U.S.	$ 1,076	$ 1,043
Mexico	258	273
Brazil	164	189
China	153	162
Thailand	152	152
Canada	128	207
Germany	121	122
Others	212	222
Total	$ 2,264	$ 2,370

(dollars in millions, except per share data, unless otherwise noted)

Depreciation and amortization, mechanical stores expense, capital expenditures and mechanical stores purchases by reportable segment and All Other were as follows:

	2024	2023	2022
Depreciation and amortization:			
Texture & Healthful Solutions	$ 82	$ 80	$ 75
Food & Industrial Ingredients - LATAM	48	47	46
Food & Industrial Ingredients - U.S./Canada	40	41	40
All Other *(i)*	44	51	54
Total	$ 214	$ 219	$ 215
Mechanical stores expense *(ii)*:			
Texture & Healthful Solutions	$ 14	$ 16	$ 15
Food & Industrial Ingredients - LATAM	13	14	12
Food & Industrial Ingredients - U.S./Canada	31	28	25
All Other *(i)*	4	4	3
Total	$ 62	$ 62	$ 55
Capital expenditures and mechanical stores purchases:			
Texture & Healthful Solutions	$ 101	$ 113	$ 120
Food & Industrial Ingredients - LATAM	80	70	59
Food & Industrial Ingredients - U.S./Canada	84	75	71
All Other *(i)*	36	58	50
Total	$ 301	$ 316	$ 300

(i) All Other includes Corporate activities.
(ii) Represents costs for spare parts used in the production process that are recorded in PP&E as part of machinery and equipment until they are utilized in the manufacturing process and expensed as a period cost.

Net sales to third-party customers by country of origin were as follows:

	2024	2023	2022
U.S.	$ 2,870	$ 3,069	$ 2,978
Mexico	1,503	1,571	1,444
Brazil	584	669	720
Canada	527	548	512
Germany	385	413	342
Colombia	310	332	333
Thailand	265	259	257
Others	986	1,299	1,360
Total	$ 7,430	$ 8,160	$ 7,946

13. Commitments and Contingencies

In December 2022, we filed an action in Brazil to recover previously taxable local government tax incentives, which we recorded as a $27 million income tax benefit in 2022 to reflect our belief that the recovery would be probable. As of December 31, 2024 and 2023, we had $39 million and $32 million of remaining tax incentives, which are increasing due to interest. We expect to use a portion of these credits within one year. As of December 31, 2024, $35 million was recorded in Accounts receivable, net and $4 million in Other non-current assets on the Consolidated Balance Sheets.

(dollars in millions, except per share data, unless otherwise noted)

We are currently subject to claims and suits arising in the ordinary course of business, including workplace and labor matters, asbestos related claims, environmental proceedings and other commercial claims. We also routinely receive inquiries from regulators and other government authorities relating to various aspects of our business, including with respect to compliance with laws and regulations relating to the environment, and at any given time we have matters at various stages of resolution with the applicable governmental authorities. The outcomes of these matters are not within our complete control and may not be known for prolonged periods. We do not believe that the results of currently known legal proceedings and inquires will be material to us. There can be no assurance, however, that such proceedings, matters, claims, suits or investigations or those arising in the future, whether taken individually or in the aggregate, will not have a material adverse effect on our financial condition or results of operations.

14. Supplementary Information

Accounts Receivable, Net

Accounts receivable, net as of December 31, 2024 and 2023 were as follows:

	As of December 31,	
	2024	2023
Accounts receivable - trade	$ 939	$ 1,145
Accounts receivable - other	167	154
Allowance for credit losses	(13)	(20)
Total accounts receivable, net	$ 1,093	$ 1,279

Write-offs of accounts receivable were insignificant in 2024 and 2023. There were no significant contract assets associated with customers as of December 31, 2024 and 2023.

Inventories

Inventories as of December 31, 2024 and 2023 were as follows:

	As of December 31,	
	2024	2023
Finished and in process	$ 762	$ 926
Raw materials	346	434
Manufacturing supplies	79	90
Total inventories	$ 1,187	$ 1,450

PP&E, Net

PP&E, net as of December 31, 2024 and 2023 was as follows:

	As of December 31,	
	2024	2023
Land	$ 173	$ 178
Buildings	824	853
Machinery and equipment	4,743	4,767
Property, plant and equipment, at cost	5,740	5,798
Accumulated depreciation	(3,476)	(3,428)
Total property, plant and equipment, net	$ 2,264	$ 2,370

(dollars in millions, except per share data, unless otherwise noted)

We recorded capitalized interest to PP&E of $4 million in 2024, $3 million in 2023, and $4 million in 2022. We recognized depreciation expense of $188 million in 2024, $193 million in 2023, and $189 million in 2022.

Investments

Investments as of December 31, 2024 and 2023 were as follows:

	As of December 31,	
	2024	2023
Equity investments	$ 31	$ 27
Equity method investments	95	112
Marketable securities	5	4
Total investments	$ 131	$ 143

Our investments classified as equity investments do not have readily determinable fair values. Our equity method investments, which require us to use the equity method of accounting, included a 49% joint venture equity ownership in Ingrear Holding S.A (the "Argentina joint venture") at December 31, 2024. We also recognized an other-than-temporary impairment on our investment the Amyris joint venture during the years ended December 31, 2024 and 2023.

During 2024, we received antitrust clearance to finalize the Argentina joint venture investment, subject to fulfillment of certain conditions to promote arms-length competition in the Argentina corn wet milling market, which must be completed over a five-year period through September 2029.

Supply Chain Finance Programs

Under supply chain finance programs administered by third-party banks, our suppliers have the opportunity to sell receivables due from us to participating financing institutions and receive earlier payment at a discount. Our responsibility is limited to making payment on the terms originally negotiated with our supplier, regardless of whether such supplier sells its receivable to a financial institution. The payment terms we negotiate with a supplier are independent of whether such supplier participates in a supply chain finance program, and participation in any such program by a supplier has no effect on our income or cash flows.

As of December 31, 2024 and 2023, participating financial institutions held $135 million and $153 million of our liabilities recorded in Accounts payable and Accrued liabilities and liabilities held for sale on our Consolidated Balance Sheets. As of December 31, 2024, supply chain finance programs existed for operations in Brazil, Mexico, certain PureCircle entities, Colombia, Peru, Thailand, and China.

The rollforward of our outstanding obligations confirmed as valid under our supply chain finance programs as of December 31, 2024 were follows:

	As of December 31, 2024
Outstanding at the beginning of the year	$ 153
Invoices added during the year	480
Invoices paid during the year	(473)
Cumulative translation adjustment	(25)
Outstanding as of December 31, 2024	$ 135

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Accrued Liabilities and Liabilities Held for Sale

Accrued liabilities and liabilities held for sale as of December 31, 2024 and 2023 were as follows:

	2024	2023
Compensation-related costs	$ 121	$ 121
Taxes payable and income taxes payable	156	97
Current lease liabilities	59	56
Dividends payable	52	51
Liabilities held for sale	3	51
Other accrued liabilities	242	170
Total accrued liabilities and liabilities held for sale	$ 633	$ 546

There were no significant contract liabilities associated with our customers as of December 31, 2024 and 2023. Liabilities for volume discounts and incentives were also not significant as of December 31, 2024 and 2023.

Other Non-Current Liabilities

Other non-current liabilities as of December 31, 2024 and 2023 were as follows:

	2024	2023
Non-current operating lease liabilities	$ 145	$ 157
Deferred tax liabilities	136	116
Pension and postretirement liabilities	100	90
Other	105	117
Total other non-current liabilities	$ 486	$ 480

Supplemental Statements of Income Information

Research and development ("R&D") expense was $67 million in 2024, $63 million in 2023, and $52 million in 2022. Our R&D expense, which we record in Operating expenses in the Consolidated Statements of Income, represents investments in new product development and innovation.

Supplemental Cash Flow Information

The following represents additional cash flow information:

	2024	2023	2022
Interest paid	$ 48	$ 96	$ 82
Income taxes paid	169	157	187

(dollars in millions, except per share data, unless otherwise noted)

Quarterly Financial Data (Unaudited)

Earnings per share for each quarter and the year are calculated individually and may not sum to the total for the respective year. Summarized quarterly financial data was as follows:

	1st QTR	2nd QTR	3rd QTR	4th QTR
2024				
Net sales	$ 1,882	$ 1,878	$ 1,870	$ 1,800
Gross profit	417	446	479	449
Net income attributable to Ingredion	216	148	188	95
Basic earnings per common share of Ingredion	3.29	2.25	2.88	1.46
Diluted earnings per common share of Ingredion	3.23	2.22	2.83	1.43
Per share dividends declared	0.78	0.78	0.80	0.80

	1st QTR	2nd QTR	3rd QTR	4th QTR
2023				
Net sales	$ 2,137	$ 2,069	$ 2,033	$ 1,921
Gross profit	487	441	421	400
Net income attributable to Ingredion	191	163	158	131
Basic earnings per common share of Ingredion	2.89	2.46	2.39	2.00
Diluted earnings per common share of Ingredion	2.85	2.42	2.36	1.97
Per share dividends declared	0.71	0.71	0.78	0.78