ARKEMA INNOVATIVE MATERIALS FOR A SUSTAINABLE WORLD

CONSOLIDATED FINANCIAL STATEMENTS

at 31 December 2023

28 February 2024

KPMG S.A.

ERNST & YOUNG Audit

Arkema

Year ended December 31, 2023

Statutory auditors' report on the consolidated financial statement

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Commissaire aux Comptes
Membre de la compagnie
régionale de Versailles et du Centre

Arkema

Year ended December 31, 2023

Statutory auditors' report on the consolidated financial statements

To the Annual General Meeting of Arkema,

Opinion

In compliance with the engagement entrusted to us by your Annual General Meeting, we have audited the accompanying consolidated financial statements of Arkema for the year ended December 31, 2023.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at December 31, 2023 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

The audit opinion expressed above is consistent with our report to the Audit Committee.

Basis for Opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the *Statutory Auditors' Responsibilities for the Audit of the Consolidated Financial Statements* section of our report.

Independence

We conducted our audit engagement in compliance with the independence requirements of the French Commercial Code *(Code de commerce)* and the French Code of Ethics for Statutory Auditors *(Code de déontologie de la profession de commissaire aux comptes)* for the period from January 1, 2023 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in Article 5(1) of Regulation (EU) No. 537/2014.

Justification of Assessments - Key Audit Matters

In accordance with the requirements of Articles L. 821-53 and R. 821-180 of the French Commercial Code *(Code de commerce)* relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the consolidated financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the consolidated financial statements.

Valuation of intangible assets and property, plant and equipment

Risk identified	Our response
Your Group subjects the recoverable amount of its intangible assets and property, plant and equipment to impairment tests, the terms of which are described in Note 9.5 to the consolidated accounts. As at December 31, 2023, these fixed assets, including goodwill, amounted to M€ 9 186 in net value, or 63.3% of the Group's total assets after recognition of impairments of the fiscal year. The valuation of these fixed assets is a key audit matter given their highly material amount in the consolidated financial statements of the Group and because the determination of their recoverable amount – based on future discounted cash flow projections – rely on the use of assumptions made by Management, as stated in Note 9.5 to the consolidated financial statements	We examined the compliance of the method applied by your Group with IAS 36, particularly with regard to the identification of groups of assets for which the impairment tests are performed. We appraised the conditions of the implementation of these impairment tests as well as the data and assumptions used. In particular, we: ● analyzed the process for developing the cash flow projections used in the plan prepared by the Group for the purpose of impairment testing. We checked that these projections had been approved by the General Management ; ● compared the main assumptions used for these tests with those of the five year plan validated by the Executive Committee ; ● compared the estimates used for previous periods with the actual figures ; ● verified the mathematical accuracy of the calculation, including that of the sensitivity tests ; ● compared, against external references, the discount rate and measured the sensitivity of the impairment tests following the methods described in Note 9.5 to the consolidated financial statements ;

	● analyzed the consistency of the information and the parameters used in these tests, with regard to (i) our knowledge of the sectors in which your Group operates, (ii) our assessment of the five year plan, (iii) our interviews with your Group's Management and (iv) considering the elements that could affect certain assets; ● analyzed the compliance of the information provided in the notes to the consolidated financial statements with IAS 36.

Environmental risks

Risk identified	Our response
The areas of activity in which your Group operates present a risk of incurring its environmental liability. Your Group assesses its exposure to these risks and presents, in its consolidated financial statements, an estimate of its liabilities and contingent liabilities relating to costs arising from commitments or legal, regulatory or contractual obligations, or those arising from the Group's practices or public commitments, as described in Note 11 to the consolidated financial statements. As at December 31, 2023, these provisions amounted to M€ 216. The liabilities and contingent liabilities are listed in Note 11.2 to the consolidated financial statements. We considered the valuation and the presentation in the notes of these liabilities and contingent liabilities to be a key audit matter in light of the fact that they are estimates, their sensitivity to regulatory developments, uncertainties as to the technical solutions to be implemented, and their materiality in the consolidated financial statements.	Our work, with the help of our environmental risk assessment specialists, consisted in : ● examining the procedures for identifying and recording the risks of incurring your Group's liability in environmental matters ; ● obtaining an understanding of the risk analysis carried out by Management, and examining the corresponding documentation ; ● analyzing the assumptions used by your Group to estimate exposure to those risks and the amount of the provisions or their nature of contingent liabilities ; ● comparing the information provided in the notes to the consolidated financial statements with that required by IFRS.

Specific Verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by laws and regulations of the information relating to the Group given in the Board of Directors' management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

We attest that the consolidated non-financial statement required by Article L. 225-102-1 of the French Commercial Code (Code de commerce) is included in the information relating to the Group given in the management report, it being specified that, in accordance with Article L. 823-10 of said Code, we have verified neither the fair presentation nor the consistency with the consolidated financial statements of the information contained therein. This information should be reported on by an independent third party.

Report on Other Legal and Regulatory Requirements

- **Format of preparation of the consolidated financial statements intended to be included in the annual financial report**

We have also verified, in accordance with the professional standard applicable in France relating to the procedures performed by statutory auditors regarding the annual and consolidated financial statements prepared in the European single electronic format, that the preparation of the consolidated financial statements intended to be included in the annual financial report mentioned in Article L. 451-1-2, I of the French Monetary and Financial Code (*Code monétaire et financier*), prepared under the Chairman and Chief Executive Officer's responsibility, complies with the single electronic format defined in Commission Delegated Regulation (EU) No. 2019/815 of 17 December 2018. Regarding consolidated financial statements, our work includes verifying that the tagging thereof complies with the format defined in the above-mentioned regulation.

On the basis of our work, we conclude that the preparation of the consolidated financial statements intended to be included in the annual financial report complies, in all material respects, with the European single electronic format.

Due to the technical limitations inherent to the block-tagging of the consolidated financial statements according to the European single electronic format, the content of certain tags of the notes may not be rendered identically to the accompanying consolidated financial statements.

Furthermore, we have no responsibility to verify that the consolidated financial statements that will ultimately be included by your Company in the annual financial report filed with the AMF *(Autorité des marchés financiers)* agree with those on which we have performed our work.

- **Appointment of the Statutory Auditors**

We were appointed as statutory auditors of Arkema by your annual general meeting held on June 23, 2005 for KPMG S.A. and on May 10, 2006 for ERNST AND YOUNG Audit.

As at December 31, 2023, KPMG S.A. was in the nineteenth year of total uninterrupted engagement, including eighteenth years since the securities of the Company were admitted to trading on a regulated market and ERNST AND YOUNG Audit was in the eighteenth years.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the European Union and for such internal control as Management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, Management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Company or to cease operations.

The Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risk management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The consolidated financial statements were approved by the Board of Directors.

Statutory Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Objectives and audit approach

Our role is to issue a report on the consolidated financial statements. Our objective is to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users made on the basis of these consolidated financial statements.

As specified in Article L. 821-55 of the French Commercial Code (*Code de commerce*), our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of the Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- Identifies and assesses the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control.

- Evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management in the consolidated financial statements.

- Assesses the appropriateness of Management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the consolidated financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein.

- Evaluates the overall presentation of the consolidated financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtains sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. The statutory auditor is responsible for the direction, supervision and performance of the audit of the consolidated financial statements and for the opinion expressed on these consolidated financial statements.

Report to the Audit Committee

We submit to the Audit Committee a report which includes in particular a description of the scope of the audit and the audit program implemented, as well as the results of our audit. We also report significant deficiencies, if any, in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Audit Committee includes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the consolidated financial statements of the current period and which are therefore the key audit matters that we are required to describe in this report.

We also provide the Audit Committee with the declaration provided for in Article 6 of Regulation (EU) No. 537/2014, confirming our independence within the meaning of the rules applicable in France as set out in particular in Articles L. 821-27 to L. 821-34 of the French Commercial Code *(Code de commerce)* and in the French Code of Ethics for Statutory Auditors *(Code de déontologie de la profession de commissaire aux comptes)*. Where appropriate, we discuss with the Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Paris-La Défense, February 28, 2024

The Statutory Auditors

KPMG S.A.   ERNST AND YOUNG Audit

Eric Dupré   François Quédiniac   Christine Vitrac

2 Consolidated financial statements at 31 December 2023

Consolidated income statement

(In millions of euros)	Notes	**2023**	2022
Sales	***(4.9 & 4.10)***	**9,514**	**11,550**
Operating expenses	*(6.1.2)*	(7,554)	(8,970)
Research and development expenses	*(6.1.3)*	(275)	(270)
Selling and administrative expenses		(874)	(868)
Other income and expenses	*(6.1.5)*	(130)	(155)
Operating income	***(6.1)***	**681**	**1,287**
Equity in income of affiliates	*(10.1 & 10.2)*	(9)	(6)
Financial result	*(12.1)*	(70)	(61)
Income taxes	*(8.1)*	(177)	(254)
Net income		**425**	**966**
Attributable to non-controlling interests		7	1
Net income – Group share		**418**	**965**
Earnings per share (in euros)	*(13.7)*	*5.39*	*12.81*
Diluted earnings per share (in euros)	*(13.7)*	*5.36*	*12.75*

Consolidated statement of comprehensive income

(In millions of euros)	Notes	**2023**	2022
Net income		**425**	**966**
Hedging adjustments		(45)	26
Other items		0	1
Deferred taxes on hedging adjustments and other items		3	(2)
Change in translation adjustments	*(13.6)*	(189)	108
Other recyclable comprehensive income		**(231)**	**133**
Impact of remeasuring unconsolidated investments		—	(1)
Actuarial gains and losses	*(7.3)*	(22)	88
Deferred taxes on actuarial gains and losses		4	(14)
Other non-recyclable comprehensive income		**(18)**	**73**
TOTAL INCOME AND EXPENSES RECOGNIZED DIRECTLY THROUGH EQUITY		**(249)**	**206**
Total comprehensive income		**176**	**1,172**
Attributable to non-controlling interests		0	—
Total comprehensive income – Group share		176	1,172

Bilan consolidé

(In millions of euros)	Notes	31 December 2023	31 December 2022
ASSETS			
Goodwill	*(9.1)*	3,040	2,655
Other intangible assets, net	*(9.2)*	2,416	2,178
Property, plant and equipment, net	*(9.3)*	3,730	3,429
Investments in equity affiliates	*(10.1 & 10.2)*	13	24
Other investments	*(10.3)*	52	52
Deferred tax assets	*(8.2)*	157	166
Other non-current assets	*(10.4)*	251	245
Total non-current assets		**9,659**	**8,749**
Inventories	*(6.2)*	1,208	1,399
Accounts receivable	*(6.2)*	1,261	1,360
Other receivables and prepaid expenses	*(6.2)*	170	202
Income taxes recoverable	*(8)*	142	130
Current financial derivative assets	*(12.2)*	32	57
Cash and cash equivalents	*(12.4)*	2,045	1,592
Assets held for sale	*(3.3)*	—	22
Total current assets		**4,858**	**4,762**
TOTAL ASSETS		**14,517**	**13,511**
LIABILITIES AND SHAREHOLDERS' EQUITY			
Share capital	*(13.1)*	750	750
Paid-in surplus and retained earnings		6,304	6,218
Treasury shares	*(13.3)*	(21)	(20)
Translation adjustments	*(13.6)*	170	352
Shareholders' equity – Group share		**7,203**	**7,300**
Non-controlling interests		252	39
Total shareholders' equity		**7,455**	**7,339**
Deferred tax liabilities	*(8.2)*	436	362
Provisions for pensions and other employee benefits	*(7.3)*	397	382
Other provisions and non-current liabilities	*(11.1)*	416	458
Non-current debt	*(12.3)*	3,734	2,560
Total non-current liabilities		**4,983**	**3,762**
Accounts payable	*(6.2)*	1,036	1,149
Other creditors and accrued liabilities	*(6.2)*	392	437
Income taxes payable	*(8)*	83	109
Current financial derivative liabilities	*(12.2)*	27	13
Current debt	*(12.3)*	541	698
Liabilities associated with assets held for sale	*(3.3)*	—	4
Total current liabilities		**2,079**	**2,410**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**14,517**	**13,511**

Consolidated cash flow statement

(In millions of euros)	Notes	2023	2022
OPERATING CASH FLOWS			
Net income		425	966
Depreciation, amortization and impairment of assets		718	707
Other provisions and deferred taxes		(30)	(45)
(Gains)/Losses on sales of long-term assets	*(3.3)*	(34)	(38)
Undistributed affiliate equity earnings		10	6
Change in working capital	*(6.2)*	158	(137)
Other changes		25	37
Cash flow from operating activities		**1,272**	**1,496**
INVESTING CASH FLOWS			
Intangible assets and property, plant and equipment additions	*(4.3)*	(634)	(707)
Change in fixed asset payables	*(6.2)*	(44)	(23)
Acquisitions of operations, net of cash acquired	*(3.2)*	(714)	(1,616)
Increase in long-term loans		(71)	(93)
Total expenditures		**(1,463)**	**(2,439)**
Proceeds from sale of operations, net of cash transferred	*(3.3)*	32	19
Change in fixed asset receivables		(1)	—
Proceeds from sale of intangible assets and property, plant and equipment	*(3.2)*	14	18
Repayment of long-term loans		63	61
Total divestitures		**108**	**98**
Cash flow from investing activities		**(1,355)**	**(2,341)**
FINANCING CASH FLOWS			
Issuance/(Repayment) of shares and paid-in surplus	*(13.1)*	—	48
Purchase of treasury shares	*(13.3)*	(32)	(22)
Dividends paid to parent company shareholders	*(13.4)*	(253)	(222)
Interest paid to bearers of subordinated perpetual notes	*(13.2)*	(16)	(16)
Dividends paid to non-controlling interests and buyout of minority interests		(3)	(4)
Increase in long-term debt	*(12.3)*	1,096	6
Decrease in long-term debt	*(12.3)*	(85)	(233)
Increase/(Decrease) in short-term debt	*(12.3)*	(191)	611
Cash flow from financing activities		**516**	**168**
Net increase/(decrease) in cash and cash equivalents		433	(677)
Effect of exchange rates and changes in scope		20	(16)
Cash and cash equivalents at beginning of period		1,592	2,285
Cash and cash equivalents at end of period	*(12.4)*	**2,045**	**1,592**

Consolidated statement of changes in shareholders' equity

(In millions of euros)	Share capital	Paid-in surplus	Hybrid bonds	Retained earnings	Translation adjust-ments	Treasury shares	Share-holders' equity – Group share	Non-controlling interests*	Share-holders' equity
At 1 January 2023	**750**	**1,067**	**700**	**4,451**	**352**	**(20)**	**7,300**	**39**	**7,339**
Cash dividend	—	—	—	(269)	—	—	(269)	(3)	(272)
Issuance of share capital	—	—	—	—	—	—	—	—	—
Capital reduction by cancellation of treasury shares	—	—	—	—	—	—	—	—	—
Purchase of treasury shares	—	—	—	—	—	(32)	(32)	—	(32)
Grants of treasury shares to employees	—	—	—	(31)	—	31	—	—	—
Share-based payments	—	—	—	25	—	—	25	—	25
Issuance of hybrid bonds	—	—	—	—	—	—	—	—	—
Redemption of hybrid bonds	—	—	—	—	—	—	—	—	—
Other	—	—	—	3	—	—	3	216	219
Transactions with shareholders	**—**	**—**	**—**	**(272)**	**—**	**(1)**	**(273)**	**213**	**(60)**
Net income	—	—	—	418	—	—	418	7	425
Total income and expenses recognized directly through equity	—	—	—	(60)	(182)	—	(242)	(7)	(249)
Total comprehensive income	**—**	**—**	**—**	**358**	**(182)**	**—**	**176**	**—**	**176**
At 31 December 2023	**750**	**1,067**	**700**	**4,537**	**170**	**(21)**	**7,203**	**252**	**7,455**

- *"Other" refers to the share of the PI Advanced Materials acquisition (see note 3.2 "Business combinations").*

(In millions of euros)	Share capital	Paid-in surplus	Hybrid bonds	Retained earnings	Translation adjust-ments	Treasury shares	Share-holders' equity – Group share	Non-controlling interests	Share-holders' equity
At 1 January 2022	**767**	**1,272**	**700**	**3,626**	**243**	**(305)**	**6,303**	**47**	**6,350**
Cash dividend	—	—	—	(238)	—	—	(238)	(4)	(242)
Issuance of share capital	7	41	—	—	—	—	48	—	48
Capital reduction by cancellation of treasury shares	(24)	(246)	—	—	—	270	—	—	—
Purchase of treasury shares	—	—	—	—	—	(22)	(22)	—	(22)
Grants of treasury shares to employees	—	—	—	(37)	—	37	—	—	—
Share-based payments	—	—	—	37	—	—	37	—	37
Issuance of hybrid bonds	—	—	—	—	—	—	—	—	—
Redemption of hybrid bonds	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	(4)	(4)
Transactions with shareholders	**(17)**	**(205)**	**—**	**(238)**	**—**	**285**	**(175)**	**(8)**	**(183)**
Net income	—	—	—	965	—	—	965	1	966
Total income and expenses recognized directly through equity	—	—	—	98	109	—	207	(1)	206
Total comprehensive income	**—**	**—**	**—**	**1,063**	**109**	**—**	**1,172**	**—**	**1,172**
At 31 December 2022	**750**	**1,067**	**700**	**4,451**	**352**	**(20)**	**7,300**	**39**	**7,339**

Notes to the consolidated financial statements at 31 December 2023

Note 1 Highlights

1.1 Portfolio management

On 28 June 2023, the Group announced the proposed acquisition of Glenwood Private Equity's 54% stake in the listed South Korean company PI Advanced Materials (PIAM), for an enterprise value of €728 million. With annual sales of over €200 million in 2022, an EBITDA margin of almost 30% and best-in-class manufacturing, PIAM is the global leader in polyimide films, delivering superior growth in the attractive consumer electronics and electric vehicles markets. Given PIAM's best-in-class innovation, ultra-high performance product portfolio and leading position, this project is perfectly aligned with the Group's ambition to be a pure player in Specialty Materials and will strengthen the Advanced Materials segment's portfolio and performance. The company is fully consolidated in Arkema's financial statements as of 1 December 2023, the date the deal was finalized.

In addition, on 1 June 2023, Arkema expanded its offering of engineering adhesives by finalizing the acquisition of Polytec PT, a German company specialized in adhesives for batteries and electronics applications. The business generates annual sales of around €15 million.

Lastly, the Group also continued its dynamic business portfolio management. On 3 January 2023, it finalized the divestment of Febex, a company specialized in phosphorus-based chemistry, to Belgian group Prayon. At 31 December 2022, Febex's assets and liabilities had been reclassified in the balance sheet as assets and liabilities held for sale.

The impacts of these operations are described in note 3.1 "Business combinations" and note 3.2 "Assets held for sale".

1.2 Other highlights

Arkema successfully completed two bond issues:

- a €400 million issue on 16 January 2023 with an 8-year maturity and an annual coupon of 3.50%;
- a €700 million issue on 13 November 2023 with a 6.5-year maturity and an annual coupon of 4.25%.

In line with its financing policy, the Group's aim with these issues is to continue refinancing its upcoming bond maturities and to extend the average maturity of its debt.

Arkema is rated BBB+ (positive outlook) by Standard & Poor's and Baa1 (stable outlook) by Moody's

Note 2 Accounting policies and new standards

Arkema, a major player in Specialty Chemicals and Advanced Materials, is a French limited liability company (*société anonyme*) with a Board of Directors, subject to the provisions of book II of the French Commercial Code and all other legal provisions applicable to French commercial companies. The Arkema Group's LEI is 9695000EHMS84KKP2785.

The Company's head office is at 420 rue d'Estienne d'Orves, 92700 Colombes (France). It was incorporated on 31 January 2003 and the shares of Arkema have been listed on the Paris stock exchange (Euronext) since 18 May 2006. The Group's parent company is Arkema S.A.

The Group's consolidated financial statements at 31 December 2023 were prepared under the responsibility of the Chairman and CEO of Arkema and were approved for publication by the Board of Directors of Arkema on 28 February 2024. They will be submitted to the approval of the shareholders' general meeting of 15 May 2024.

The consolidated financial statements at 31 December 2023 were prepared in accordance with the IFRS (International financial reporting Standards) issued by the IASB (International Accounting Standards Board) as released at 31 December 2023 and the IFRS endorsed by the European Union at 31 December 2023.

The accounting framework and standards adopted by the European Commission can be accessed from the following website:

https://ec.europa.eu/info/law/international-accounting-standards-regulation-ec-no-1606-2002.

The accounting policies applied in preparing the consolidated financial statements at 31 December 2023 are identical to those used in the consolidated financial statements at 31 December 2022, except for IFRS standards, amendments and interpretations, as adopted by the European Union and the IASB, that are mandatory for accounting periods commencing on or after 1 January 2023 (and which had not been applied early by the Group), namely:

Amendments to IAS 1	Disclosure of accounting policies	Adopted by the European Union on 3 March 2022
Amendments to IAS 8	Definition of accounting estimates	Adopted by the European Union on 3 March 2022
Amendments to IAS 12	Deferred tax related to assets and liabilities arising from a single transaction	Adopted by the European Union on 12 August 2022
Amendments to IAS 12	International tax reform – Pillar Two model rules	Adopted by the European Union on 9 November 2023
Amendments to IFRS 17	Initial application of IFRS 17 and IFRS 9 – Comparative information	Adopted by the European Union on 9 September 2022
IFRS 17	Insurance contracts	Adopted by the European Union on 23 November 2021

Application of these amendments and of IFRS 17 had no significant impact on the financial statements at 31 December 2023.

The standards, amendments and interpretations published by the IASB and the IFRS IC (IFRS Interpretations Committee) which are not yet mandatory for accounting periods commencing on or after 1 January 2023 (and which have not been applied early by the Group) are:

Amendments to IAS 1	Classification of liabilities as current or non-current	Adopted by the European Union on 21 December 2023
Amendments to IAS 7 and IFRS 7	Supplier financing arrangements	Not adopted by the European Union at 31 December 2023
Amendments to IAS 21	Lack of exchangeability	Not adopted by the European Union at 31 December 2023
Amendments to IFRS 16	Lease liability in a sale and leaseback	Adopted by the European Union on 21 November 2023

The Group does not expect application of the amendments to IAS 1, IAS 7, IAS 21, IFRS 7 and IFRS 16 to have a significant impact. The Group is continuing to assess its exposure to Pillar Two provisions. Given the small number of countries affected by the reform, it currently believes that the impact will not be significant.

Preparation of the consolidated financial statements in accordance with IFRS requires Group management to make estimates and determine assumptions that can have an impact on the amounts recognized in assets and liabilities at the balance sheet date, and have a corresponding impact on the income statement. Management made its estimates and determined its assumptions on the basis of past experience and taking into account different factors considered to be reasonable for the valuation of assets and liabilities. These financial statements therefore take into consideration in particular the current conflict in Ukraine and are based on information available at the closing date. Use of different assumptions could have a material effect on these valuations. The main assumptions made by management in preparing the financial statements are those used for measuring the recoverable value of property, plant and equipment and intangible assets, pension benefit obligations, deferred taxes and provisions. The disclosures provided concerning contingent assets and liabilities and off-balance sheet commitments at the date of preparation of the consolidated financial statements also involve the use of estimates.

The estimates and judgments incorporating the impacts of climate change in particular are presented in note 5.

The consolidated financial statements are prepared in accordance with the historical cost convention, except for certain financial assets and liabilities which are recognized at fair value.

The consolidated financial statements are presented in millions of euros, rounded to the nearest million, unless otherwise indicated.

The functional operating currency of foreign companies in the scope of consolidation is their local currency, in which most of their transactions are denominated. Their balance sheets are translated into euros on the basis of exchange rates at the end of the period. The statements of income and of cash flows are translated using the average exchange rates during the period. Foreign exchange differences resulting from translation of the financial statements of these subsidiaries are recorded either in "Translation adjustments" in shareholders' equity in the consolidated financial statements for the Group share, or in "Non-controlling interests" for the share not directly or indirectly attributable to the Group. In exceptional cases, a company's functional currency may differ from the local currency.

In application of IAS 21 "The effects of changes in foreign exchange rates", transactions denominated in foreign currencies are translated by the entity carrying out the transaction into its functional currency at the exchange rate applicable on the transaction date. Monetary balance sheet items are restated at the closing exchange rate at the balance sheet date. Gains and losses resulting from translation are recognized in recurring operating income, unless they result from unhedged financing, in which case they are included in the financial result.

In the notes to the financial statements, the main accounting methods are shown with a blue background.

Note 3 Scope of consolidation

3.1 Consolidation principles

All material transactions between consolidated companies, and all intercompany profits, are eliminated.

Control

The Group controls an entity when all of the three following conditions are fulfilled:

(i) the Group holds power over the entity (has effective rights conferring a current ability to direct the entity's relevant activities);

(ii) the Group is exposed or entitled to variable returns; and

(iii) the Group has the ability to use its power over the investee to influence the amount of the returns received.

Companies controlled directly or indirectly by the Group are fully consolidated, except for certain entities considered non-significant for the consolidated financial statements.

Joint arrangements

A joint arrangement is an operation over which two or more parties have joint control. Joint control is the contractually agreed sharing of control over an arrangement. It exists only when the decisions about the relevant activities require the unanimous consent of the parties sharing control.

There are two categories of joint arrangements:

- a joint operation is a joint arrangement in which the parties have rights to the assets and obligations for the liabilities. The Group recognizes the assets, liabilities, income and expenses in proportion to its percentage of interest in the capital of the joint operation; and
- a joint venture is a joint arrangement in which the parties have rights to the net assets of the arrangement. The Group applies the equity method to this type of joint arrangement.

To determine the type of joint arrangement, the Group must take the following factors into consideration:

- the structure of the joint arrangement (identifying whether it takes the form of a separate vehicle); and
- when the joint arrangement takes the form of a separate vehicle: the legal form, the terms of the contractual arrangements and other facts and circumstances.

Assessment of other facts and circumstances has led the Group to classify a certain number of joint arrangements as joint operations.

Associates

An associate is an entity over which the Group exercises significant influence. If the Group directly or indirectly holds 20% or more of the voting rights in the issuing entity, it is presumed to exercise significant influence. If it holds less than 20%, significant influence must be demonstrated.

Investments in associates are accounted for under the equity method.

Other investments

Shares owned in companies which do not meet the criteria set out above are included in "Other investments" and recognized in accordance with IFRS 9 (see note 10.3 "Other investments").

3.2 Business combinations

The Group uses the acquisition method for the recognition of business combinations, in accordance with IFRS 3 (Revised).

The identifiable assets acquired and liabilities assumed are stated at fair value at the acquisition date.

Where the business combination agreement provides for a purchase price adjustment, the Group includes the fair value of this adjustment at the acquisition date in the cost of the business combination, even if the adjustment is optional.

Non-controlling interests are measured at the acquisition date, either at fair value (the full goodwill method) or the NCI's proportionate share of net assets of the entity acquired (the partial goodwill method). The decision of which option to use is made for each business combination. Subsequent acquisitions of investments are always recorded in equity, regardless of the choice made at the time of the acquisition.

At the acquisition date, goodwill is measured as the difference between:

- the acquisition price plus the amount of any non-controlling interests in the acquired entity and the fair value of the acquirer's previously held equity interest in that acquired entity; and
- the fair value of identifiable assets and liabilities.

Goodwill is recognized in the balance sheet assets. Contingent liabilities are recognized in the balance sheet when the obligation concerned is current at the acquisition date and their fair value can be reliably measured.

Any negative goodwill arising on an acquisition on favorable terms, and direct acquisition expenses, are recognized immediately in the income statement under "Other income and expenses" (see note 6.1.5 "Other income and expenses").

The Group has a maximum of 12 months to finalize determination of the acquisition price and goodwill.

3.2.1 Finalization of the BOSTIK SOUTH AFRICA (PTY) LTD (formerly Permoseal), Shanghai Zhiguan Polymer Materials (PMP) and Polimeros Especiales purchase price allocations

The Group has finalized the purchase price allocations for BOSTIK SOUTH AFRICA (PTY) LTD (formerly Permoseal), Shanghai Zhiguan Polymer Materials (PMP) and Polimeros Especiales.

Intangible assets stated at fair value primarily comprise trademarks, a non-compete agreement, technologies and customer relations. They amount to €37 million.

Final goodwill totals €59 million for the three acquisitions and mainly corresponds to the value of future technologies and expected business development. This goodwill is not amortizable for tax purposes.

3.2.2 Acquisitions in 2023

Business combinations in 2023 correspond to the acquisitions described in note 1 "Highlights", namely:

- PI Advanced Materials Co., Ltd., in which the Group acquired a 54% stake; and
- Polytec PT Gmbh Polymere Technologien, in which the Group acquired a 100% stake.

The Group used the acquisition method for the accounting treatment of these operations.

Acquisition of PI Advanced Materials Co., Ltd.

On 1 December 2023, Arkema finalized the acquisition of Glenwood Private Equity's 54% stake in the listed South Korean company PI Advanced Materials (PIAM).

In the financial statements at 31 December 2023, provisional goodwill calculated using the partial goodwill method was recognized in an amount of €434 million. This goodwill cannot be amortized for tax purposes. The fair value of the identifiable assets acquired and liabilities assumed amounts to €465 million

The provisional allocation of the purchase price is detailed below:

(In millions of euros)	Fair value of PI Advanced Materials Co., Ltd.
Intangible assets	323
Property, plant and equipment	259
Other assets and liabilities	(117)
Total net assets acquired (a)	**465**
Net assets attributable to non-controlling interests (b)	(214)
54.07% share of net assets acquired (c)=(a)-(b)	**251**
Purchase price (d)	685
Goodwill at acquisition date (e)=(d)-(c)	**434**

Intangible assets correspond mainly to technology and customer relationships.

Acquisition of Polytec PT Gmbh Polymere Technologien

Provisional goodwill on the acquisition of Polytec PT Gmbh Polymere Technologien amounts to €62 million. Goodwill on the acquisition amortizable for tax purposes represents €12 million. The amount recognized in the financial statements at 31 December 2023 for the identifiable assets acquired and liabilities assumed at the acquisition dates is €7 million, of which €6 million in property, plant and equipment.

3.3 Assets held for sale

On 28 October 2022, Arkema announced the proposed divestment of Febex to Belgian group Prayon. Specialized in phosphorus-based chemistry, Febex reported sales of around €30 million in 2021. This divestment was finalized on 3 January 2023.

In application of IFRS 5 “Non-current assets held for sale and discontinued operations”, the assets held for sale and the associated liabilities were presented in two specific lines of the balance sheet at 31 December 2022. Non-current assets and groups of assets held for sale are stated at the lower of book value and fair value net of costs of disposal.

In the 2023 income statement, the capital gain amounts to €23 million before tax and is included in “Other income and expenses” for €23 million in 2023 (see note 6.1 “Other income and expenses”).

The price received is included in “Proceeds from sale of operations, net of cash transferred” in the cash flow statement in 2023.

The assets sold on 3 January 2023 are identical to those classified as assets held for sale in the 2022 financial statements, and are as follows:

(In millions of euros)	**2023**
Property, plant and equipment	4
Total non-current assets	**4**
Inventories	9
Accounts receivable	3
Other receivables and prepaid expenses	1
Cash and cash equivalents	5
Total current assets	**18**
ASSETS HELD FOR SALE	**22**
Accounts payable	2
Income taxes payable	1
Other current liabilities	1
Total current liabilities	**4**
LIABILITIES ASSOCIATED WITH ASSETS HELD FOR SALE	**4**

3.4 Warranties related to sales of businesses

When selling businesses, the Arkema Group has sometimes granted the purchaser warranties in respect of unrecorded liabilities. In most cases, these warranties are capped and granted for a limited period of time. They are also limited in terms of their coverage to certain types of expenses or litigation. In the majority of cases, they cover risks of occurrence of environmentally related expenses or litigation.

The cumulative residual amount of capped warranties in respect of unrecorded liabilities granted by the Group amounts to €55 million at 31 December 2023 (€55 million at 31 December 2022). These amounts are stated net of provisions recognized in the balance sheet in respect of such warranties.

Note 4 Alternative performance indicators and information by segment

To monitor and analyze the financial performance of the Group and its activities, Group management uses alternative performance indicators. These are financial indicators that are not defined by IFRS. This note presents a reconciliation of these indicators and the aggregates from the consolidated financial statements under IFRS.

4.1 Recurring operating income (REBIT) and EBITDA

(In millions of euros)	Notes	**2023**	2022
OPERATING INCOME		**681**	**1,287**
• Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		(128)	(118)
• Other income and expenses	*(6.1.5)*	(130)	(155)
RECURRING OPERATING INCOME (REBIT)		**939**	**1,560**
• Recurring depreciation and amortization of property, plant and equipment and intangible assets		(562)	(550)
EBITDA		**1,501**	**2,110**

Details of depreciation and amortization of property, plant and equipment and intangible assets:

(In millions of euros)	Notes	**2023**	2022
Depreciation and amortization of property, plant and equipment and intangible assets	***(9.1 & 9.2 & 9.3 & 9.4)***	**(718)**	**(707)**
Of which: Recurring depreciation and amortization of property, plant and equipment and intangible assets		(562)	(550)
Of which: Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		(128)	(118)
Of which: Impairment included in other income and expenses	*(6.1.5)*	(28)	(39)

4.2 Adjusted net income and adjusted earnings per share

(In millions of euros)	Notes	**2023**	2022
NET INCOME – GROUP SHARE		**418**	**965**
• Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		(128)	(118)
• Other income and expenses	*(6.1.5)*	(130)	(155)
• Other income and expenses attributable to non-controlling interests		—	—
• Taxes on depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		30	25
• Taxes on other income and expenses		14	27
• One-time tax effects		(21)	19
ADJUSTED NET INCOME		**653**	**1,167**
Weighted average number of ordinary shares		74,647,205	74,095,040
Weighted average number of potential ordinary shares	*(13.7)*	75,043,514	74,420,933
ADJUSTED EARNINGS PER SHARE (in euros)		**8.75**	**15.75**
DILUTED ADJUSTED EARNINGS PER SHARE (in euros)		**8.70**	**15.68**

4.3 Recurring capital expenditure

(In millions of euros)	2023	2022
INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT ADDITIONS	**634**	**707**
- Exceptional capital expenditure	26	123
- Investments relating to portfolio management operations	—	—
- Capital expenditure with no impact on net debt	0	0
RECURRING CAPITAL EXPENDITURE	**608**	**584**

Exceptional capital expenditure corresponds to a very limited number of capital expenditure items for major development projects that the Group presents separately in its financial reporting due to their size and nature. In the two periods presented, exceptional capital expenditure mainly concerned investments in Specialty Polyamides in Asia and the partnership with Nutrien in the United States for the supply of anhydrous hydrogen fluoride.

Investments relating to portfolio management operations reflect investments relating to acquisition operations.

4.4 Cash flow and EBITDA to cash conversion rate

(In millions of euros)	2023	2022
Cash flow from operating activities	1,272	1,496
+ Cash flow from investing activities	(1,355)	(2,341)
NET CASH FLOW	**(83)**	**(845)**
- Net cash flow from portfolio management operations	(708)	(1,629)
FREE CASH FLOW	**625**	**784**
- Exceptional capital expenditure	(26)	(123)
- Non-recurring cash flow	(110)	(26)
RECURRING CASH FLOW	**761**	**933**

The net cash flow from portfolio management operations corresponds to the impact of acquisition and divestment operations described in note 1 “Highlights”.

Non-recurring cash flow corresponds to cash flow from other income and expenses, as described in note 6.1.5 “Other income and expenses”.

(In millions of euros)	2023	2022
RECURRING CASH FLOW	**761**	**933**
EBITDA	1,501	2,110
EBITDA TO CASH CONVERSION RATE	**50.7%**	**44.2%**

4.5 Net debt

(In millions of euros)	Notes	2023	2022
Non-current debt	*(12.3)*	3,734	2,560
+ Current debt	*(12.3)*	541	698
- Cash and cash equivalents	*(12.4)*	2,045	1,592
NET DEBT		**2,230**	**1,666**
+ Hybrid bonds	*(13.2)*	700	700
NET DEBT AND HYBRID BONDS		**2,930**	**2,366**

4.6 Working capital

(In millions of euros)	Notes	2023	2022
Inventories	*(6.2)*	1,208	1,399
+ Accounts receivable	*(6.2)*	1,261	1,360
+ Other receivables including income taxes recoverable	*(6.2)*	312	332
+ Current financial derivative assets	*(12.2)*	32	57
'- Accounts payable (operating suppliers)	*(6.2)*	1,036	1,149
'- Other liabilities including income taxes	*(6.2)*	475	546
- Current financial derivative liabilities	*(12.2)*	27	13
WORKING CAPITAL		**1,275**	**1,440**

4.7 Capital employed

(In millions of euros)	Notes	2023	2022
Goodwill, net	*(9.1)*	3,040	2,655
+ Intangible assets (excluding goodwill) and property, plant and equipment, net	*(9.2 & 9.3)*	6,146	5,607
+ Investments in equity affiliates	*(10.1 & 10.2)*	13	24
+ Other investments and other non-current assets	*(10.3 & 10.4)*	303	297
Working capital		1,275	1,440
CAPITAL EMPLOYED		**10,777**	**10,023**
Adjustment*		(1,038)	13
ADJUSTED CAPITAL EMPLOYED		**9,739**	**10,036**

** In 2022, elements of capital employed classified as assets held for sale (Febex). In 2023, capital employed relating to PIAM, consolidated at the end of the year and with no material contribution to income for the year.*

4.8 Return on capital employed (ROCE)

The return on capital employed (ROCE) corresponds to the recurring operating income (REBIT) for the year as a percentage of the adjusted capital employed at the end of the year.

(In millions of euros)	2023	2022
Recurring operating income (REBIT)	939	1,560
Adjusted capital employed	9,739	10,036
ROCE	**9.6%**	**15.5%**

4.9 Information by segment

As required by IFRS 8 "Operating segments", segment information for the Group is presented in accordance with the internal reporting structure that is used by executive management in order to assess financial performance and allocate resources.

Operating income and assets are allocated between segments prior to inter-segment adjustments. Sales between segments take place at market prices.

Arkema is organized around three complementary, coherent segments dedicated to Specialty Materials, namely Adhesive Solutions, Advanced Materials and Coating Solutions, and an Intermediates segment consisting of activities with more volatile results.

The Adhesive Solutions segment is headed by a member of the Executive Committee, and the Advanced Materials, Coating Solutions and Intermediates segments are directed by a Chief Operating Officer who is also a member of the Executive Committee. Both of these segment heads report to the Chairman and CEO, Arkema's chief operating decision-maker as defined by IFRS 8, and are in regular contact with him for the purpose of discussing their segments' operating activities, financial results, forecasts and plans.

The Chief Operating Officer is supported by three other Executive Committee members, who report to him and are respectively in charge of the Coating Solutions segment and each of the two Business Lines[(1)] making up the Advanced Materials segment: High Performance Polymers and Performance Additives.

The content of the segments is as follows:

- Adhesive Solutions comprises the following Business Lines:
  - Construction and Consumer, providing solutions for construction, renovation of buildings, and DIY; and
  - Industrial Assembly, comprising high performance adhesives for durable goods, and adhesive solutions for packaging and non-woven.

The Adhesive Solutions segment supplies technologies used in building activities for businesses and individuals, including sealants, tile and flooring adhesives and waterproofing systems, and technologies used in industry, including state-of-the-art know-how in the automotive, textiles, glazing, flexible and rigid packaging, and hygiene markets.

- Advanced Materials comprises the following Business Lines:
  - High Performance Polymers, consisting of specialty polyamides, PVDF, polyimides, fluorospecialties and PEKK, and
  - Performance Additives, covering interface agents combining specialty surfactants and molecular sieves, organic peroxides, thiochemicals and hydrogen peroxide.

The Advanced Materials segment offers innovative solutions with high added value to meet the major challenges of sustainable development, including lightweighting, new energies, access to water, bio-based products and recycling. These solutions are used in a wide variety of sectors such as the automotive and transportation sectors, oil and gas, renewable energies (photovoltaics, lithium-ion batteries, wind power), consumer goods (sports equipment, packaging, beauty and health products, etc.), electronics, construction, coatings, animal nutrition and water treatment.

- Coating Solutions comprises the following Business Lines:
  - Coating Resins, combining the EU/US acrylics activities and coating resins; and
  - Coating Additives, combining Sartomer photocure resins and Coatex rheology additives and specialties.

This segment offers a broad range of innovative products for decorative paints, industrial coatings and adhesives, and also provides solutions for applications in the paper industry, superabsorbents, water treatment and oil and gas extraction, and in cutting-edge high-growth markets such as 3D printing and electronics.

- The Intermediates segment comprises the following activities:
  - Fluorogases, and
  - Asia Acrylics.

These industrial intermediate chemicals activities, in which Arkema holds leading positions, concern competitive global product lines used in several industrial sectors such as construction, production of cold (refrigeration and air conditioning), the automotive industry, coatings and water treatment.

Functional and financial activities which cannot be directly allocated to operational activities (notably certain research costs and central costs) are brought together in a Corporate segment.

[(1)] *Business Lines are activities or groups of activities.*

2023 *(In millions of euros)*	Adhesive Solutions	Advanced Materials	Coating Solutions	Intermediates	Corporate	Total
Sales	**2,714**	**3,562**	**2,402**	**797**	**39**	**9,514**
EBITDA*	**380**	**666**	**327**	**213**	**(85)**	**1,501**
Recurring depreciation and amortization of property, plant and equipment and intangible assets*	(87)	(300)	(126)	(43)	(6)	(562)
Recurring operating income (REBIT)*	**293**	**366**	**201**	**170**	**(91)**	**939**
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(102)	(19)	(7)	—	—	(128)
Other income and expenses	(32)	(81)	(3)	—	(14)	(130)
Operating income	**159**	**266**	**191**	**170**	**(105)**	**681**
Equity in income of affiliates	—	(10)	—	1	—	(9)
Intangible assets and property, plant and equipment additions	82	389	115	28	20	634
Of which: Recurring capital expenditure*	82	363	115	28	20	608
Goodwill, net	1,715	902	379	44	—	3,040
Intangible assets excluding goodwill and property, plant and equipment, net	2,148	3,015	752	185	46	6,146
Investments in equity affiliates	—	13	—	—	—	13
Other investments and other non-current assets	10	103	38	—	152	303
Working capital*	374	505	279	37	80	1,275
Capital employed*	**4,247**	**4,538**	**1,448**	**266**	**278**	**10,777**
Provisions and other non-current liabilities	(103)	(351)	(73)	(25)	(697)	(1,249)

* *See note 4 "Alternative performance indicators and information by segment".*

2022 *(In millions of euros)*	Adhesive Solutions	Advanced Materials	Coating Solutions	Intermediates	Corporate	Total
Sales	**2,898**	**4,341**	**3,250**	**1,020**	**41**	**11,550**
EBITDA*	**366**	**941**	**593**	**306**	**(96)**	**2,110**
Recurring depreciation and amortization of property, plant and equipment and intangible assets	(78)	(278)	(127)	(61)	(6)	(550)
Recurring operating income (REBIT)*	**288**	**663**	**466**	**245**	**(102)**	**1,560**
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(95)	(18)	(5)	—	—	(118)
Other income and expenses	(63)	(79)	—	23	(36)	(155)
Operating income	**130**	**566**	**461**	**268**	**(138)**	**1,287**
Equity in income of affiliates	—	(6)	—	—	—	(6)
Intangible assets and property, plant and equipment additions	85	456	127	20	19	707
Of which: Recurring capital expenditure*	85	333	127	20	19	584
Goodwill, net	1,736	484	391	44	—	2,655
Intangible assets excluding goodwill and property, plant and equipment, net	2,211	2,376	756	211	53	5,607
Investments in equity affiliates	—	24	—	0	—	24
Other investments and other non-current assets	12	93	38	—	154	297
Working capital*	455	552	335	45	53	1,440
Capital employed*	**4,414**	**3,529**	**1,520**	**300**	**260**	**10,023**
Provisions and other non-current liabilities	(95)	(384)	(74)	(29)	(620)	(1,202)

* *See note 4 "Alternative performance indicators and information by segment".*

Sales of Specialty Materials, by Business Line:

	2023	2022
Adhesive Solutions	**2,714**	**2,898**
of which Construction and Consumer	*1,250*	*1,349*
of which Industrial Assembly	*1,464*	*1,549*
Advanced Materials	**3,562**	**4,341**
of which High Performance Polymers	*1,457*	*1,926*
of which Performance Additives	*2,105*	*2,415*
Coating Solutions	**2,402**	**3,250**
of which Coating Resins	*1,743*	*2,358*
of which Coating Additives	*659*	*892*

4.10 Information by geographical area

Sales are presented on the basis of the geographical location of customers. Capital employed and gross intangible assets and property, plant and equipment additions are presented on the basis of the location of the assets.

2023 *(In millions of euros)*	Non-Group sales	Capital employed	Intangible assets and property, plant and equipment additions
Europe	3,272	4,205	312
of which France	*743*	*2,724*	*273*
NAFTA*	3,477	3,614	214
of which United States	*3,106*	*3,414*	*204*
Asia	2,244	2,801	101
*of which China***	*1,045*	*770*	*74*
Rest of the world	521	157	7
TOTAL	**9,514**	**10,777**	**634**

* *USA, Canada, Mexico.*
** *China, Hong Kong and Taiwan.*

2022 *(In millions of euros)*	Non-Group sales	Capital employed	Intangible assets and property, plant and equipment additions
Europe	3,803	4,218	299
of which France	*848*	*2,851*	*247*
NAFTA*	4,073	3,803	173
of which United States	*3,664*	*3,603*	*164*
Asia	3,177	1,818	226
*of which China***	*1,725*	*819*	*116*
Rest of the world	497	184	9
TOTAL	**11,550**	**10,023**	**707**

* *USA, Canada, Mexico.*
** *China, Hong Kong and Taiwan.*

Note 5 Climate issues

Arkema is committed to the fight against global warming and in 2022 raised its level of commitment from a "well below 2°C" trajectory to a "1.5°C" trajectory by 2030 in line with the Paris Agreement. This commitment now includes its Scope 3 emissions. In 2023, Arkema obtained SBTi validation of its decarbonization roadmap, which raised its emissions reduction targets to a 48.5% reduction for Scopes 1 and 2 and a 54% reduction for Scope 3 by 2030 versus the 2019 baseline.

In this regard, the Group is notably targeting a 25% reduction in its net energy purchases by 2030 versus 2012 (EFPI intensive indicator).

To meet these targets, the Group is constantly improving its production processes and looking to improve energy efficiency at its sites by leveraging innovation, particularly through its Arkema Energy program. It is also pursuing its efforts to purchase energy from low-carbon sources.

Its climate plan is supported by investments aimed at furthering decarbonization, which could represent a cumulative amount of €400 million over the 2022-30 period (see note 9.5 Asset value monitoring/Sensitivity analysis).

In line with Arkema's 2030 climate targets, climate issues are taken into account in its capital expenditure decisions, its raw materials and energy supply contracts, and its analyses of potential acquisition projects. In operational terms, capital expenditure decisions factor in an internal carbon price which is validated by the Group Executive Committee and is in line with the assumptions used in impairment testing.

In preparing the consolidated financial statements, management has identified estimates and judgments that may be impacted by the effects of climate change. They are listed below and are boxed in green in each of the notes:

Subject	Notes	Content
Sustainable capital expenditure	9.3. Property, plant and equipment	• Capital expenditure undertaken to date and aimed at furthering the Group's decarbonization goals include the projects at Carling and Lacq, as well as the Arkema Energy program.
Measurement of non-financial assets	9.3. Property, plant and equipment	• The Group takes climate issues into account when determining the useful lives of its fixed assets, and considers that such issues do not materially impact the value of its fixed assets at 31 December 2023.
	9.5. Asset value monitoring	• Assumptions used in impairment testing (cash flow projections and sensitivity analyses).
Provisions	11.1.2. Other provisions	• Environmental provisions cover, in particular, expenses related to physical risks associated with climate change.
Sustainable financing	12.3.1. Analysis of net debt by category	• A €300 million green bond issue was completed in 2020 to finance a plant manufacturing 100% bio-sourced Rilsan® polyamide 11 in Singapore • The syndicated credit line is linked to three CSR criteria (greenhouse gas emissions, volatile organic compound emissions and the total recordable injury rate).
Share-based payments	7.4.2. Free share grants	• Performance share grants partly depend on achieving environmental targets, such as the reduction of greenhouse gas emissions. This target determines 15% of the total grant in 2023 (12.5% in 2022).
Compliance with laws and regulations	6.2.3. Greenhouse gas emissions allowances (EUAs)	• Greenhouse gas emissions allowances (EUAs) held by the Group at the reporting date cover the operational needs of the Group's European units, with no foreseeable shortfall until the end of phase 4. The Group does not have any trading activity in respect of CO_2 emissions allowances.
Low-carbon energy contracts	6.3 Off-balance sheet commitments related to the Group's operating activities	• Arkema has signed multi-year contracts to purchase Guarantee of Origin certificates (RECs) within the scope of its Arkema Energy program. When material, these contracts are included within off-balance sheet commitments at the time they are entered into, and later recognized within intangible assets when the certificates are acquired. They give rise to the recognition of an expense when they are used.
	9.3 Property, plant and equipment	• Arkema has signed multi-year low-carbon energy procurement contracts (PPA) within the scope of its Arkema Energy program. These PPAs are analyzed on a case-by-case basis to determine whether they meet the criteria for recognition as property, plant and equipment or as a lease, which depends on the characteristics of the assets and the applicable contractual provisions.

Note 6 Other information relating to operating activities

6.1 Income statement

6.1.1 Sales

Sales consist of sales of chemicals produced or marketed by the Group. They are measured at the fair value of the consideration received or receivable, net of returns, trade discounts and volume rebates. Sales are recognized when control of the goods is transferred to the customer. The transfer of control is determined mainly on the basis of the terms and conditions of the sales contracts.

6.1.2 Operating expenses

Operating expenses correspond to the full cost of sales excluding research and development expenses and selling and administrative expenses which are reported on specific lines.

6.1.3 Research and development expenses

Research and development expenses include salaries, purchases, external services and amortization, and are recognized as incurred. Grants received are recognized as a deduction from research expenses.

The Group recognizes France's research tax credit (CIR) as a deduction from operating expenses.

6.1.4 Operating income

Operating income is calculated as all income and expenses not relating to the financial result, equity affiliates or income taxes.

6.1.5 Other income and expenses

Other income and expenses concern a limited number of well-identified non-recurring items of income and expense of a particularly material nature that the Group presents separately in its income statement in order to facilitate understanding of its recurring operational performance. These items of income and expense notably include:

- impairment losses in respect of property, plant and equipment, intangible assets and financial assets;
- gains or losses on sale of assets, acquisition costs, negative goodwill on acquisitions on favorable terms and the valuation difference on inventories between their fair value at the acquisition date and their production cost;
- expenses related to capital increases reserved for employees;
- start-up costs related to capital expenditure that is considered exceptional;
- large restructuring and environmental expenses which would hamper the interpretation of recurring operating income (including substantial modifications to employee benefit plans and the effect of onerous contracts); and
- material expenses related to litigation and claims whose nature is not directly related to ordinary operations.

	2023			2022		
(In millions of euros)	**Expenses**	**Income**	**Net**	Expenses	Income	Net
Restructuring and environment	(56)	4	(52)	(56)	5	(51)
Goodwill impairment	—	—	—	—	—	—
Asset impairment (excluding goodwill)	(28)	—	(28)	(33)	—	(33)
Litigation and claims	(1)	7	6	(14)	—	(14)
Gains (losses) on sales and purchases of assets	(12)	23	11	(51)	27	(24)
Other	(67)	—	(67)	(33)	—	(33)
TOTAL OTHER INCOME AND EXPENSES	**(164)**	**34**	**(130)**	**(187)**	**32**	**(155)**

In 2023, restructuring expenses mainly concern the Adhesives segment, while environment expenses relate to the Corporate segment, and in particular to an additional charge to the environmental provision concerning the St Fons site (see note 10.2.1 "Environment"). Specific asset impairments have primarily been recognized in the Hydrogen Peroxide activities for the Jarrie site in France (see note 9.3 "Property, plant and equipment"). The income and expenses relating to sales and purchases of assets were mainly attributable to the capital gain recognized on the divestment of Febex and to costs arising on the acquisition of the 54% stake in PIAM. The item "Other" primarily includes start-up costs for the Singapore site in Specialty Polyamides (see note 4.3 "Recurring capital expenditure").

In 2022, restructuring and environment expenses mainly concern the Adhesive Solutions, Advanced Materials and Corporate segments. Specific asset impairments have mainly been recognized in the Hydrogen Peroxide activities for the Jarrie site in France (see note 9.3 "Property, plant and equipment"). Expenses related to litigation and claims mainly concern legal fees for ongoing proceedings in the United States. The income and expenses relating to sales and purchases of assets were mainly attributable to the acquisition of Ashland's Performance Adhesives business. The income for this item is primarily attributable to the divestment of the PMMA activity in South Korea. The item "Other" primarily includes start-up costs related to exceptional capital expenditure in Specialty Polyamides in Asia (see note 4.3 "Recurring capital expenditure") and expenses related to the capital increase reserved for employees in the second half of 2022.

The total impairment (including goodwill impairment) included in other income and expenses amounts to a net expense of €28 million at 31 December 2023 compared to a net expense of €39 million at 31 December 2022.

6.2 Working capital

6.2.1 Cash flows

Cash flows in foreign currencies are translated into euros using the average exchange rates of each period. Cash flow statements exclude foreign exchange differences arising from the translation into euros of assets and liabilities recognized in balance sheets denominated in foreign currencies at the end of the period (except for cash and cash equivalents).

The change in working capital reported in the cash flow statement amounts to €158 million in cash flow from operating activities and €45 million in cash flow from investing activities.

(In millions of euros)	31 December 2022	Changes in scope	Monetary flows in the cash flow statement (operating and investing activities)	Translation adjust-ments	Other non-monetary flows	**31 December 2023**
Inventories	1,399	21	(194)	(30)	12	1,208
+ Accounts receivable, excluding fixed asset receivables	1,360	25	(98)	(30)	3	1,260
+ Other receivables, including income taxes recoverable	332	2	2	(8)	(16)	312
- Accounts payable, excluding fixed asset payables	927	15	(65)	(14)	1	864
- Other liabilities, including income taxes	546	8	(67)	(5)	(7)	475
TOTAL OPERATING CATEGORIES	**1,618**	**25**	**(158)**	**(49)**	**5**	**1,441**
+ Fixed asset receivables	—	—	1	—	—	1
- Other creditors and fixed asset payables	221	—	(44)	(5)	—	172
TOTAL INVESTING CATEGORIES	**(221)**	**—**	**45**	**5**	**—**	**(171)**
+ Current financial derivative assets and liabilities	43	—	—	6	(44)	5
TOTAL WORKING CAPITAL	**1,440**	**25**	**(113)**	**(38)**	**(39)**	**1,275**

6.2.2 Inventories

Inventories are valued in the consolidated financial statements at the lower of cost and net realizable value, in accordance with IAS 2 "Inventories". Cost of inventories is generally determined using the weighted average cost (WAC) method.

Cost of manufactured product inventories includes raw material and direct labor costs, and an allocation of production overheads and depreciation based on normal production capacity. Start-up costs and general and administrative costs are excluded from the cost of manufactured product inventories.

The net realizable value is the sale price as estimated for the normal course of business, less estimated costs for completion and sale.

(In millions of euros)	31 December 2023	31 December 2022
INVENTORIES (COST)	**1,333**	**1,522**
Valuation allowances	(125)	(123)
INVENTORIES (NET)	**1,208**	**1,399**
Of which:		
Raw materials and supplies	*413*	*495*
Finished products	*795*	*904*

6.2.3 Greenhouse gas emissions allowances (EUAs)

In the absence of an IFRS standard or interpretation relating to accounting for CO_2 emissions allowances, the following treatment has been adopted:

- allowances allocated without payment of consideration are recognized for nil value; and
- transactions carried out in the market are recognized at the transaction amount.

For the management of its combustion installations and process emissions, the Group is exposed to the risks arising from the European Union Emissions Trading Scheme (EU ETS) for greenhouse gases, which was introduced by the European Union in 2005. In phase 4, which began in 2021 and will continue until the end of 2030, the number of EU allowances (EUAs) for greenhouse gas emissions held in inventory at year-end covers the operational needs of the Group's European units, with no foreseeable shortfall until the end of phase 4. The Group does not have any trading activity in respect of CO_2 emissions allowances. However, in the normal course of its operations, the Group may carry out transactions on the market.

6.2.4 Accounts receivable, other receivables and prepaid expenses

Accounts receivable amount to €1,261 million net at 31 December 2023 (€1,360 million at 31 December 2022) and include a bad debt provision of €25 million at 31 December 2023 (€26 million at 31 December 2022). The maturities of accounts receivable net of provisions are presented in note 12.6.4 "Credit risk". Other receivables and prepaid expenses notably include receivables from governments in an amount of €114 million at 31 December 2023 (€140 million at 31 December 2022), including €97 million of VAT (€115 million at 31 December 2022).

6.2.5 Accounts payable, other creditors and accrued liabilities

Accounts payable amount to €1,036 million at 31 December 2023 (€1,149 million at 31 December 2022).

Other creditors and accrued liabilities mainly comprise employee-related liabilities for €261 million at 31 December 2023 (€280 million at 31 December 2022) and amounts owing to governments for €65 million at 31 December 2023 (€89 million at 31 December 2022), including €35 million of VAT (€55 million at 31 December 2022).

6.3 Off-balance sheet commitments related to operating activities

6.3.1 Off-balance sheet commitments related to the Group's operating activities

The main commitments given are summarized in the table below::

(In millions of euros)	31 December 2023	31 December 2022
Guarantees granted	136	132
Comfort letters	—	—
Contractual guarantees	1	2
Customs and excise guarantees	27	32
TOTAL	**164**	**166**

Guarantees granted are mainly bank guarantees in favor of local authorities and public bodies (state agencies, environmental agencies) in respect of environmental obligations or concerning classified sites, as well as rent guarantees for the Group's future headquarters.

6.3.2 Contractual commitments related to the Group's operating activities

In the normal course of business, the Arkema Group has signed multi-year purchase agreements for raw materials and energy for the operational requirements of its factories, in order to guarantee the security and continuity of supply. Signature of such contracts over initial periods generally comprised between one and ten years is a normal practice for companies in the Group's business sector in order to cover their needs.

These purchase commitments were valued taking into account, on a case-by-case basis, Arkema's financial commitment to its suppliers, as certain of these contracts include clauses which oblige the Group to take delivery of the minimum volumes as set out in the contract or, otherwise, to pay financial compensation to the supplier. Depending on the case, these commitments are reflected in the purchase contracts in the form of notice periods, indemnification to be paid to the supplier in case of early termination of the contract or "take or pay" clauses. The value of these agreements thus corresponds to the minimum amount payable to suppliers as indemnification in the event of termination of the contracts or failure to take delivery of the minimum contractual quantities, less any quantities that can be resold on the market when the Group is able to do so (even though this may not be its intention upon entering into the agreements).

This latter case concerns the Group's multi-year low-carbon energy procurement contracts and contracts to purchase Guarantee of Origin certificates, for which the Group's residual exposure has not been deemed material.

Some lease or purchase commitments do not fall within the scope of IFRS 16. Many of them are irrevocable purchase commitments described above, and service contracts or asset provision contracts that are not identified or controlled by Arkema at 31 December 2023. Only the irrevocable portion of outstanding future purchases has been valued,

The corresponding amounts are included in the table below at 31 December 2023.

The total amount of the Group's financial commitments is €1,219 million at 31 December 2023 (year Y) maturing as follows:

(In millions of euros)	**31 December 2023**	31 December 2022
Y	—	273
Y+1	259	140
Y+2	135	106
Y+3	113	103
Y+4	96	97
Y+5 until expiry of the contracts	616	652
TOTAL	**1,219**	**1,371**

Note 7 Workforce, personnel expenses and employee benefits

7.1 WORKFORCE

	Adhesive Solutions	Advanced Materials	Coating Solutions	Intermediates	Corporate	Total
Employees at 31 December 2023	6,885	9,245	3,795	886	135	20,946
Employees at 31 December 2022	7,088	8,862	3,849	1,009	136	20,944

	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Employees at 31 December 2023	7,178	3,458	4,017	5,180	1,113	20,946
Employees at 31 December 2022	7,216	3,551	4,127	4,922	1,128	20,944

** USA, Canada, Mexico.*

7.2 PERSONNEL EXPENSES

Personnel expenses, including free share grants (see note 7.4 "Share-based payments"), amount to €1,644 million in 2023 (€1,616 million in 2022).

They comprise €1,238 million of wages and salaries and IFRS 2 expenses (€1,229 million in 2022) and €406 million of social security charges (€387 million in 2022).

7.3 PROVISIONS FOR PENSIONS AND OTHER EMPLOYEE BENEFITS

In accordance with IAS 19 (Revised) “Employee benefits”:

- payments made in the context of defined contribution plans are recognized in expenses of the period; and
- obligations in respect of defined benefit plans are recognized and valued using the actuarial projected unit credit method.

Post-employment benefits

For defined benefit plans, the valuation of obligations under the projected unit credit method principally takes into account:

- an assumption concerning the date of retirement;
- a discount rate which depends on the geographical region and the duration of the obligations;
- an inflation rate;
- assumptions in respect of future increases in salaries, rates of employee turnover and increases in health costs; and
- the most recent mortality statistics for the countries concerned.

Returns on plan assets are in line with discount rates.

Differences which arise between the valuation of obligations and forecasts of such obligations (on the basis of new projections or assumptions) and between forecasts and outcomes of returns on plan assets are termed actuarial gains and losses, and are recorded in other non-recyclable comprehensive income.

When a plan is amended or created, the entire past service cost is immediately recognized in the income statement.

A pension asset may be generated where a defined benefit plan is overfunded. The amount at which such an asset is recognized in the balance sheet may be subject to a ceiling, in application of IAS 19.64 and IFRIC 14.

Other long-term benefits

In respect of other long-term benefits, and in accordance with applicable laws and regulations, provisions are recognized using a simplified method. Thus, if an actuarial valuation using the projected unit credit method is required, actuarial gains and losses and all past service costs are recognized immediately in the provision, with a corresponding entry being recognized in the income statement.

The net expense related to pension obligations and other employee benefit obligations is recognized in recurring operating income, with the exception of:

- the effect of curtailments or settlements of plans, which are presented under the “Other income and expenses” caption in the case of substantial modifications to such plans; and
- the net interest expense and the actuarial gains and losses related to changes in the discount rate on other long-term benefits, which are classified within the financial result caption.

IFRIC decision on attributing benefit to periods of service (IAS 19 "Employee benefits")

From 2021 onward, IFRIC (IFRS Interpretations Committee), in agreement with the IASB, will adopt a new approach for attributing benefit to periods of service.

The following plans are concerned:

- plans with payments on retirement, where benefits are capped in terms of months after a specified number of years of service in the company;
- supplementary defined benefit pension plans other than those affected by the French order of July 2019, which froze any further rights accruals as of the end of 2019; and

early retirement schemes, where benefits are only paid if the employment contract is terminated

At 31 December 2023, provisions for pensions and other employee benefits break down as follows:

(In millions of euros)	**2023**	2022
Pension obligations	267	255
Healthcare and similar coverage	45	46
Dispensation from work	14	15
Post-employment benefits	**326**	**316**
Long service awards	71	66
Other long-term benefits	**71**	**66**
Provisions for pensions and other employee benefits	**397**	**382**

(In millions of euros)	**2023**	2022
Provision recognized in liabilities	397	382
Amount recognized in assets	(2)	(1)
Net provisions for pensions and other employee benefits	**395**	**381**

Characteristics of the principal plans

In accordance with the laws and practices of each country, the Group participates in employee benefit plans offering retirement, healthcare and similar coverage, and special termination benefits. These plans provide benefits based on various factors including length of service, salaries, and contributions made to the national bodies responsible for the payment of benefits.

These plans are either defined contribution plans or defined benefit plans. In certain cases they can be either partly or totally funded by investments in dedicated plan assets, mutual funds, general funds of insurance companies or other assets.

The main features of the principal defined benefit plans are as follows:

- in the United States, the largest defined benefit plan is the "Employee Pension Plan". This plan has been frozen for several years and no new rights can be earned except in the case of a few employees. Under this plan, beneficiaries receive a lump sum or an annuity when they retire. The plan is pre-funded, and the assets funding it are subject to the minimum funding rules laid down in the federal Pension Protection Act. A complementary healthcare plan covering certain medical expenses or insurance premiums for retired employees and their dependents is still open to new members; this plan is not pre-funded. In 2020, to reduce exposure to financial risk and volatility, some of the Employee Pension Plan obligations were outsourced to an insurance company together with the corresponding assets. This resulted in a US$31 million decrease in assets and a US$29.5 million decrease in obligations, with the difference recorded in the 2020 income statement. An additional transfer was carried out in 2021, resulting in a US$42.9 million decrease in assets and a US$44.6 million decrease in obligations, with the difference recorded in the 2021 income statement;
- in France, the top hat pension plans are closed to new members. One of these plans is managed by an insurance company and pre-funded by plan assets. The other plan has been terminated insofar as it concerns the Chairman and Chief Executive Officer, following the resolution adopted at the annual general meeting of 7 June 2016. The portion of the plan related to other beneficiaries was closed and transferred to external management in 2016.

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The retiree top-up healthcare plan is also closed and is not pre-funded. Other benefit plans (bonuses, long service awards and retirement gratuities) pay out lump sums; they are open to all employees and are partly pre-funded;

- in Germany, all defined benefit plans are closed to new members. Plan participants receive a monthly payment once they retire (the normal retirement age is set at 65). Only certain plans are pre-funded, involving non-significant amounts;
- in the Netherlands, the defined benefit plans for Arkema and Bostik were open until 31 December 2015 and were then replaced by defined contribution plans from 1 January 2016. Rights vested at 31 December 2015 were transferred to external management; and
- in the United Kingdom, no further rights have been able to be earned under any existing plan for several years now. The UK plans are pre-funded through a pension fund.

2023 French pension reform

On 14 April 2023, France passed amended 2023 social security financing law no. 2023-270, which gradually increases the legal retirement age (from 62 to 64) and lengthens the amount of time workers are required to make contributions.

The impact of this reform is not material for the Group's pension obligations and other employee benefits, as the retirement age assumptions used in previous years were already higher than the minimum age required under the new reform.

7.3.1 Expense in the income statement

The expense related to defined-benefit plans breaks down as follows:

	2023				2022			
(In millions of euros)	**Total**	**Pension obligations**	**Healthcare and similar coverage**	**Dispen-sation from work**	Total	Pension obligations	Healthcare and similar coverage	Dispen-sation from work
Current service cost	13	11	1	1	16	14	1	1
Past service cost	—	—	—	—	—	—	—	—
Settlements	—	—	—	—	—	—	—	—
Interest expense	22	20	2	—	15	14	1	—
Expected return on plan assets	(10)	(10)	—	—	(8)	(8)	—	—
Other	—	—	—	—	—	—	—	—
(Income)/Expense	**25**	**21**	**3**	**1**	**23**	**20**	**2**	**1**

7.3.2 Change in net provisions over the period

	Pension obligations		**Healthcare and similar coverage**		**Dispensation from work**		**Total post-employment benefits**	
(In millions of euros)	**2023**	2022	**2023**	2022	**2023**	2022	**2023**	2022
Net liability (asset) at beginning of period	**254**	**324**	**46**	**59**	**15**	**19**	**315**	**402**
Provision recognized in liabilities	*255*	*335*	*46*	*59*	*15*	*19*	*316*	*413*
Amount recognized in assets	*(1)*	*(11)*	—		—	—	*(1)*	*(11)*
(Income)/Expense for the period	21	20	3	2	1	1	25	23
Contributions paid to plan assets	(10)	(17)	—	—	—	—	(10)	(17)
Net benefits paid by the employer	(12)	(10)	(7)	(3)	(2)	(3)	(21)	(16)
Changes in scope	—	1	2	2	—	—	2	3
Reclassification as assets held for sale under IFRS 5	—	—	—	—	—	—	—	—
Actuarial gains and losses recognized in shareholders' equity	17	(71)	2	(15)	—	(2)	19	(88)
Translation adjustments	(5)	7	(1)	2	—	—	(6)	8
Net liability (asset) at end of period	**265**	**254**	**45**	**46**	**14**	**15**	**324**	**315**
Provision recognized in liabilities	*267*	*255*	*45*	*46*	*14*	*15*	*326*	*316*
Amount recognized in assets	*(2)*	*(1)*	—	—	—	—	*(2)*	*(1)*

7.3.3 Benefit obligations and provisions at 31 December

a) Present value of benefit obligations

(In millions of euros)	Pension obligations 2023	Pension obligations 2022	Healthcare and similar coverage 2023	Healthcare and similar coverage 2022	Dispensation from work 2023	Dispensation from work 2022
Present value of benefit obligations at beginning of period	**457**	**648**	**46**	**59**	**15**	**19**
Current service cost	11	14	1	1	1	1
Net interest expense	20	14	2	1	—	—
Past service cost (including curtailments)	—	—	—	—	—	—
Settlements	—	—	—	—	—	—
Plan participants' contributions	—	—	—	—	—	—
Benefits paid	(43)	(72)	(7)	(3)	(2)	(3)
Changes in scope	—	1	2	2	—	—
Reclassification as assets held for sale under IFRS 5	—	(17)	—	—	—	—
Actuarial gains and losses recognized in shareholders' equity	20	(149)	2	(15)	—	(2)
Translation adjustments	(8)	18	(1)	2	—	—
Present value of benefit obligations at end of period	**457**	**457**	**45**	**46**	**14**	**15**

b) Change in fair value of plan assets

Plan assets are mainly located in the United States, France and the United Kingdom.

(In millions of euros)	Pension obligations 2023	Pension obligations 2022
Fair value of plan assets at beginning of period	**(203)**	**(324)**
Interest income	(10)	(8)
Settlements	—	—
Plan participants' contributions	—	—
Employer contributions	(10)	(17)
Benefits paid from plan assets	30	63
Changes in scope	—	—
Reclassification as assets held for sale under IFRS 5	—	17
Actuarial gains and losses recognized in shareholders' equity	(3)	78
Translation adjustments	4	(12)
Fair value of plan assets at end of period	**(192)**	**(203)**

c) Obligations in the balance sheet

(In millions of euros)	Pension obligations 2023	Pension obligations 2022	Healthcare and similar coverage 2023	Healthcare and similar coverage 2022	Dispensation from work 2023	Dispensation from work 2022
Present value of unfunded obligations	88	88	45	46	14	15
Present value of funded obligations	369	369	—	—	—	—
Fair value of plan assets	(192)	(203)	—	—	—	—
(Surplus)/Deficit of assets relative to benefit obligations	**265**	**254**	**45**	**46**	**14**	**15**
Asset ceiling	—	—	—	—	—	—
Net balance sheet provision	**265**	**254**	**45**	**46**	**14**	**15**
Provision recognized in liabilities	*267*	*255*	*45*	*46*	*14*	*15*
Amount recognized in assets	*(2)*	*(1)*	—	—	—	—

Changes in recent years in the obligation (excluding the dispensation from work mechanism), the value of the plan assets and actuarial gains and losses are as follows:

(In millions of euros)	**2023**	2022	2021	2020
Obligations for pensions, healthcare and similar coverage	502	503	707	804
Plan assets	(192)	(203)	(324)	(354)
Net obligations	**310**	**300**	**383**	**450**
Actuarial (gains) and losses on accumulated rights				
• experience adjustments	11	6	(6)	(7)
• effects of changes in financial assumptions	13	(171)	(43)	77
• effects of changes in demographic assumptions	(5)	1	(6)	—

d) Pre-tax amount recognized through equity during the valuation period

	Pension obligations		**Healthcare and similar coverage**		**Dispensation from work**	
(In millions of euros)	**2023**	2022	**2023**	2022	**2023**	2022
Actuarial (gains) and losses generated in the period (A)	17	(71)	2	(15)	—	(2)
Effect of the surplus cap and the asset ceiling (B)	—	—	—	—	—	—
Total amount recognized in equity (A+B)	**17**	**(71)**	**2**	**(15)**	**—**	**(2)**
Cumulative actuarial (gains) and losses recognized in equity	**116**	**99**	**(93)**	**(95)**	**(3)**	**(3)**

e) Composition of the investment portfolio

	Pension obligations							
	At 31 December 2023				At 31 December 2022			
	France	**UK**	**Rest of Europe**	**USA**	France	UK	Rest of Europe	USA
Shares	13%	20%	14%	37%	14%	26%	20%	45%
Bonds	15%	38%	43%	40%	18%	30%	31%	41%
Property	2%	—%	—%	10%	2%	—%	17%	10%
Monetary/Cash assets	—%	10%	2%	—%	—%	1%	8%	—%
Investment funds	—%	32%	—%	—%	—%	43%	—%	—%
Funds held by an insurance company	70%	—%	31%	—%	65%	—%	12%	—%
Other	—%	—%	10%	13%	—%	—%	12%	4%

Pension assets are mainly invested in listed financial instruments. Funds are managed in the interests of beneficiaries and of the Group in a manner suited to the liability profile and in compliance with applicable regulations.

f) Actuarial assumptions

The main assumptions for pension obligations and healthcare and similar coverage are as follows:

	2023					2022				
	France	**Germany**	**UK**	**Rest of Europe**	**USA**	France	Germany	UK	Rest of Europe	USA
Discount rate	3.55	3.60	4.50	3.51	4.95	4.10	4.13	4.80	2.93	5.20
Rate of increase in salaries	2.9-3.5	3.00	N/A	2.30-3.75	4.14	3-3.5	3.00	N/A	2.0-3.75	4.16

The discount rate is determined based on indexes covering bonds by issuers with an AA credit rating, for maturities consistent with the duration of the above obligations.

The rate of increase in healthcare costs has a negligible impact in the United States as a ceiling has been applied since mid-2006, and in Europe since 2008. The impact has been limited to the rate of inflation during the period over which rights vest.

A change of plus or minus 0.50 points in the discount rate has the following effects on the present value of accumulated benefit obligations at 31 December 2023:

Pension obligations, healthcare and similar coverage	2023	
(In millions of euros)	**Europe**	**USA**
Increase of 0.50	(16)	(12)
Decrease of 0.50	17	12

A change of plus or minus 0.50 points in the rate of increase in salaries has the following effects on the present value of accumulated benefit obligations at 31 December 2023:

Pension obligations, healthcare and similar coverage	2023	
(In millions of euros)	**Europe**	**USA**
Increase of 0.50	7	2
Decrease of 0.50	(7)	(2)

g) Provisions by geographical area

2023	France	Germany	Rest of Europe	USA	Rest of the world	**Total**
Pension obligations	110	71	10	63	11	265
Healthcare and similar coverage	20	—	—	25	—	45
Dispensation from work	14	—	—	—	—	14

2022	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	103	64	11	67	9	254
Healthcare and similar coverage	20	—	—	25	1	46
Dispensation from work	15	—	—	—	—	15

h) Cash flows

The contributions to be paid by the Group in 2024 for funded benefits are estimated at (€9) million.

The benefits to be paid by the Group in 2024 in application of defined benefit plans are valued at €13 million for pension obligations, and €9 million for healthcare and similar coverage.

7.4 SHARE-BASED PAYMENTS

In application of IFRS 2 “Share-based payments”, the free shares granted to management and certain Group employees are measured at their fair value at the date of grant, which generally corresponds to the date of the Board of Directors’ meeting that granted the free shares.

The fair value of rights under free share grants corresponds to the opening market price of the shares on the day of the Board of Directors’ meeting that decides on the grant, adjusted for dividends not received during the period. The expense recognized also reflects the probability that the presence condition will be fulfilled. This expense is included in personnel expenses on a straight-line basis over the vesting period of the rights.

7.4.1 Stock options

The Board of Directors decided several years ago not to introduce any further stock option plans, and there are no remaining stock option plans outstanding.

7.4.2 Free share grants

On 8 November 2023, the Board of Directors decided to introduce two free performance share plans for employees, particularly people in positions of responsibility whose work has an influence on the Group's results.

Performance shares are generally granted on the condition of continued presence within the Group and achievement of financial and CSR objectives.

These include a greenhouse gas emissions reduction target (climate indicator determining 15% of the total grant in 2023 (12.5% in 2022)).

Movements in the free share grant plans existing at 31 December 2023 are as follows:

Plan	Grant date	Vesting period	Holding period	Total number of free shares granted	Number of shares subject to performance conditions	Fair value (euros per share)	Number of shares vested in 2023	Number of shares canceled in 2023	Total number of shares still to be granted at 31 Dec. 2023
2020-1, 2	5 May 2020	3-4 years	0-3 years	9,129	-	10.09-20.94	1,135	41	7,939
2020-3	4 Nov. 2020	3 years	2 years	238,550 (1)	226,000	52.58	237,884	1,210	-
2020-4	4 Nov. 2020	4 years	-	128,245 (2)	111,365	54.33	-	3,740	116,275
2021-1	9 Nov. 2021	3 years	2 years	239,575 (3)	227,387	81.91	-	3,430	232,075
2021-2	9 Nov. 2021	4 years	-	124,713 (4)	105,293	83.92	-	3,975	116,153
2022-1, 2	9 Nov. 2022	4 years	-	52,255	-	63.45-70.51	11	-	52,244
2022-3	9 Nov. 2022	3 years	2 years	234,715 (5)	219,835	68.26	-	6,780	227,755
2022-4	9 Nov. 2022	4 years	-	128,540 (6)	106,515	66.15	-	3,355	124,915
2023-1	8 Nov. 2023	3 years	2 years	247,665 (7)	232,980	69.45	-	4,200	243,465
2023-2	8 Nov. 2023	4 years	-	126,995 (8)	102,800	67.68	-	315	126,680

(1) May be raised to 283,750 in the event of outperformance.
(2) May be raised to 150,518 in the event of outperformance.
(3) May be raised to 285,052 in the event of outperformance.
(4) May be raised to 145,772 in the event of outperformance.
(5) May be raised to 278,682 in the event of outperformance.
(6) May be raised to 149,843 in the event of outperformance.
(7) May be raised to 294,261 in the event of outperformance.
(8) May be raised to 147,555 in the event of outperformance.

The amount of the IFRS 2 expense recognized in respect of free shares at 31 December 2023 is €25 million (€25 million at 31 December 2022).

7.5 COMPENSATION OF KEY MANAGEMENT PERSONNEL

Key management personnel of a group, as defined in IAS 24, are those persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of that entity.

The key management personnel of the Group are the directors and the members of its Executive Committee.

The compensation and benefits of any kind recognized in expenses by the Group are as follows:

(In millions of euros)	**2023**	2022
Salaries and other short-term benefits	10	10
Pensions, other post-employment benefits and contract termination benefits	—	—
Other long-term benefits	—	—
Share-based payments	7	9

Salaries and other short-term benefits comprise all types of compensation recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and Chief Executive Officer is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of twice his total gross annual compensation (fixed and variable), subject to achievement of performance criteria.

Note 8 Income taxes

Current income taxes

Current taxes are the amount of income taxes that the Group expects to pay in respect of taxable profits of consolidated companies in the period. They also include adjustments to current taxes in respect of prior periods.

The French tax consolidation regime enables certain French companies in the Group to offset their taxable income when determining the tax expense for the entire French tax group. The overall tax expense is payable by Arkema, as the parent company of the tax group. Tax consolidation regimes also exist in countries outside France.

Deferred taxes

The Group uses the liability method whereby deferred taxes are recognized based upon the temporary differences between the financial statement and tax basis of assets and liabilities, as well as on tax loss carryforwards and other tax credits, in accordance with IAS 12 “Income taxes”.

Deferred tax assets and liabilities are valued at the tax rates that are expected to apply in the year in which the asset will be realized or the liability settled, on the basis of tax rates (and tax legislation) that have been enacted or virtually enacted at the balance sheet date. The effect of any changes in tax rates is recognized in income for the period, unless it relates to items that were previously debited or credited through equity. Deferred tax assets and liabilities are not discounted.

Deferred tax assets are recognized to the extent that their recovery is probable. In order to assess the likelihood of recovery of such assets, account is notably taken of the profitability outlook at the end of each period, determined by the Group, and historical taxable profits or losses, particularly for the scope of the French tax consolidation group.

A deferred tax liability is recognized for all taxable temporary differences related to investments in subsidiaries, associates and joint ventures, unless:

- the Group controls the timing of the reversal of the temporary difference; and
- it is probable that this difference will not reverse in the foreseeable future.

Deferred tax assets and liabilities are offset if a legally enforceable right to offset current tax assets and liabilities exists and if they relate to income taxes levied by the same tax authority.

8.1 INCOME TAX EXPENSE

The income tax expense breaks down as follows:

(In millions of euros)	**2023**	2022
Current income taxes	(170)	(281)
Deferred income taxes	(7)	27
TOTAL INCOME TAXES	**(177)**	**(254)**

The income tax expense amounts to €177 million in 2023 compared with €254 million in 2022.

8.2 ANALYSIS BY SOURCE OF NET DEFERRED TAX ASSETS (LIABILITIES)

The analysis by source of the net deferred tax assets (liabilities) is as follows, before offset of assets and liabilities at fiscal entity level:

(In millions of euros)	31 December 2022	Change in scope/Reclassifications	Changes recognized in shareholders' equity	Changes recognized in the income statement	Translation adjustments	**31 December 2023**
Tax loss and tax credit carryforwards	52	2	—	0	0	54
Provisions for pensions and similar benefits	70	1	4	(1)	0	74
Other temporarily non-deductible provisions	343	24	21	(33)	(8)	347
Deferred tax assets	**465**	**27**	**25**	**(34)**	**(8)**	**475**
Valuation allowance on deferred tax assets	**(97)**	**0**	**(10)**	**(7)**	**1**	**(113)**
Excess tax over book depreciation	175	13	(1)	(2)	(5)	180
Other temporary tax deductions	389	101	9	(32)	(6)	461
Deferred tax liabilities	**564**	**114**	**8**	**(34)**	**(11)**	**641**
NET DEFERRED TAX ASSETS (LIABILITIES)	**(196)**	**(87)**	**7**	**(7)**	**4**	**(279)**

After offsetting assets and liabilities at fiscal entity level, deferred taxes are presented as follows in the balance sheet:

(In millions of euros)	**31 December 2023**	31 December 2022
Deferred tax assets	157	166
Deferred tax liabilities	436	362
NET DEFERRED TAX ASSETS (LIABILITIES)	**(279)**	**(196)**

As the Group is able to control the timing of the reversal of temporary differences related to investments in subsidiaries and joint ventures, it is not necessary to recognize deferred taxes in respect of these differences.

8.3 RECONCILIATION BETWEEN INCOME TAX EXPENSE AND PRE-TAX INCOME

(In millions of euros)	**2023**	2022
Net income	425	966
Income taxes	(177)	(254)
Pre-tax income	602	1,220
French corporate income tax rate	25.83%	25.83%
Theoretical tax expense	(156)	(315)
Difference between French and foreign income tax rates	(1)	7
Tax effect of equity in income of affiliates	(2)	(2)
Permanent differences	12	2
Change in valuation allowance against deferred tax asset ceiling	(7)	44
Deferred tax assets not recognized (losses)	(23)	10
INCOME TAX EXPENSE	**(177)**	**(254)**

The French corporate income tax rate includes the standard tax rate (25.00% in 2023) and the additional social security contribution. The overall income tax rate therefore stands at 25.83% in 2023.

8.4 EXPIRY OF TAX LOSS CARRYFORWARDS AND TAX CREDITS

The Group's unrecognized tax loss carryforwards and tax credits can be used up to their year of expiry, indicated in the table below:

	31 December 2023		31 December 2022	
(In millions of euros)	**Base**	**Income taxes**	Base	Income taxes
2023	—	—	22	5
2024	16	4	13	3
2025	17	4	17	4
2026	8	2	9	2
2027	26	6	34	8
2028 and beyond	77	19	—	—
Tax losses that can be carried forward indefinitely*	1,313	332	1,253	325
TOTAL	**1,457**	**367**	**1,348**	**347**

* *Essentially in France.*

The Group's unrecognized tax loss carryforwards and tax credits take into account the changes in the tax rate.

8.5 INCOME TAXES PAID

Income taxes paid amount to €191 million.

(In millions of euros)	**31 December 2023**	31 December 2022
Income taxes paid	191	354

Note 9 Intangible assets and property, plant and equipment

9.1 GOODWILL

Goodwill is initially recognized when a business combination takes place, as described in note 3.1 "Consolidation principles".

Goodwill is not amortized after initial recognition. It is included in the cash-generating units (CGUs) that are subject to impairment tests as soon as any indicators of potential impairment are identified. Impairment tests are performed at least annually, following the methodology described in note 9.5 "Asset value monitoring".

	31 December 2023			31 December 2022
(In millions of euros)	**Gross book value**	**Accumulated depreciation and impairment**	**Net book value**	Net book value
Goodwill	3,657	(617)	3,040	2,655

The breakdown by segment is as follows:

Goodwill by segment	**31 December 2023 Net book value**	31 December 2022 Net book value
Adhesive Solutions	1,715	1,736
Advanced Materials	902	484
Coating Solutions	379	391
Intermediates	44	44
Corporate	—	—
TOTAL	**3,040**	**2,655**

Changes in the net book value of goodwill are as follows:

(In millions of euros)	2023	2022
At 1 January	**2,655**	**1,925**
Acquisitions	481	685
Impairment	—	—
Translation adjustments	(49)	45
Reclassifications	(47)	—
At 31 December	**3,040**	**2,655**

In 2023, the "Acquisitions" line corresponds to goodwill arising on the acquisition of a 54% controlling interest in PI Advanced Materials Co., Ltd. and on the acquisition of Polytec PT Gmbh Polymere Technologien, partly offset by the reduction in goodwill following completion of the purchase price allocation for Bostik South Africa (PTY) Ltd. (formerly Permoseal), Shanghai Zhiguan Polymer Materials (PMP) and Polimeros Especiales. The "Reclassifications" line corresponds to a reclassification to intangible assets (see note 9.2 "Intangible assets").

For 2022, the "Acquisitions" item corresponds to new goodwill recognized on the acquisition of Ashland's Performance Adhesives business, Permoseal, Shanghai Zhiguan Polymer Materials (PMP) and Polimeros Especiales, partially offset by the reduction in goodwill following the finalization of the Poliplas and Agiplast purchase price allocation.

9.2 OTHER INTANGIBLE ASSETS

Other intangible assets mainly include patents and technologies, trademarks, software and IT licenses, capitalized contracts, customer relations, and capitalized research expenses. These intangible assets are recognized in the balance sheet at their acquisition or production cost, less any accumulated amortization and impairment losses recognized following impairment tests as described in note 9.5 "Asset value monitoring".

Intangible assets other than goodwill and trademarks with indefinite useful lives are amortized on a straight-line basis over 3 to 20 years depending on the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

The main categories of intangible assets and the amortization periods applied by the Group are as follows:

- trademarks other than those with indefinite useful lives: useful life of up to 30 years;
- patents: residual period until expiry of patent protection;
- technologies: average useful life;
- software: 3-10 years;
- licenses: term of the contract;
- capitalized contracts: term of the contract;
- customer relations: average useful life;
- capitalized research expenses: useful life of the project; and
- REACH registration fees: protection period of study data.

Trademarks

Acquired trademarks are valued by the relief-from-royalty method.

Software and IT licenses

Software development expenses for the design, programming and test phases are capitalized.

Training costs, expenses related to change management, data transfer and subsequent maintenance costs are recorded as expenses.

Capitalized research and development costs

Under IAS 38 "Intangible assets", development costs are capitalized as soon as the Group can demonstrate, in particular:

- its intention and its financial and technical ability to complete the development project;
- that it is probable that future economic benefits attributable to the development costs will flow to the enterprise, which also implies having successfully completed the main non-toxicity studies relating to the new product; and
- that the cost of the asset can be measured reliably.

Grants received in respect of development activities are recognized as a deduction from capitalized development costs if they have been definitively earned by the Group. The Group also receives public financing in the form of repayable advances for the development of certain projects. Repayment of these advances is generally related to the future revenues generated by the development. The Group recognizes these advances in balance sheet liabilities (in the "Other non-current liabilities" caption) taking account of the probability of their repayment.

REACH (Registration, Evaluation and Authorization of Chemicals)

As no specific IFRS IC interpretations exist on the subject, the Group applies the following methods based on IAS 38:

- when most of the tests required for preparing the registration file have been acquired from a third party, the Group records an operating right in the intangible assets; and
- when most of the expenses involved in preparing the registration file have been carried out internally or outsourced, the Group capitalizes the development costs that meet the requirements for capitalization defined by IAS 38 (see "Capitalized research and development costs" above).

At 31 December 2023, the net book value of intangible assets excluding Goodwill amounts to €2,416 million.

	31 December 2023			31 December 2022
(In millions of euros)	**Gross book value**	**Accumulated depreciation and impairment**	**Net book value**	Net book value
Patents and technologies	623	(293)	330	343
Trademarks	672	(8)	664	632
Software and IT licenses	481	(396)	85	83
Capitalized REACH costs	91	(58)	33	34
Other capitalized research expenses	21	(21)	0	2
Capitalized contracts	88	(75)	13	12
Asset rights	99	(48)	51	51
Customer relations	892	(183)	709	782
Other intangible assets	382	(63)	319	27
Intangible assets in progress	237	(25)	212	212
TOTAL	**3,586**	**(1,170)**	**2,416**	**2,178**

Trademarks essentially comprise the Bostik® and Den Braven® trademarks, which are part of the Adhesive Solutions segment.

Other intangible assets include the provisional allocation of the purchase price for the 54% controlling interest acquired in PI Advanced Materials Co., Ltd. (see note 3.2.2 "Acquisitions in 2023") This mainly concerns technologies and customer relations.

Changes in the net book value of intangible assets are as follows:

(In millions of euros)	**2023**	2022
At 1 January	**2,178**	**1,516**
Acquisitions	65	56
Depreciation	(179)	(164)
Impairment	—	—
Disposals	—	—
Changes in scope	337	718
Translation adjustments	(36)	46
Reclassifications (including reclassifications as assets held for sale)	51	6
At 31 December	**2,416**	**2,178**

At 31 December 2023, the “Changes in scope” item includes the intangible assets described in note 3.2.2 “Business combinations”. The "Reclassifications" line includes €47 million reclassified from goodwill to intangible assets (see note 9.1 “Goodwill”).

At 31 December 2022, “Changes in scope” included intangible assets relating to Ashland’s Performance Adhesives business.

9.3 PROPERTY, PLANT AND EQUIPMENT

Gross value

The gross value of items of property, plant and equipment other than rights of use corresponds to their acquisition or production cost in accordance with IAS 16 “Property, plant and equipment”. Gross value is not subject to revaluation.

Equipment subsidies are deducted directly from the cost of the assets which they financed. With effect from 1 January 2009 and in accordance with the revised version of IAS 23, borrowing costs that are directly attributable to financing property, plant and equipment that necessarily take a substantial period of time to get ready for their intended use or sale are eligible for capitalization as part of the cost of the assets for the portion of the cost incurred over the construction period.

Routine maintenance and repairs are charged to income in the period in which they are incurred. Costs related to major maintenance turnarounds of industrial facilities which take place at intervals greater than 12 months are capitalized at the time they are incurred and depreciated over the period between two such turnarounds.

Depreciation and impairment

Depreciation is calculated on a straight-line basis on the basis of the acquisition or production cost. Assets are depreciated over their estimated useful lives by category of asset. The principal categories and useful lives are as follows:

- machinery and tools: 5-10 years
- transportation equipment: 5-20 years
- specialized complex installations: 10-20 years
- buildings: 10-30 years

These useful lives are reviewed annually and modified if expectations change from the previous estimates. Such changes in accounting estimates are accounted for on a prospective basis.

Additional impairment is recognized when a loss of value is observed from impairment tests conducted as described in note 9.5 “Asset value monitoring”

The Group has identified certain assets, such as gas boilers, whose useful lives could be affected by climate-related issues linked to transition risk. However, if these assets were to be replaced by carbon-free solutions, they would be kept until the end of their useful lives as a replacement solution for safety and business continuity reasons.

The remaining useful lives of the Group's other complex installations are fairly short compared with their depreciation periods, ranging from 10 to 20 years. This period may be shorter for installations with high emissive power, such as those used to produce certain types of fluorogases.

The Group therefore believes that transition risk has no material impact on the useful lives of assets and that no additional impairment is required.

CHANGES IN PROPERTY, PLANT AND EQUIPMENT

	31 December 2023			31 December 2022
(In millions of euros)	Gross book value	Accumulated depreciation and impairment	Net book value	Net book value
Land and buildings	2,393	(1,533)	860	724
Complex industrial facilities	3,728	(3,188)	540	571
Other property, plant and equipment	4,735	(3,137)	1,598	1,053
Construction in progress	544	(29)	515	884
TOTAL PROPERTY, PLANT AND EQUIPMENT EXCLUDING RIGHTS OF USE	**11,400**	**(7,887)**	**3,513**	**3,232**
Rights of use	452	(235)	217	197
TOTAL PROPERTY, PLANT AND EQUIPMENT	**11,852**	**(8,122)**	**3,730**	**3,429**

Other property, plant and equipment at 31 December 2023 mainly comprises machinery and tools with a gross value of €3,672 million (€2,978 million at 31 December 2022), and accumulated depreciation and provisions for impairment of €2,438 million (€2,238 million at 31 December 2022).

CHANGES IN PROPERTY, PLANT AND EQUIPMENT EXCLUDING RIGHTS OF USE

Changes in the net book value of property, plant and equipment excluding rights of use are as follows:

(In millions of euros)	2023	2022
At 1 January	**3,232**	**2,874**
Acquisitions	569	651
Depreciation	(430)	(436)
Impairment	(30)	(42)
Disposals	(4)	(11)
Changes in scope	268	140
Translation adjustments	(89)	62
Other	—	—
Reclassifications (including reclassifications as assets held for sale)	(3)	(6)
At 31 December	**3,513**	**3,232**

Impairment at 31 December 2023 mainly concerns specific property, plant and equipment for Hydrogen Peroxide activities at the Jarrie site in France.

Acquisitions include capital expenditure intended to further the Group's decarbonization goals, representing €30 million in 2023 (€16 million in 2022). These include a new purification process for the acrylic monomer plant at its Carling site in France, the Arkema Energy program, and the installation of an innovative catalyst at its Lacq site in France.

Changes in scope are described in further detail in note 3.2 "Business combinations".

Impairment at 31 December 2022 mainly concerned specific property, plant and equipment for Hydrogen Peroxide activities at the Jarrie site in France.

9.4 IFRS 16 LEASES: RIGHTS OF USE AND IFRS 16 DEBT

From 1 January 2019, the Group's lease obligations are recorded in application of IFRS 16 "Leases". In the balance sheet, the Group recognizes an asset corresponding to the right to use the leased asset, and an equivalent financial liability. In the income statement, the lease payment expense is replaced by depreciation of the right to use the asset, recorded in "Depreciation, amortization and impairment", and a financial interest expense, recorded in "Financial result". The cash flow statement is also impacted. The Group records repayments of the financial liability, presented in "Cash flow from financing activities", and a financial interest expense, presented in "Cash flow from operating activities".

The Group first applied this standard at 1 January 2019 under the modified retrospective approach, and opted to use the two exemptions from capitalization allowed for leases of less than twelve months and leases of assets with an individual value of less than US$5,000 when new. For purposes of simplification, the Group excludes a certain number of subsidiaries from the scope of application of IFRS 16. The combined impact of the excluded lease contracts is not material for the Group.

The right of use is recognized at an amount corresponding to the initial debt, adjusted for prepaid and accrued payments on the original lease, and any estimated repair costs. The right of use is depreciated on a straight-line basis over the term of the lease.

In application of the decision of November 2019 by the IFRS IC, the lease term is the irrevocable period, extended where relevant by any renewal options the Group is reasonably certain to use; in particular, the Group applies the recommendation of 3 July 2020 issued by France's Accounting Standards Authority, ANC, to real estate property leases in France.

The lease obligation at 1 January 2019 was calculated under IFRS 16, applying the discount rates in force at that date over the residual term of the lease.

As the implicit interest rate of the leases is not easily determined, the Group applies a discount rate based on the subsidiaries' estimated incremental borrowing rate.

The principal leases affected by IFRS 16 concern real estate property and logistics equipment, excluding servicing obligations associated with the lease.

At 31 December 2023, the net book value of rights of use related to leases is €217 million.

	31 December 2023			31 December 2022
(In millions of euros)	**Gross book value**	**Accumulated depreciation and impairment**	**Net book value**	Net book value
Rights of use: real estate assets (head offices, offices)	96	(68)	28	35
Rights of use: industrial assets (factories, land, warehouses)	70	(24)	46	44
Rights of use: logistics assets (trucks, containers, trolleys)	245	(125)	120	96
Rights of use: other assets (cars, etc.)	41	(18)	23	22
Total rights of use	**452**	**(235)**	**217**	**197**

Changes in the net book value of rights of use are as follows:

(In millions of euros)	**2023**	2022
At 1 January	**197**	**157**
Acquisitions	105	103
Depreciation	(79)	(67)
Disposals	(4)	(5)
Changes in scope	5	1
Translation adjustments	(4)	5
Reclassifications (including reclassifications as assets held for sale)	(3)	3
At 31 December	**217**	**197**

The IFRS 16 debt amounts to €223 million at 31 December 2023 (see note 12.3 "Debt"). The total non-discounted value of the Group's future lease payments amounts to €249 million at 31 December 2023, maturing as follows:

(In millions of euros)	31 December 2023
Within one year	72
1-5 years	111
After 5 years	66
TOTAL	**249**

At 31 December 2023, the cash outflows associated with leases amount to €85 million for the year. The financial expenses related to the IFRS 16 debt amount to €7 million.

The application of exemptions for short-term leases and leases of low-value assets concerns amounts that are not material at Group level.

9.5 ASSET VALUE MONITORING

The recoverable amount of property, plant and equipment and intangible assets is tested as soon as any indication of impairment is identified. A review to identify if any such indication exists is performed at each year-end, based on a five-year plan validated by the Executive Committee. This impairment test is performed at least once a year and includes goodwill and trademarks with indefinite useful lives.

An asset's recoverable amount corresponds to the greater of its value in use and its fair value less costs to sell.

Tests are performed for each autonomous group of assets, termed Cash Generating Units (CGUs). A CGU is a group of assets whose continued use generates cash flows that are substantially independent of cash flows generated by other groups of assets. They are worldwide business operations, which bring together groups of similar products in strategic, commercial and industrial terms. The value in use of a CGU is determined on the basis of the discounted future cash flows that are expected to be generated by the assets in question, based upon Group executive management's expectation of future economic and operating conditions over the next five years or, when the asset is to be sold, by comparison with its market value. Impairment is calculated as the difference between the recoverable amount and the carrying amount of the CGU. Because of its unusual nature, any such impairment is presented separately in the income statement under the "Other income and expenses" caption. Impairment may be reversed, up to the maximum carrying amount that would have been recognized for the asset had the asset not been impaired. Impairment losses on goodwill are irreversible (in application of IFRIC 10, impairment losses on goodwill recognized in previous interim accounting periods cannot be written back).

In 2023, the terminal value was calculated based on a perpetuity growth rate of 2% for all these CGUs except Fluorogases and Adhesive Solutions, for which the rates used were 0% and 2.5%, respectively (2% for all CGUs in 2022), and mid-cycle cash flows. The after-tax rate used to discount future cash flows and the terminal value is the Group's weighted average cost of capital, estimated at 8.5% in 2023 (8.5% in 2022), except for the Asia Acrylics CGU, for which the rate was 9.5% in 2023 (9.6% in 2022).

Cash flow projections take into account the expected or probable impacts of climate-related issues for the Group, in terms of:

- opportunities for innovation and sustainable growth by reducing the environmental footprint of its products, particularly in the strategic markets of green energy, electric mobility, sustainable lifestyle and construction.
- decarbonization mechanisms, multi-year contracts to purchase low-carbon energy (PPAs) and Guarantee of Origin certificates (RECs), and investments by CGUs intended to move closer to the Group's greenhouse gas emissions reduction targets;
- regulatory developments, with the increase in the cost of GHG emissions for CGUs (emissions trading schemes such as the ETS, carbon taxes, taxes on energy purchases) and new regulations affecting the fluorogases market. The emissions allowance prices used in the projections range from €95 per metric ton in 2024 to €130 per metric ton from 2028

Sensitivity analyses carried out at 31 December 2023, evaluating the impact of reasonable changes in the basic assumptions – in particular the impact of a 1-point increase in the discount rate, or of a change of minus 0.5 of a point in the perpetuity growth rate, or minus 10% in EBITDA, or plus 20% in capital expenditure – confirmed the net carrying amounts of the different CGUs, excluding the Hydrogen Peroxide CGU, for which the assumption of a change of plus 20% in capital expenditure would lead to impairment losses of less than €20 million.

In addition, these EBITDA and capital expenditure sensitivity analyses include any climate-related impacts in terms of increases in the price per tonne of CO_2 and additional investments enabling the Group to meet its target to reduce its Scope 1 and 2 greenhouse gas (GHG) emissions and its Scope 3 emissions by 46% by 2030 relative to 2019. This target is supported by an increase in investments contributing to decarbonization, which could reach €400 million between 2022 and 2030.

Lastly, impairment losses were recognized on other specific assets at 31 December 2023 (see note 9.3 "Property, plant and equipment").

Note 10 Equity accounted companies and other non-current assets

The accounting methods for associates, joint ventures and other investments are described in note 3.1 “Consolidation principles”.

The amounts of the Group’s commitments to joint ventures and associates are non-significant.

In addition, in the normal course of business, the Group has business relationships with certain non-consolidated companies or with companies which are accounted for under the equity method. The values involved are not significant.

10.1 ASSOCIATES

The equity value and equity in income (loss) of associates stood at €8 million and a negative €8 million respectively in 2023 (€18 million and a negative €6 million in 2022).

	2023		2022	
(In millions of euros)	**% ownership**	**Sales**	% ownership	Sales
Arkema Yoshitomi Ltd.	49%	20	49%	19
CJ Bio Malaysia Sdn. Bhd.	14%	163	14%	344
ERPRO 3D FACTORY	10%	1	10%	2
Ihsedu Agrochem Private Ltd.	25%	198	25%	222
TOTAL		**382**		**587**

10.2 JOINT VENTURES

The equity value and equity in income (loss) of joint ventures amounted to €5 million euros and a negative €1 million in 2023 respectively (€6 million and €0 million in 2022).

	2023		2022	
(In millions of euros)	**% ownership**	**Sales**	% ownership	Sales
Barrflex TU LLC	49%	0	49%	1
TOTAL		**0**		**1**

10.3 OTHER INVESTMENTS

The main movements in 2022 and 2023 are as follows:

(In millions of euros)	2023	2022
At 1 January	**52**	**52**
Acquisitions	—	1
Disposals	(3)	—
(Increases)/Reversals of impairment	3	—
Changes in scope	—	—
Translation adjustments	—	—
Other changes	—	(1)
At 31 December	**52**	**52**

10.4 OTHER NON-CURRENT ASSETS

	31 December 2023			31 December 2022		
(In millions of euros)	Gross value	Impairment	Net value	Gross value	Impairment	Net value
Pension assets	2	—	2	1	—	1
Loans and advances	199	(11)	188	203	(10)	193
Security deposits paid	61	—	61	52	—	52
TOTAL	**262**	**(11)**	**251**	**256**	**(10)**	**245**

Loans and advances include amounts receivable from the French tax authorities in respect of France's research tax credit (CIR). Loans and advances also include €64 million of receivables on TotalEnergies SE related to the remediation costs in respect of closed industrial sites in the United States (see note 11.1.2"Other provisions/Environmental provisions").

The CIR for 2019, amounting to €26 million, was reimbursed in September 2023. The CIR for 2020, amounting to €22 million, will be reimbursed in 2024.

Note 11 Other provisions and other non-current liabilities, contingent liabilities and litigation

11.1 OTHER PROVISIONS AND OTHER NON-CURRENT LIABILITIES

A provision is recognized when:

- the Group has a legal, regulatory or contractual obligation to a third party resulting from past events. An obligation can also result from Group practices or public commitments that create a reasonable expectation among the third parties in question that the Group will assume certain responsibilities;
- it is certain or probable that the obligation will lead to an outflow of resources to the benefit of the third party; and
- its amount can be estimated reliably and corresponds to the best possible estimate of the commitment. In exceptional cases where the amount of the obligation cannot be measured with sufficient reliability, disclosure is made in the notes to the financial statements in respect of the obligation (see note 11.2 "Liabilities and contingent liabilities").

Environmental provisions which are established or reviewed when a business is closed down, or upon a formal request from the authorities, are the subject of an internal review every two years. These provisions are recognized or updated by a dedicated team which calls in specialized external assistance as and when required by the matters identified.

When it is expected that the Group will obtain partial or total reimbursement of the cost that was provided against, the expected reimbursement is recognized in receivables if, and only if, the Group is virtually certain of the receipt.

Long-term provisions, other than provisions for pensions and post-employment benefit obligations, are not inflation-indexed or discounted as the Group considers that the impact of such adjustments would not be significant.

The current (less than one year) portion of provisions is maintained within the "Other provisions and non-current liabilities" caption.

11.1.1 Other non-current liabilities

Other non-current liabilities amount to €14 million at 31 December 2023 versus €14 million at 31 December 2022.

11.1.2 Other provisions

(In millions of euros)	Environmental provisions	Restructuring	Other	**Total**
At 1 January 2023	**217**	**38**	**189**	**444**
Increases in provisions	39	7	22	68
Reversals of provisions on use	(34)	(18)	(14)	(66)
Reversals of unused provisions	(2)	(2)	(32)	(36)
Changes in scope	—	—	—	—
Translation adjustments	(4)	—	(3)	(7)
Other	—	5	(6)	(1)
At 31 December 2023	**216**	**30**	**156**	**402**
Of which: less than one year	35	13	26	74
Of which: more than one year	181	17	130	328

Furthermore, certain provisions are covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental provisions	Restructuring	Other	**Total**
Total provisions at 31 December 2023	**216**	**30**	**156**	**402**
Portion of provisions covered by receivables or deposits	64	—	37	101
Deferred tax asset related to amounts covered by the Total indemnity	19	—	—	19
Provisions at 31 December 2023 net of non-current assets	**133**	**30**	**119**	**282**

(In millions of euros)	Environmental provisions	Restructuring	Other	Total
At 1 January 2022	**202**	**49**	**178**	**429**
Increases in provisions	42	5	64	111
Reversals of provisions on use	(33)	(16)	(36)	(85)
Reversals of unused provisions	(1)	(1)	(22)	(24)
Changes in scope	—	—	—	—
Translation adjustments	6	1	6	13
Other	1	—	(1)	—
At 31 December 2022	**217**	**38**	**189**	**444**
Of which: less than one year	33	17	35	85
Of which: more than one year	184	21	154	359

Furthermore, certain provisions were covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental provisions	Restructuring	Other	Total
Total provisions at 31 December 2022	**217**	**38**	**189**	**444**
Portion of provisions covered by receivables or deposits	65	—	32	97
Deferred tax asset related to amounts covered by the Total indemnity	20	—	—	20
Provisions at 31 December 2022 net of non-current assets	**132**	**38**	**157**	**327**

Environmental provisions

Environmental provisions are recognized mainly to cover expenses related to soil and water table clean-up, as well as, to a lesser extent, expenses related to the reinforcement of certain structures to address physical climate risks such as flooding. Environmental provisions are mainly for:

- France for €100 million (€98 million at 31 December 2022);
- the United States for €105 million (€107 million at 31 December 2022), of which €83 million in respect of former industrial sites covered 100% by the TotalEnergies SE group indemnity (receivable recognized in “Other non-current assets” for an amount of €64 million and €19 million recognized in deferred tax assets).

Restructuring provisions

Restructuring provisions are mainly in respect of restructuring measures in France for €20 million (€25 million at 31 December 2022), in Europe excluding France for €5 million (€7 million at 31 December 2022) and in the United States for €3 million (€3 million at 31 December 2022).

Increases in such provisions in the period mainly correspond to the restructuring plans described in note 6.1.5 “Other income and expenses”.

Other provisions

Other provisions amount to €156 million and mainly comprise:

- provisions for labor litigation for €75 million (€71 million at 31 December 2022);
- provisions for commercial litigation and warranties for €32 million (€61 million at 31 December 2022);
- provisions for tax litigation for €30 million (€30 million at 31 December 2022); and

provisions for other risks for €19 million (€27 million at 31 December 2022).

11.2 LIABILITIES AND CONTINGENT LIABILITIES

Contingent liabilities arising from changes in the scope of consolidation are presented in note 3.4 “Warranties related to sales of businesses”.

IAS 37 defines a contingent liability as:

a) a possible obligation that arises from past events, the existence of which will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the Group's control; or

b) a present obligation that arises from past events but is not recognized because (i) it is not probable that an outflow of resources embodying economic benefits will be required to settle the obligation; or (ii) the amount of the obligation cannot be measured with sufficient reliability.

11.2.1 Environment

The Group’s business activities are subject to constantly changing local, national and international regulations on the environment and industrial safety, which entail meeting increasingly complex and restrictive requirements. In this regard, these activities can involve a risk of the Group’s liability being called upon, particularly in respect of clean-up of sites and industrial safety.

Taking account of the information available, agreements signed with TotalEnergies SE, and the provisions for environmental contingencies recognized, the Group’s executive management considers that the environmental liabilities identified at this point are valued and recognized to the best of their knowledge in the financial statements. However if laws, regulations or government policy in respect of environmental matters were to change, the Group’s obligations could change, which could lead to additional costs.

The competent authorities have made, are making or may in the future make specific demands that the Group rehabilitate or control emissions at certain sites that it is currently operating, or that it operated or disposed of in the past, at neighboring sites or at sites where the Group stored or disposed of waste.

Sites currently in operation

The Group has many sites of which a certain number may be polluted in view of their age and the range of activities that are carried out on them, or that were carried out on them in the past. As regards these sites, certain situations have been identified and the Group has already carried out certain clean-up work, or otherwise developed action plans and recognized provisions in order to cover future clean-up work.

However, in the light of (i) the uncertainties over the technical means to be implemented, (ii) potential issues that are unknown, (iii) uncertainties over the actual time required for remediation compared with the estimated time (e.g., “pump and treat”), and (iv) potential changes in regulations, the possibility that the expenses the Group will incur will be higher than the amounts covered by provisions cannot be excluded. These potential excess costs relate mainly to the sites in Antwerp (Belgium), Calvert City (United States), Carling (France), Günzburg (Germany), Jarrie (France), Lannemezan (France), Leicester (United Kingdom), Lesgor (France), Loison (France), Mont (France), Pierre-Bénite (France), Ribecourt (France), Rion-des-Landes (France), Riverview (United States), Rotterdam (Netherlands), Saint-Auban (France), and Vlissingen (Netherlands) and could adversely affect the Group’s business, results and financial situation.

Pursuant to a prefectural decision issued on 14 June 2023, Arkema is required to perform additional analyses for certain PFAS in the area around the Pierre Bénite site, as well as an environmental assessment (interprétation de l’état des milieux) and a health risk assessment. The provisions set aside at 31 December 2023 are sufficient to cover the cost of these studies. Given that (i) the results of these studies are pending, and (ii) regulations may change, it cannot be ruled out that the Group’s exposure will be greater than the provisioned amounts.

Closed industrial sites (former industrial sites)

TotalEnergies SE directly or indirectly took over some closed industrial sites at the date of the Spin-Off of Arkema’s Businesses on 10 May 2006.

Since the Spin-Off, the businesses exercised on the former sites of Dorlyl SNC (France), Ibos (France), Colmar (France), Bernouville (France), Bonn (Germany) and Wetteren (Belgium) have been closed and the land sold. The businesses carried on at the Zaramillo site in Spain have been closed and the real estate assets have been sold. The businesses carried on at the Chauny (France), Miranda (Spain) and Pierrefitte Nestalas (France) sites have also been closed, without selling the land, and where relevant are covered by provisions for amounts that the Group considers adequate.

Furthermore, the Prefect of the Haute-Savoie region issued a prefectural decision on 6 April 2018 ordering Arkema France to carry out investigations on the Chedde site (France), with regard to the perchlorate production operations. Arkema France has met all requirements.

On 15 October 2021, the Republic and Canton of Geneva filed a petition for summary proceedings with the Administrative Court of Grenoble, notably challenging Arkema France in its capacity as beneficiary of the perchlorate production operations on the Chedde site, and requesting the appointment of an expert to determine the causes, origins and consequences of the perchlorate pollution in the groundwater around Geneva. On 19 November 2021, Arkema France filed a petition with the Grenoble Administrative Court seeking to establish the potential liability of the French Ministry of Armed Forces. By order of 26 January 2022, the Administrative Court of Grenoble granted the Swiss authorities’ request for an expert assessment of this matter. The assessment is currently underway.

Sites in operation that have been sold

a) Saint-Fons (Arkema France)

In the sale of the Group’s vinyls activities to the Klesch Group in early July 2012, all industrial installations on the Saint-Fons site were transferred to Kem One, apart from the land, which is held under a long-term lease. The agreements for the sale stipulated that Arkema France remains liable for legacy pollution at the site..

The Prefect of the Rhône region issued decisions on 14 May 2007, 19 and 27 June 2012, ordering Arkema France to carry out quality monitoring on underground water and propose a plan to manage the legacy pollution affecting the site (T112 and other pollutants). Following issuance of the most recent prefectural decision on 22 December 2020, Arkema France submitted a new management plan in April 2023 and adjusted its provisions accordingly in 2023. However, in the light of (i) potential issues that are unknown, (ii) uncertainties over the actual time required for remediation compared with the estimated time, and (iii) potential changes in regulations, the possibility that the expenses the Group will incur on the Saint-Fons site will be higher than the amounts covered by provisions cannot be excluded.

b) Parrapon mining concession

Under a prior commitment made by the Arkema Group to the French authorities in connection with the transfer of the Parrapon mining concession to Kem One SAS, which was authorized by a ministerial decision of 13 January 2016, the Group will bear the costs that may be payable by Kem One SAS, as concession operator, as a result of surveillance and safety measures for the 31 salt mines which were permanently closed down on 12 February 2014.

To meet the requirements of the authorities, Kem One sent a proposal to the DREAL in a letter dated 21 August 2017 setting out a program of work. At 31 December 2022, the balance of the provision corresponds to an amount considered adequate by the Group to cover the cost of the work.

c) Porto Marghera site (Italy)

As part of the divestment of the PMMA business in 2021, the Porto Marghera site was sold to Trinseo, which took over all environmental obligations. At 31 December 2023, administrative formalities related to the sale had yet to be finalized.

11.2.2 Litigation, claims and proceedings in progress

Labor litigation

a) Occupational illness (France)

In the manufacture of its products, the Group uses and has used toxic or hazardous substances. Despite the safety and monitoring procedures that have been instituted at Group level and for each production site, Group employees may have been exposed to such substances and may develop specific pathologies as a result of such exposure.

In this respect, like most industrial companies, in the past, the Group has used a variety of insulating or heat-proofing materials containing asbestos in its production facilities. Consequently, certain employees may have been exposed to such materials before they were gradually eliminated and replaced with substitute products.

At its French sites, the Group anticipated the regulatory provisions applicable to asbestos (Decrees no. 96-97 and 96-98 of 7 February 1996 and Decree No. 96-1133 of 24 December 1996). The Group made an inventory of building materials within its premises that contained asbestos, notified employees of the results of these investigations and took the collective and individual protective measures required by the applicable laws. However, claims for occupational illness related to past asbestos exposure have been filed against the Group, mostly for periods before 1980. Given the latency period of asbestos-related pathologies, additional claims for occupational illness are likely to be filed in the years ahead.

The Group has recognized provisions to cover the risks of employer liability claims related to notified cases of occupational illness, which are reversed as appropriate depending on case outcomes.

b) Anxiety suffered as a result of exposure to asbestos or a harmful or toxic substance (Arkema France)

In a ruling of 11 May 2010, the labor chamber of the French Supreme Court (*Cour de Cassation*) recognized the existence of a prejudice of anxiety, eligible for compensation, for employees who in the past worked on sites included in the list of establishments whose workers were eligible for the early retirement system for asbestos workers.

Two decisions by the French Supreme Court (*Cour de Cassation*, on 5 April 2019 and 11 September 2019) extended the right to compensation for the prejudice of anxiety to employees who have not worked in an establishment classified as exposing workers to asbestos, but can prove they have been exposed to asbestos, and employees who can prove they have been exposed to a harmful or toxic substance entailing a high risk of developing a serious medical condition.

To date, 52 former employees of the Carling plant have appealed to the employee claims court seeking damages for anxiety suffered as a result of alleged past exposure to trichloroethylene during their working lives.

It is possible that other current or former employees of Arkema France who were effectively exposed to asbestos, who worked on sites that are added by ministerial decision to the official list of eligible sites, or who may have been exposed to carcinogenic or other toxic substances during their working lives, could bring action in the future before an employee claims court to claim compensation for the prejudice of anxiety.

Tax litigation

a) Arkema Quimica Ltda

Arkema's Brazilian subsidiary Arkema Quimica Ltda, which merged with Arkema Coatex Brasil Indústria e Comércio Ltda. on 1 January 2021, started offsetting certain tax assets and liabilities in 2000 following a declaration as to the unconstitutional nature of certain taxes. The Brazilian government contested the justification for this offset and in 2009 claimed repayment of 19.5 million reais (around €6 million). In mid-2017, Arkema Quimica Ltda reassessed its risk and decided to opt into an amnesty program that reduced the amount payable to 6 million reais, to be paid in installments until September 2029.

b) Arkema Srl

In 2013, the Lombardy Regional Tax office (Italy) conducted a tax inspection of Arkema Srl for the 2008, 2009 and 2010 financial years, subsequently extended to 2011, 2012, 2013 and 2014, after which, among other observations, it contested the purchase prices of products for resale and the level of commission paid to the Company in intragroup transactions, and applied a withholding tax on interest on intragroup financing. The tax reassessments notified for 2008, 2009, 2010, 2011, 2012, 2013 and 2014 amount to €14.7 million including interest and penalties. All of these reassessments were contested and no provisions recognized in this respect. Arkema Srl won all of its disputes in every year except 2011. On 19 October 2021, the Supreme Court overturned the court's decision on the grounds of mistake of law (burden of proof) and remanded the matter back to the court. In 2023, the Company opted to apply a moratorium proposed by Italian regulations, enabling it to put an end to litigation still in progress in exchange for payment of an amount lower than the costs of pursuing the litigation, except for 2011. On 14 July 2023, the Lombardy Court of Appeal ruled against the Company in the last outstanding dispute concerning 2011 (€2 million). As no grounds were given for the ruling, the Company appealed the decision.

Other litigation

a) Harvey (Arkema Inc.)

As a result of Hurricane Harvey, Arkema's Crosby, Texas plant experienced unprecedented flooding leading to a loss of power, the loss of back up refrigeration, the decomposition of certain organic peroxides products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, Arkema Inc. has been defending, and continues to defend, multiple civil lawsuits that were filed against it by private individuals and governmental entities.

One of those cases was certified in May 2022 as a class action for certain claims asserted under federal statutes. A class action settlement was reached in 2023 and submitted to the federal court for approval. In January 2024, the court entered a Preliminary Approval Order for that settlement.

All but one of the remaining lawsuits were consolidated in 2020 for pre-trial purposes into a state multi-district litigation pending in Texas court. The matters involving the largest number of private individuals has been settled, and negotiations are ongoing to settle the other cases concerning private individuals. Arkema Inc. continues to vigorously defend the civil matters brought by governmental entities. Most of these claims are covered by environmental liability insurance. When claims are not covered by insurance policies, provisions have been made for such claims in an amount which the Group considers sufficient.

The Company has been dismissed from all of the lawsuits in which it was named.

b) Fluorinated substances

Arkema Inc., and in some instances Arkema France, along with numerous other users and multiple fluorochemical manufacturers, have been sued, and continue to be sued, in the United States in a substantial number of cases involving per- and poly-fluoroalkyl substances.

The majority of these concern fluorinated substances used in firefighting foams. These cases are either filed directly in or transferred to a single multi-district litigation action pending in federal court in South Carolina (the "AFFF MDL"). On October 2022, the Court appointed a mediator for the AFFF MDL.

A class action was previously filed in federal court in Ohio, on behalf of all persons in the United States who have been exposed to such substances. In March 2022, the District Court issued a decision certifying the following class: "Individuals subject to the laws of Ohio who have .05 parts per trillion (ppt) of PFOA (C-8) and at least .05 ppt of any other PFAS in their blood serum." " Defendants (including Arkema Inc. and Arkema France) filed a petition for leave to appeal that class certification decision and that petition was granted by the 6th Circuit Court of Appeals in September 2022. In November 2023, the 6th Circuit vacated the class certification and ordered the district court to dismiss the case. In January 2024 the 6th Circuit denied plaintiff's petition for rehearing and rehearing *en banc*.

There are also cases involving a former operating site in New Jersey for which Arkema Inc. is indemnified by Legacy Site Services, LLC as more fully described in note 10.3 "Commitments received". The two companies are vigorously defending against the allegations of these lawsuits. The Group is not, as at the date of these financial statements, in a position, having regard to the information available to it, to estimate the amount of the claims that might finally be upheld against it by the various competent courts after the exhaustion of any avenues of appeal. The Group has taken provisions net of insurance reimbursements for the expected costs of defense associated with these contingent liabilities.

c) Asbestos risk (Arkema Inc.)

In the United States, Arkema Inc. is involved in a number of asbestos-related proceedings in various State courts. The proceedings typically involve claims by third parties (other than employees) relating to (i) alleged exposure to asbestos on the Group's sites, or (ii) exposure to products containing asbestos and sold by former subsidiaries of the Group in the United States and elsewhere. The mix of claims has shifted in recent years away from premises claims and to include product claims alleging exposure to dental tape and cosmetic talcum products. Most claims against Arkema Inc. are made by third party contractors or product users and are covered by legacy liability insurance, while claims by Arkema Inc. employees are processed under the workers' compensation statutes in each state and covered by workers' compensation insurance policies. However, in 2015 Arkema Inc. settled two disputes concerning former employees' alleged exposure to asbestos before State courts. When claims are not covered by insurance policies, provisions have been made for such claims in an amount which the Group considers sufficient. However, due to the continuing uncertainties as to the outcome of these proceedings, the Group is not, as at the date of these financial statements, in a position, having regard to the information available to it, to estimate the total amount of the claims that might finally be upheld against it by the various competent courts after the exhaustion of any avenues of appeal

d) Coem (Arkema France)

As there were no product supplies by Kem One SAS to the Italian company Coem, Coem in August 2012, and subsequently its shareholder Industrie Generali in March 2016, issued written complaints to Arkema France and Kem One that they had suffered losses through breach of commercial relations. On 27 June 2017, Industrie Generali brought a tort action before the Nanterre commercial court claiming €8.9 million from Arkema France in compensation for the banks' activation of the guarantees it had provided when Coem was placed in receivership. Arkema considers that these claims have no legal foundation, and no provision has been recognized in the financial statements. The case was heard in court on 29 January 2020. In a ruling of 6 May 2020, the Nanterre commercial court rejected the claim brought by Industrie Generali and ordered it to pay Arkema France the sum of €30,000 in costs (under article 700 of the Code of Criminal Procedure). Industrie Generali filed an appeal against this decision on 25 August 2020. In a decision handed down on 19 May 2022, the Versailles court of appeal upheld the 6 May 2020 ruling dismissing Industrie Generali's claims. Industrie Generali has appealed the matter to France's Court of Cassation (*Cour de cassation*), where proceedings are underway. Arkema considers that these claims have no legal foundation, and no provision has been recognized in the financial statements.

11.3 COMMITMENTS RECEIVED

Commitments received from TotalEnergies SE in 2006

In connection with the Spin-Off of Arkema's Businesses, TotalEnergies SE and certain TotalEnergies companies extended certain indemnities, or assumed certain obligations, for the benefit of the Arkema Group. Some are still in application while others terminated during 2017. The indemnities and obligations concerned are described below, and relate to actual or potential environmental liabilities of the Group arising from certain sites in France, Belgium and the United States, the operations of which in the majority of cases have ceased.

Obligations and indemnities given in respect of Former Industrial Sites

In order to cover certain risks relating to certain industrial sites situated in France, Belgium and the United States in respect of which the Group is or could be held liable, and where, for the most part, operations have ceased (the Former Industrial Sites), TotalEnergies SE companies have entered into indemnity and service agreements with Arkema or its subsidiaries.

Pursuant to these agreements, the obligations and environmental responsibilities associated with these former industrial sites in France and at Rieme in Belgium were transferred to TotalEnergies SE group companies.

Agreement relating to certain former industrial sites located in the United States

In March 2006, Arkema Participations (which absorbed Arkema Amériques SAS in 2023) completed the acquisition from Elf Aquitaine Inc. and Arkema France of Arkema Delaware Inc., a holding company for most of the Group's operations in the United States. The negotiated terms of the stock purchase agreement among Elf Aquitaine Inc., Legacy Site Services and Arkema Participations (which absorbed Arkema Amériques SAS in 2023), dated 7 March 2006 (the Arkema Delaware Main SPA) required Elf Aquitaine Inc. to use US$270 million to capitalize a new subsidiary, Legacy Site Services LLC, to perform remediation services and indemnify the Group against the cost of environmental contamination liabilities incurred by the Group entities covered by this indemnity, and related personal injury and property damage claims associated with contamination at 35 of the Group's closed and formerly operated facilities and 24 third party sites where the Group's liability arises solely out of waste shipments from the sites other than currently operated sites. In exchange for this indemnification, Arkema Participations (which absorbed Arkema Amériques SAS in 2023) agreed to grant to Legacy Site Services LLC control over remediation activities and the defense of claims relating to contamination liabilities at these facilities and sites.

The sites currently operated by the Group are excluded from this indemnity, as are sites that received waste associated with current operations of the Group, certain sites where no significant restoration work is currently underway or anticipated, and other sites where the Group could be held liable for environmental pollution. These other sites include, for example, sites where remediation has been conducted in the past or where future remediation costs or liability are believed to be insignificant or non-existent based upon information available at the time when the indemnity was entered into. Arkema Participations (which absorbed Arkema Amériques SAS in 2023) has waived any claims against Legacy Site Services LLC, TotalEnergies SE or their respective subsidiaries in respect of the sites not covered by the indemnity.

The Legacy Site Services LLC indemnity covers the costs of restoration and clean-up of the soil and groundwater, the costs of related defense and settlement costs and personal injury, property and natural resource damages. The indemnity does not cover liabilities unrelated to site remediation, in particular liabilities in respect of products manufactured on the said sites, liability arising from certain dangerous and potentially dangerous substances, particularly asbestos exposure, and criminal liability

The indemnity described above is capped at US$270 million. The amount received by Arkema under this indemnity amounts to US$167 million. At the same time as the stock purchase agreement and the indemnity described above, Legacy Site Services LLC and Arkema Inc. entered into a supplemental contamination indemnity agreement pursuant to which Legacy Site Services LLC will indemnify the liabilities of the Group in excess of US$270 million, on the same terms, for the same sites and subject to the same exceptions as the indemnity described in the preceding paragraph.

Note 12 Financing, financial instruments and risk management

12.1 FINANCIAL RESULT

Financial result includes the cost of debt adjusted for capitalized financial expenses, and as regards provisions for pensions and employee benefits, the interest cost, the expected return on plan assets and the actuarial gains and losses related to changes in the discount rate on other long-term benefits. It also includes the portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the difference between the spot exchange rate and the forward exchange rate, and the foreign exchange gain/loss on unhedged financing.

(In millions of euros)	**2023**	2022
Cost of debt	(23)	(43)
Spot/forward exchange rate difference and foreign exchange gain/loss on unhedged financing	(27)	(27)
Financial income/expenses on provisions for pensions and employee benefits	(18)	10
Capitalized interest	5	3
Interest expenses on leases	(7)	(4)
Other	0	0
FINANCIAL RESULT	**(70)**	**(61)**

In 2023, the change in the cost of debt is linked to the additional cost of new bonds issued during the year, and to the sharp rise in investment income.

12.2 FINANCIAL ASSETS AND LIABILITIES

Financial assets and liabilities principally comprise:

- other investments;
- loans and financial receivables, included in other non-current assets;
- accounts receivable;
- cash and cash equivalents;
- debt and other financial liabilities (including accounts payable); and
- derivatives, reported in other current assets and liabilities.

Other investments

These securities are recognized at fair value in accordance with IFRS 9. In cases where fair value cannot be reliably determined, they are recognized at their historical cost. At the date of application of IFRS 9, the Group opted to record changes in the fair value of unconsolidated investments in "Other comprehensive income", except for investments in the process of liquidation at that date.

In general, other investments acquired by the Group are strategic investments to prepare the Group's long-term development, and are therefore classified as assets/liabilities measured at fair value through other comprehensive income. Nonetheless, in application of IFRS 9 criteria for classification of investments, for investments due to be sold the Group can opt to recognize changes in fair value in profit and loss.

Loans and financial receivables

These financial assets are recognized at amortized cost. They are subject to impairment tests involving a comparison of their carrying amount to the present value of estimated recoverable future cash flows. These tests are carried out as soon as any indicator inferring that the present value of these assets is lower than their carrying amount is identified. As a minimum such tests are performed at each balance sheet date. Any impairment loss is recognized in recurring operating income.

Accounts receivable

Accounts receivable are initially recognized at their fair value. Subsequent to initial recognition, they are recognized at amortized cost. If required, a bad debt provision is recognized on the basis of the risk of non-recovery of the receivables.

Cash and cash equivalents

Cash and cash equivalents are liquid assets and assets which can be converted into cash within less than three months that are subject to a negligible risk of change in value.

Non-current and current debt (including accounts payable)

Non-current and current debt (other than derivatives) is recognized at amortized cost.

Derivatives

The Group may use derivatives to manage its exposure to foreign currency risks and risks of changes in the prices of raw materials and energy. Derivatives used by the Group are recognized at their fair value in the balance sheet, in accordance with IFRS 9. The fair value of these unlisted derivatives is determined by reference to current prices for contracts with similar maturity. They therefore correspond to the “Level 2” category defined in IFRS 7.

Changes in the fair value of these derivatives are recognized within operating income and, for foreign currency instruments, in financial result for the portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the differences between the spot exchange rate and the forward exchange rate, except for those on instruments which are considered to meet the criteria for cash flow hedge accounting or hedge accounting of a net investment in a foreign operation under IFRS 9.

For items that qualify for cash flow hedge accounting, the effective portion of the change in fair value is recognized in shareholders’ equity under the “Total income and expenses recognized directly through equity” caption until such time as the underlying hedged item is recognized through the income statement.
Any ineffective portion is recognized in operating income
.

A hedge of a net investment in a foreign operation hedges the exposure to foreign exchange risk of the net assets of the foreign operation (IAS 21 “The effects of changes in foreign exchange rates”). The effects of this hedge are recorded directly in shareholders’ equity under the “Total income and expenses recognized directly through equity” caption..

12.2.1 Financial assets and liabilities by accounting category

2023

IFRS 9 category: Class of instrument *(In millions of euros)*	Notes	Assets/liabilities measured at fair value through profit or loss	Assets/liabilities measured at fair value through other comprehensive income	Assets/liabilities measured at amortized cost	**Total net carrying amount**	Fair value level**
Other investments	*(10.3)*	—	52	—	52	3
Other non-current assets (loans and advances, security deposits paid)	*(10.4)*	—	2	154	156	1 and 2
Accounts receivable	*(6.2)*	—	—	1,261	1,261	N/A
Cash and cash equivalents	*(12.4)*	2,045	—	—	2,045	1
Derivatives*	*(12.2.2)*	16	16	—	32	2
FINANCIAL ASSETS		**2,061**	**70**	**1,415**	**3,546**	
Current and non-current debt	*(12.3)*	—	—	4,275	4,275	N/A
Accounts payable	*(6.2)*	—	—	1,036	1,036	N/A
Derivatives*	*(12.2.2)*	5	22	—	27	2
FINANCIAL LIABILITIES		**5**	**22**	**5,311**	**5,338**	

* *Derivatives are carried in the balance sheet in the lines “Current financial derivative assets” and “Current financial derivative liabilities”.*
** *The fair value hierarchy is as follows:*

- *Level 1: assumptions based on quoted prices in active markets for identical assets or liabilities;*
- *Level 2: assumptions based on inputs other than quoted prices included within Level 1 that are observable for the asset or liability;*
- *Level 3: assumptions based on unobservable inputs for the asset or liability.*

2022

IFRS 9 category: Class of instrument *(In millions of euros)*	Notes	Assets/liabilities measured at fair value through profit or loss	Assets/liabilities measured at fair value through other comprehensive income	Assets/liabilities measured at amortized cost	Total net carrying amount	Fair value level**
Other investments	*(10.3)*	—	52	—	52	3
Other non-current assets (loans and advances, security deposits paid)	*(10.4)*	—	1	332	333	1 and 2
Accounts receivable	*(6.2)*	—	—	1,360	1,360	N/A
Cash and cash equivalents	*(12.4)*	1,592	—	—	1,592	1
Derivatives*	*(12.2.2)*	30	27	—	57	2
FINANCIAL ASSETS		**1,622**	**80**	**1,692**	**3,394**	
Current and non-current debt	*(12.3)*	—	—	3,258	3,258	N/A
Accounts payable	*(6.2)*	—	—	1,149	1,149	N/A
Derivatives*	*(12.2.2)*	4	9	—	13	2
FINANCIAL LIABILITIES		**4**	**9**	**4,407**	**4,420**	

* *Derivatives are carried in the balance sheet in the lines “Current financial derivative assets” and “Current financial derivative liabilities”.*
** *The fair value hierarchy is as follows:*

- *Level 1: assumptions based on quoted prices in active markets for identical assets or liabilities;*
- *Level 2: assumptions based on inputs other than quoted prices included within Level 1 that are observable for the asset or liability;*
- *Level 3: assumptions based on unobservable inputs for the asset or liability.*

At 31 December 2023, as at 31 December 2022, the fair value of financial assets and liabilities is approximately equal to the net carrying amount, except in the case of bonds.

12.2.2 Derivatives

The main derivatives used by the Group are as follows:

	Notional amount of contracts at 31 December 2023			Notional amount of contracts at 31 December 2022			Fair value of contracts	
(In millions of euros)	< 1 year	< 5 years and > 1 year	> 5 years	< 1 year	< 5 years and > 1 year	> 5 years	31 December 2023	31 December 2022
Forward foreign currency contracts	2,018	3	—	2,301	26	—	26	21
Commodities and energy swaps	46	34	11	55	17	—	(21)	23
TOTAL	**2,064**	**37**	**11**	**2,356**	**43**	**—**	**5**	**44**

12.2.3 Impact of financial instruments on the income statement

The income statement includes the following items related to financial assets (liabilities):

(In millions of euros)	**2023**	2022
Total interest income (expenses) on financial assets and liabilities*	(18)	(40)
Impact on the income statement of valuation of derivatives at fair value	6	2
Impact on the income statement of operations on other investments	7	3

* *Excluding interest costs on pension obligations and the expected return on related plan assets.*

The amount of foreign exchange gains and losses recognized in recurring operating income in 2023 is a net gain of €24 million (net loss of €25 million in 2022).

12.2.4 Impact of financial instruments on shareholders' equity

At 31 December 2023, the impact of financial instruments net of deferred taxes on the Group's shareholders' equity is a negative €42 million (positive €24 million at 31 December 2022), essentially reflecting the net-of-tax fair value of foreign currency and commodity hedges.

12.3 DEBT

Group net debt amounted to €2,230 million at 31 December 2023, taking account of cash and cash equivalents of €2,045 million.

12.3.1 Analysis of net debt by category

(In millions of euros)	**31 December 2023**	31 December 2022
Bonds	3,486	2,392
Bank loans	70	—
Other non-current debt	22	22
Non-current debt excluding IFRS 16 debt	**3,578**	**2,414**
Bonds	—	150
Syndicated credit facility	—	—
Negotiable European Commercial Paper	389	442
Other bank loans	45	20
Other current debt	40	23
Current debt excluding IFRS 16 debt	**474**	**635**
Debt excluding IFRS 16 debt	**4,052**	**3,049**
Non-current IFRS 16 debt	156	146
Current IFRS 16 debt	67	63
Debt	**4,275**	**3,258**
Cash and cash equivalents	2,045	1,592
NET DEBT	**2,230**	**1,666**

Bonds

- In December 2013, the Group issued a €150 million bond which matured on 6 December 2023.
- In January 2015, the Group issued a €700 million bond that will mature on 20 January 2025, with a fixed coupon of 1.50%.

  At 31 December 2023, the fair value of this bond is €684 million.
- In April 2017, the Group issued a €700 million bond that will mature on 20 April 2027, with a fixed coupon of 1.50%. A further €200 million tap issue was undertaken in June 2017, bringing the total amount of this bond issue to €900 million.

  At 31 December 2023, the fair value of this bond is €856 million.
- In December 2019, the Group issued a €500 million bond that will mature on 3 December 2029, with a fixed coupon of 0.75%.

At 31 December 2023, the fair value of this bond is €436 million.

In October 2020, the Group issued a €300 million green bond that will mature on 14 October 2026, with a fixed coupon of 0.125%. This bond is entirely dedicated to the financing of Arkema's new, world-scale plant in Singapore to manufacture 100% bio-based Rilsan® polyamide 11.

At 31 December 2023, the fair value of this bond is €277 million.

In November 2023, the Group issued a €700 million bond that will mature on 20 May 2030, with a fixed coupon of 4.25%.

At 31 December 2023, the fair value of this bond is €730 million.

In January 2023, the Group issued a €400 million bond that will mature on 23 January 2031, with a fixed coupon of 3.5%.

At 31 December 2023, the fair value of this bond is €401 million.

These issues are part of the Group's Euro Medium Term Notes (EMTN) program introduced in October 2013.

Negotiable European Commercial Paper

In April 2013, the Group introduced an annually renewed Negotiable European Commercial Paper program. The maximum amount of this debt program is €2 billion.

Issues outstanding as part of this program amount to €400 million at 31 December 2023.

Syndicated line of credit

On 28 July 2022, the Group amended and extended its syndicated line of credit maturing on 29 July 2024. The amount was increased to €1.1 billion and the maturity extended to 28 July 2027 with two one-year extension options subject to lender approval. The first option was exercised in July 2023, extending maturity to 28 July 2028.

Following this amendment, the financial commitment to respect a certain ratio of net debt/EBITDA no longer appears among the criteria for early payment. The cost of the credit line is linked to three key CSR criteria for the Group: greenhouse gas emissions, volatile organic compound emissions and the total recordable injury rate (TRIR). These indicators are calculated each year.

This line is intended to finance the general needs of the Group and serves as a back-up facility for the short-term negotiable securities program.

IFRS 16 debt

The maturities of the Group's future lease payments, at non-discounted value, are presented in note 9.4 "IFRS 16 leases".

12.3.2 Analysis of debt excluding IFRS 16 debt by currency

The Arkema Group's debt excluding IFRS 16 debt is mainly denominated in euros.

(In millions of euros)	**31 December 2023**	31 December 2022
Euros	3,922	3,019
South Korean won	105	—
US Dollars	12	11
Other	13	19
TOTAL DEBT EXCLUDING IFRS 16 DEBT	**4,052**	**3,049**

Part of the debt in euros is converted through swaps to the accounting currency of internally financed subsidiaries, in line with the Group's policy. At 31 December 2023, the swapped portion, mainly in US dollars, represented approximately 21% of gross debt excluding IFRS 16 debt.

12.3.3 Analysis of debt excluding IFRS 16 debt by maturity

The breakdown of debt by maturity, excluding IFRS 16 debt and including interest costs, is as follows:

(In millions of euros)	**31 December 2023**	31 December 2022
Less than 1 year	517	648
Between 1 and 2 years	778	29
Between 2 and 3 years	365	731
Between 3 and 4 years	965	319
Between 4 and 5 years	51	918
More than 5 years	1,673	517
TOTAL DEBT EXCLUDING IFRS 16 DEBT	**4,349**	**3,162**

12.3.4 Changes in liabilities from financing activities

(In millions of euros)	31 Decemb er 2022	Changes in scope	Monetary flows in the cash flow statement (financing activities)	Translation adjustment	Non-current/ current reclassifi-cations	Other non-monetary flows	**31 December 2023**
Non-current debt excluding IFRS 16 debt	2,414	71	1,096	(1)	(2)	—	3,578
Current debt excluding IFRS 16 debt	635	37	(197)	(3)	2	—	474
IFRS 16 debt	209	6	(79)	(4)	—	91	223
-Cash and cash equivalents	1,592	35	433	(15)	—	—	2,045
NET DEBT	**1,666**	**79**	**387**	**7**	**—**	**91**	**2,230**

12.4 CASH AND CASH EQUIVALENTS

(In millions of euros)	**31 December 2023**	31 December 2022
Short-term cash advances	5	3
Money market funds	1,373	924
Available cash	667	664
CASH AND CASH EQUIVALENTS	**2,045**	**1,592**

12.5 INTEREST PAID AND RECEIVED

Additional information on the amounts of interest received and paid included in cash flow from operating activities is shown below:

(In millions of euros)	**31 December 2023**	31 December 2022
Interest paid	48	48
Interest received	(11)	(4)

12.6 MANAGEMENT OF RISKS RELATED TO FINANCIAL ASSETS AND LIABILITIES

The Arkema Group's businesses expose it to various risks, including market risks (risk of changes in exchange rates, interest rates and the prices of raw materials, energy and equities), credit risk and liquidity risk.

12.6.1 Foreign currency risk

The Group is exposed to transaction risks and translation risks related to foreign currencies.

The Group hedges the transaction risk mainly through spot foreign currency transactions or through forward transactions over short maturities generally not exceeding two years.

The fair value of the Group's forward foreign currency contracts is €26 million.

In 2023, the euro/US dollar exchange rate changed from 1.0666 at 1 January to 1.1050 at 31 December 2023.

The amount of foreign exchange gains and losses recognized in recurring operating income excluding other income and expenses in 2023 is a net gain of €24 million (net loss of €25 million in 2022).

The portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the difference between the spot exchange rate and the forward exchange rate recorded in financial result amounts to a net loss of €27 million in 2023 (net loss of €27 million at in 2022).

The translation effect of a 10% change in the euro/US dollar exchange rate would have an estimated impact on 2023 EBITDA excluding other income and expenses of around €45 million (around €60 million in 2022).

At 31 December 2023, the Group's balance sheet exposure in transaction currencies other than the euro is as follows:

Group exposure to operating foreign currency risk *(In millions of euros)*	USD	KRW	CNY	Other currencies
Accounts receivable	618	14	111	194
Accounts payable	(252)	(17)	(55)	(63)
Bank balances and loans/borrowings	(62)	(27)	72	67
Off-balance sheet commitments (forward currency hedging)	(1,141)	(133)	81	(319)
NET EXPOSURE	**(837)**	**(163)**	**209**	**(121)**

This net exposure comprises all Group companies' outstanding amounts stated in any of the above currencies, whether their accounting currency is one of those currencies or a different currency.

12.6.2 Interest rate risk

Exposure to interest rate risk is managed by the Group's Central Treasury department and simple derivatives are used as hedging instruments. The Group has not entered into any interest rate hedges at 31 December 2023.

An increase (decrease) of 1% (100 basis points) in interest rates would have the effect of increasing (decreasing) the interest on net debt by €5 million.

At 31 December 2023, debt excluding IFRS 16 debt is distributed between variable and fixed rates as follows:

	Variable rates	Fixed rates		
(In millions of euros)	Overnight-1 year	1-5 years	Over 5 years	Total
Current and non-current debt (excluding IFRS 16 debt)	(474)	(1,900)	(1,678)	(4,052)
Cash and cash equivalents	2,045	—	—	2,045
Net exposure before hedging	1,571	(1,900)	(1,678)	(2,007)
Hedging instruments	—	—	—	—
Off-balance sheet items	—	—	—	—
NET EXPOSURE AFTER HEDGING	**1,571**	**(1,900)**	**(1,678)**	**(2,007)**

12.6.3 Liquidity risk

The Group's Central Treasury department manages the liquidity risk associated with the Group's debt.

Liquidity risk is managed with the main objective of providing the Group with sufficient financial resources to honor its commitments, and, in the context of meeting this objective, optimizing the annual cost of the debt.

In almost all cases, Group companies obtain their financing from, and manage their cash with, Arkema France or other Group entities that manage cash pooling mechanisms.

The Group reduces the liquidity risk by spreading maturities, favoring long maturities and diversifying its sources of financing. At 31 December 2023, the Group thus has:

- a €700 million bond maturing on 20 January 2025;
- a €300 million bond maturing on 14 October 2026;
- a €900 million bond maturing on 20 April 2027;
- a €500 million bond maturing on 3 December 2029;

- a €700 million bond maturing on 20 May 2030;
- a €400 million bond maturing on 23 January 2031; and
- a €1.1 billion syndicated credit facility maturing on 28 July 2028. This credit facility is used particularly as a substitute line for the Negotiable European Commercial Paper program (see note 11.3 “Debt”).

At 31 December 2023, the Group’s debt maturing in more than one year is rated BBB+/positive outlook by Standard & Poor’s and Baa1/stable outlook by Moody’s.

Negotiable European Commercial Paper issues are rated A-2 by Standard & Poor’s.

The Group’s net debt at 31 December 2023 amounts to €2,230 million and represents 1.5 times the consolidated EBITDA for the year 2023.

At 31 December 2023, the amount of the unused syndicated credit facility is €1.1 billion and the amount of cash and cash equivalents is €2,045 million.

Note 12.3 "Debt" provides details of the maturities of debt.

12.6.4 Credit risk

The Group is potentially exposed to credit risk on its accounts receivable and as regards its banking counterparties.

Credit risk on accounts receivable is limited because of the large number of its customers and their geographical dispersion. No customer represented more than 4% of Group sales in 2023. The Group’s general policy for managing credit risk involves assessing the solvency of each new customer before entering into business relations: each customer is allocated a credit limit, which constitutes the maximum level of outstandings (receivables plus orders) accepted by the Group, on the basis of the financial information obtained on the customer and the analysis of solvency carried out by the Group. These credit limits are revised regularly and, in any case, every time that a material change occurs in the customer’s financial position. Customers who cannot obtain a credit limit because their financial position is not compatible with the Group’s requirements in terms of solvency only receive deliveries when they have paid for their order.

For several years, the Group has covered its accounts receivable credit risk through a global credit insurance program. Given the statistically low bad debt rate experienced by the Group, the rate of cover is significant. Customers with whom the Group wishes to continue commercial relations but which are not covered by this insurance are subject to specific centralized monitoring.

In addition, the Group’s policy for recognizing bad debt provisions in respect of receivables not covered by credit insurance, or the portion of receivables that are not so covered, has three components: receivables are individually provided against as soon as a specific risk of loss (economic and financial difficulties of the customer in question, entry into receivership, etc.) is clearly identified. The Group may also recognize general provisions for receivables that are overdue for such a period that the Group considers that a statistical risk of loss exists. These periods are adapted depending on the Business Lines and the geographical regions in question. Finally, the Group makes sure that the provisions determined in this way are not lower than expected credit losses, which are estimated based on individual credit scores for customers, multiplied by coefficients for the probability of default.

At 31 December 2023, the maturity status of accounts receivable net of provisions is as follows:

Accounts receivable net of provisions *(In millions of euros)*	**31 December 2023**	31 December 2022
Receivables not yet due	1,141	1,260
Receivables overdue by 1-15 days	75	71
Receivables overdue by 16-30 days	14	15
Receivables overdue by more than 30 days	31	14
TOTAL NET RECEIVABLES	**1,261**	**1,360**

Banking credit risk is related to financial investments, derivatives and credit facilities granted by banks. The Group limits its exposure to credit risk by only investing in liquid securities with first-class commercial banks.

The net carrying amount of financial assets indicated in note 12.2.1 “Financial assets and liabilities by accounting category” represents the maximum exposure to credit risk.

12.6.5 Risk related to raw materials and energy

The prices of certain raw materials used by the Group can be highly volatile, with fluctuations leading to significant variations in the cost price of the Group’s products; in addition, because certain of its manufacturing processes have significant requirements in terms of energy resources, the Group is also sensitive to changes in the price of energy. In order to limit the impact of the price volatility of the principal raw materials it uses, the Group may decide to use derivatives matched with existing contracts, or negotiate fixed price contracts for limited periods.

Recognition of these derivatives resulted in an expense of €12 million in the income statement at 31 December 2023 (expense of €17 million at 31 December 2022).

12.6.6 Equity risk

At 31 December 2023, the Company holds 228,901 of its own shares in treasury. These shares are used to cover its free share grant plans.

In compliance with IAS 32, changes in share price have no impact on the Group's consolidated net assets.

The equity risk is not material for the Company.

Note 13 Shareholders' equity and earnings per share

At 31 December 2023, Arkema's share capital amounted to €750 million, divided into 75,043,514 shares with a par value of €10.

13.1 CHANGES IN SHARE CAPITAL AND PAID-IN SURPLUS

	2023	2022
Number of shares at 1 January	**75,043,514**	**76,736,476**
Issuance of shares following the capital increase reserved for employees	—	757,473
Issuance of shares following the exercise of subscription options	—	—
Share capital reduction	—	(2,450,435)
Number of shares at 31 December	**75,043,514**	**75,043,514**

13.2 HYBRID BONDS

At 31 December 2023, the total nominal value of Arkema's perpetual hybrid bonds is €700 million. The breakdown is as follows:

Issue date	Nominal value *(in millions)*	Currency	Redemption option	Annual coupon rate
17 June 2019	400	EUR	5.25 years	2.75%
21 January 2020	300	EUR	6 years	1.50%

Arkema has an option to defer payment of coupons for the above bonds.

In accordance with IAS 32, when there is an unconditional right to avoid delivering cash or another financial asset in the form of repayment of principal or interest, an instrument is recognized in shareholders' equity. In application of this principle, the hybrid bonds are recorded in shareholders' equity, and the coupons paid are recorded as dividends in the Group's consolidated financial statements.

13.3 TREASURY SHARES

The Company bought back 357,726 treasury shares during 2023. In addition, 359,912 free shares vested to Arkema Group employees (see note 7.4 "Share-based payments").

	2023	2022
Number of treasury shares at 1 January	231,087	2,779,553
Purchase of treasury shares	357,726	262,945
Grants of treasury shares	(359,912)	(360,976)
Share capital reduction	—	(2,450,435)
Number of treasury shares at 31 December	228,901	231,087

13.4 DIVIDENDS

The combined annual general meeting of 11 May 2023 approved the distribution of a €3.40 dividend per share in respect of the 2022 financial year, or a total amount of €253 million. This dividend was paid out on 17 May 2023.

The Board of Directors has decided to propose a dividend of €3.50 per share to the annual general meeting to be held on 15 May 2024.

13.5 NON-CONTROLLING INTERESTS

Non-controlling interests mainly correspond to minority interests in PI Advanced Materials for an amount of €214 million at 31 December 2023.

13.6 TRANSLATION ADJUSTMENTS

The change in translation adjustments recognized in other recyclable comprehensive income mainly comprises the impacts of movements in the USD-EUR exchange rate.

13.7 EARNINGS PER SHARE

In accordance with IAS 33, the earnings per share and diluted earnings per share are calculated based on net income (Group share) less the net-of-tax interest paid to bearers of subordinated perpetual notes (hybrid bonds).

After this adjustment, the net income (Group share) is divided by the weighted average number of ordinary shares outstanding since the start of the year to calculate the earnings per share.

For the diluted earnings per share, the effect of dilution is thus calculated taking account of stock options and grants of free shares to be issued.

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	2023	2022
Weighted average number of ordinary shares	74,647,205	74,095,040
Dilutive effect of stock options	0	0
Dilutive effect of free share grants	396,309	325,893
Weighted average number of potential ordinary shares	75,043,514	74,420,933

(In millions of euros)	**2023**	2022
Net income - Group share	418	965
Interest on subordinated perpetual notes, net of tax	(16)	(16)
Net income used in calculating earnings per share	402	949

	2023	2022
Earnings per share *(in euros)*	5.39	12.81
Diluted earnings per share *(in euros)*	5.36	12.75

Note 14 Statutory auditors' fees

	KPMG		Ernst & Young	
(In millions of euros)	**2023**	2022	**2023**	2022
Statutory audit, review of the individual and consolidated financial statements	**2.5**	**2.6**	**2.6**	**3.2**
Issuer	0.7	0.7	0.6	0.7
Fully consolidated subsidiaries	1.8	1.9	2.0	2.5
Other non-audit services*	**0.2**	**0.2**	**0.1**	**—**
Issuer	0.1	0.1	0.1	—
Fully consolidated subsidiaries	0.1	0.1	—	—
SUBTOTAL	**2.7**	**2.8**	**2.7**	**3.2**
Other services provided by the networks to fully consolidated subsidiaries	**—**	**—**	**—**	**—**
TOTAL	**2.7**	**2.8**	**2.7**	**3.2**

* *In application of an internal rule validated by the Audit Committee, the amount of fees for other due diligence work and services directly related to the auditors' engagement cannot exceed 30% of fees for the audit of the individual and consolidated financial statements.*

Note 15 Subsequent events

On 2 January 2024, the Group finalized its planned acquisition of Arc Building Products in Ireland, specialized in construction adhesives and sealants and with around €15 million in annual sales.

Note 16 List of consolidated companies

The percentage of control indicated below also corresponds to the Group's ownership interest.

AEC Polymers		France	100.00	FC
Afinitica Technologies, S.L.		Spain	100.00	FC
Agiplast Italia S.r.l.		Italy	100.00	FC
American Acryl LP		United States	50.00	JO
American Acryl NA, LLC		United States	50.00	JO
Arkema Co., Ltd.	(a)	South Korea	100.00	FC
Arkema		France		FC
Arkema Ameriques SAS	(b)	France	100.00	FC
Arkema Antwerp		Belgium	100.00	FC
Arkema Argentina S.A.U.		Argentina	100.00	FC
Arkema B.V.		Netherlands	100.00	FC
Arkema Canada Inc.		Canada	100.00	FC
Arkema (Changshu) Chemicals Co., Ltd.		China	100.00	FC
Arkema (Changshu) Fluorochemical Co., Ltd.		China	100.00	FC
Arkema Chemicals India Private Limited		India	100.00	FC
Arkema (Changshu) Polyamides Co., Ltd.		China	100.00	FC
Arkema (China) Investment Co., Ltd.		China	100.00	FC
Arkema Coatex Brasil Indústria e Comércio Ltda.		Brazil	100.00	FC
Arkema Coating Resins Malaysia Sdn. Bhd.		Malaysia	100.00	FC
ARKEMA UK LIMITED		United Kingdom	100.00	FC
Arkema Company Limited		Hong Kong	100.00	FC
Arkema Delaware Inc.		United States	100.00	FC
Arkema France		France	100.00	FC
Arkema GmbH		Germany	100.00	FC
Arkema Hydrogen Peroxide Co., Ltd. Shanghai		China	66.67	FC
Arkema Inc.		United States	100.00	FC

Arkema Insurance Designated Activity Company		Ireland	100.00	FC
Arkema K.K.		Japan	100.00	FC
Arkema Kimya Sanayi ve Ticaret AS		Turkey	100.00	FC
Arkema Korea Holding Co., Ltd.	(d)	South Korea	100.00	FC
ARKEMA Holding Limited		United Kingdom	100.00	FC
Arkema Mexico S.A. de C.V.		Mexico	100.00	FC
Arkema Participations		France	100.00	FC
Arkema Peroxides India Private Limited		India	100.00	FC
Arkema Pte. Ltd.		Singapore	100.00	FC
Arkema Pty Ltd.		Australia	100.00	FC
Arkema Quimica SAU		Spain	100.00	FC
Arkema Chemicals Saudi Arabia		Saudi Arabia	65.00	FC
Arkema (Shanghai) Distribution Co., Ltd.		China	100.00	FC
Arkema Sp. z.o.o		Poland	100.00	FC
Arkema S.r.l.		Italy	100.00	FC
Arkema (Suzhou) Polyamides Co., Ltd.		China	100.00	FC
Arkema Taixing Chemicals Co., Ltd.		China	100.00	FC
Arkema Thiochemicals Sdn Bhd		Malaysia	86.00	FC
Arkema Yoshitomi Ltd.		Japan	49.00	SI
AMP Trucking, Inc.		United States	100.00	FC
ARR MAZ GLOBAL HOLDINGS, S.L.		Spain	100.00	FC
ARR-MAZ Brazil LLC		United States	100.00	FC
ArrMaz Chemicals (Yunnan) Co., Ltd.		China	100.00	FC
ArrMaz China, LLC		United States	100.00	FC
ARR-MAZ DO BRASIL LTDA.		Brazil	99.99	FC
ArrMaz Gulf Chemicals Ltd.		Saudi Arabia	100.00	FC
ARRMAZ MOROCCO SARLAU	(e)	Morocco	100.00	FC
ArrMaz Morocco, LLC	(e)	United States	100.00	FC
ArrMaz Products Inc.		United States	100.00	FC
ArrMaz Speciality Chemicals, Inc.		United States	100.00	FC
ARRMAZ TECHNOLOGY AFRICA, SARL		Morocco	100.00	FC
A/S LIP Bygningsartikler. Nørre Aaby		Denmark	100.00	FC
Barrflex TU LL		United States	49.00	JV
Bostik Aktiebolag	(a)	Sweden	100.00	FC
Bostik Adhesives Limited		United Kingdom	100.00	FC
Bostik Aerosols GmbH	(b)	Germany	100.00	FC
Bostik Argentina S. A.		Argentina	100.00	FC
Bostik A/S		Denmark	100.00	FC
Bostik AS		Norway	100.00	FC
Bostik Australia Pty Ltd.		Australia	100.00	FC
Bostik Belux S.A. – N.V.		Belgium	100.00	FC
Bostik Benelux B.V.		Netherlands	100.00	FC
Bostik B.V.		Netherlands	100.00	FC
Bostik Canada Ltd.		Canada	100.00	FC
Bostik Egypt for the production of adhesive materials (Bostik Egypt) S.A.E.		Egypt	100.00	FC
Bostik Findley (China) Co., Ltd		China	100.00	FC
Bostik Findley (Malaysia) Sdn. Bhd.		Malaysia	100.00	FC
Bostik GmbH		Germany	100.00	FC
Bostik Hellas S.A.		Greece	100.00	FC
Bostik Holding Hong Kong Ltd.		Hong Kong	100.00	FC
Bostik Holding		France	100.00	FC
Bostik, Inc.		United States	100.00	FC
Bostik India Private Limited		India	100.00	FC
Bostik Industries Limited		Ireland	100.00	FC
Bostik Kimya Sanayi Ve Ticaret A.S		Turkey	100.00	FC
Bostik Korea Limited		South Korea	100.00	FC

Bostik Limited		United Kingdom	100.00	FC
Bostik Mexicana S.A. de C.V.		Mexico	100.00	FC
Bostik Nederland B.V.		Netherlands	100.00	FC
Bostik New Zealand Limited		New Zealand	100.00	FC
Bostik-Nitta Co., Ltd.		Japan	80.00	FC
Bostik L.L.C.		Russia	100.00	FC
Bostik OY		Finland	100.00	FC
Bostik Philippines Inc.		Philippines	100.00	FC
Bostik Portugal Unipessoal Lda		Portugal	100.00	FC
Bostik Technology GmbH	(b)	Germany	100.00	FC
Bostik Romania S.r.l		Romania	100.00	FC
Bostik SA		France	100.00	FC
Bostik S.A.		Spain	100.00	FC
Bostik (Shanghai) Management Co., Ltd.		China	100.00	FC
BOSTIK SOUTH AFRICA (PTY) LTD	(a)	South Africa	100.00	FC
Bostik Sp. z.o.o.		Poland	100.00	FC
Bostik (Thailand) Co., Ltd		Thailand	100.00	FC
Bostik Vietnam Company Limited		Vietnam	100.00	FC
Casda Biomaterials Co., Ltd		China	100.00	FC
Changshu Coatex Additives Co., Ltd.		China	100.00	FC
CJ Bio Malaysia Sdn. Bhd.		Malaysia	14.00	SI
Coatex Asia- Pacific, Inc.		South Korea	100.00	FC
Coatex CEE s.r.o		Slovakia	100.00	FC
Coatex Inc.		United States	100.00	FC
Coatex Netherlands B.V.		Netherlands	100.00	FC
Coatex		France	100.00	FC
CRACKLESS MONOMER Co Ltd		Taiwan	51.00	FC
Den Braven SA (Pty) Ltd.		South Africa	100.00	FC
Delaware Chemicals Corporation		United States	100.00	FC
DIFI 13		France	100.00	FC
DIFI 14	(d)	France	100.00	FC
DIFI 16		France	100.00	FC
DIFI 19	(b)	France	100.00	FC
DIFI 20	(b)	France	100.00	FC
ERPRO 3D FACTORY		France	10.00	SI
Febex SA	(g)	Switzerland	96.77	FC
FIXATTI		Belgium	100.00	FC
FIXATTI (CHINA) POLYMER SPECIALTIES Co LTD		China	100.00	FC
Fixatti AG		Switzerland	100.00	FC
FIXATTI GmbH	(b)	Germany	100.00	FC
Fixatti Holding AG		Switzerland	100.00	FC
IDEAL WORK Srl		Italy	100.00	FC
Ishedu Agrochem Private Limited		India	24.90	SI
Jiangsu Bostik Adhesive Co., Ltd		China	100.00	FC
Lambson Limited		United Kingdom	100.00	FC
Lip Norge AS		Norway	100.00	FC
Lip Sverige AB		Sweden	100.00	FC
Michelet Finance, Inc.		United States	100.00	FC
MLPC International		France	100.00	FC
Ozark- Mahoning Company		United States	100.00	FC
PI Advanced Materials Co., Ltd	(d)	South Korea	54.07	FC
Polimeros Especiales, S.A. de C.V.		Mexico	100.00	FC
POLYTEC PT GmbH Polymere Technologien	(d)	Germany	100.00	FC
Prochimir		France	100.00	FC
PT.Bostik Indonesia		Indonesia	100.00	FC
Sartomer (Guangzhou) Chemicals Ltd.		China	100.00	FC

SDP Holding	Belgium	100.00	FC
Seki Arkema Co., Ltd.	South Korea	51.00	FC
Shanghai Zhiguan Polymer Materials Co. Ltd	China	100.00	FC
Siroflex Limited	United Kingdom	100.00	FC
Société Marocaine des Colles	Morocco	97.01	FC
Sovereign Chemicals Limited	United Kingdom	100.00	FC
Taixing Sunke Chemicals Co., Ltd.	China	100.00	FC
The LightLock Company Limited	Hong Kong	55.00	FC
Thermoplastic Powder Holding AG	Switzerland	100.00	FC
Turkish Products, Inc.	United States	100.00	FC
Usina Fortaleza Indústria E Comércio de Massa Fina Ltda.	Brazil	100.00	FC
Viking Chemical Company	United States	100.00	FC

(a) Companies that changed their name in the period.
(b) Companies merged in the period.
(c) Companies liquidated in the period.
(d) Companies consolidated for the first time in the period.
(e) Companies for which the percentage ownership changed in the period, with no change in control.
(f) Companies for which the percentage ownership changed in the period, with change in control.
(g) Companies deconsolidated in the period.
NB: FC: full consolidation.
JO: joint operation – consolidated based on shares of assets, liabilities, income and expenses.
JV: joint venture – consolidation by the equity method.
SI: significant influence – consolidation by the equity method.

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