

Rio Tinto releases first quarter production results

17 April 2024

Rio Tinto Chief Executive Jakob Stausholm said: “We have been deeply affected by the loss of four Diavik colleagues and two airline crew members in a plane crash in January. This tragedy has strengthened our resolve to never be complacent about safety.

“We delivered stable operating results in the first quarter, including improvements at our bauxite and aluminium businesses, as we navigated seasonal challenges across our global operations. Our full year guidance is unchanged across all our products. We remained focused on growth in energy-transition materials, with the ramp-up at Oyu Tolgoi underground, the first full quarter of recycled aluminium production from Matalco and further progress at Simandou, our high grade iron ore project in Guinea.

“Action to decarbonise our operations continues, with power purchase agreements signed marking a significant step towards a competitive renewable energy solution for our Gladstone operations - the single largest lever towards our 2030 emissions goal. We also joined with BHP and BlueScope to investigate the development of Australia’s first electric smelting furnace pilot plant, progressing our work on steel decarbonisation. We continue to pursue our long-term strategy, and have a clear pathway to deliver operational excellence, while investing in profitable growth and delivering attractive shareholder returns.”

Production*		Q1 2024	vs Q1 2023	vs Q4 2023
Pilbara iron ore shipments (100% basis)	Mt	78.0	-5%	-10%
Pilbara iron ore production (100% basis)	Mt	77.9	-2%	-11%
Bauxite	Mt	13.4	+11%	-11%
Aluminium**	kt	826	+5%	-2%
Mined copper (consolidated basis)	kt	156	+7%	-3%
Titanium dioxide slag	kt	254	-11%	-8%
IOC*** iron ore pellets and concentrate	Mt	2.6	+3%	-3%

* Rio Tinto share unless otherwise stated

** Includes primary aluminium only

*** Iron Ore Company of Canada

Q1 2024 operational highlights and other key announcements

- Our all injury frequency rate for the first quarter was 0.36, in line with the previous quarter, and a small increase from the first quarter of 2023 (0.34). The tragic plane crash in January is a devastating reminder of why safety is and must always be our top priority. We continue to work closely with the authorities to support their efforts to understand the full facts of what has happened.
- In the Pilbara, we produced 77.9 million tonnes (Rio Tinto share 66.1 million tonnes) in the first quarter, 2% lower than the corresponding period of 2023. Compared to the first quarter in 2023, planned ore depletion, predominantly at Yandicoogina, was partially offset by productivity gains across other operations. We continue to work on asset management and pit health, and expect further productivity gains over the remainder of the year. Shipments of 78.0 million tonnes (Rio Tinto share 66.1 million tonnes) were 5% lower than the first quarter of 2023. Lower volumes were predominantly the result of weather disruption at the ports, leading to a lower stock draw-down compared to last year, as well as reduced production at the mines.
- Bauxite production of 13.4 million tonnes was 11% higher than the first quarter of 2023 with continued improvement in operational stability at Weipa and Gove.
- Aluminium production of 0.8 million tonnes was 5% higher than the first quarter of 2023. Kitimat is now back at full capacity.
- Mined copper production of 156 thousand tonnes (consolidated basis) was 7% higher than the first quarter of 2023.
 - Kennecott mined copper production was 7% higher than the first quarter of 2023 but 32% lower than the previous quarter, primarily, due to unplanned conveyor downtime. The impacted conveyor is now fully operational again.

- Escondida copper production was 7% higher than the first quarter of 2023 due to higher concentrator feed grade (0.92% in the first quarter of 2024 vs 0.78% in the corresponding period of 2023).
- Oyu Tolgoi mined copper production increased 8% from the first quarter of 2023 as the ramp-up in underground production continued in line with our long term plan, delivering a copper head grade of 1.67% (vs 1.36% in the first quarter of 2023) for the underground and an overall copper head grade of 0.55% (vs 0.49%).
- Titanium dioxide slag production was 11% lower than the first quarter of 2023. We entered 2024 with six out of nine furnaces operating at our RTIT Quebec Operations and three out of four online at Richards Bay Minerals (RBM). During the first quarter, we started the planned rebuild of one of the three offline furnaces in Quebec.
- IOC production was 3% higher than the first quarter of 2023. Shipments were 25% higher than the first quarter of 2023, driven by rail and port availability and utilisation.
- In the first quarter, we continued deployment of the Safe Production System (SPS), now reaching 24 sites, which we have prioritised for value. This year, our focus is on a deeper roll-out of SPS at the sites where it has been deployed.
- On 16 January, we [announced](#) that Dampier Salt Limited entered into a sales agreement for the Lake MacLeod salt and gypsum operation in Carnarvon, Western Australia, with privately-owned salt company Leichhardt Industrials Group for \$251 million (A\$375 million). Completion is expected by end of the year subject to certain commercial and regulatory conditions being satisfied.
- On 21 February, we [announced](#) that Simon McKeon will step down as a Non-Executive Director at the conclusion of the Rio Tinto Limited annual general meeting on 2 May 2024.
- On 28 March, we published our 2023 [Taxes and Royalties Paid Report](#), which details \$8.5 billion of taxes and royalties paid globally during the year, including \$6.6 billion in Australia.
- Subsequent to the end of the quarter, we [announced](#) that we will manage the Ranger Rehabilitation Project in Australia's Northern Territory on behalf of Energy Resources of Australia Ltd (ERA), under a new Management Services Agreement. This agreement will build on ERA's existing rehabilitation work with Rio Tinto's technical expertise in designing, scoping and executing closure projects.
- On 8 April, we [announced](#) that Bold Baatar has been appointed to the role of Chief Commercial Officer to lead the Group's commercial and business development activities globally.

All figures in this report are unaudited. All currency figures in this report are US dollars, and comments refer to Rio Tinto's share of production, unless otherwise stated.

2024 guidance

Rio Tinto production share, unless otherwise stated	2023 Actuals	Q1 2024 Actuals	2024 Previous	2024 Current
Pilbara iron ore (shipments, 100% basis) (Mt)	331.8	78.0	323 to 338	Unchanged
Bauxite (Mt)	54.6	13.4	53 to 56	Unchanged
Alumina (Mt)	7.5	1.9	7.6 to 7.9	Unchanged
Aluminium (Mt)	3.3	0.8	3.2 to 3.4	Unchanged
Mined copper (consolidated basis) (kt)	620	156	660 to 720	Unchanged
Refined copper (kt)	175	62.5	230 to 260	Unchanged
Titanium dioxide slag (Mt)	1.1	0.3	0.9 to 1.1	Unchanged
IOC ¹ iron ore pellets and concentrate (Mt)	9.7	2.6	9.8 to 11.5	Unchanged
Boric oxide equivalent (Mt)	0.5	0.1	~0.5	Unchanged

¹Iron Ore Company of Canada continues to be reported at Rio Tinto share.

- 2024 production guidance is unchanged.
- Expectations for Pilbara iron ore shipments in 2024 remain at 323 to 338 million tonnes. SP10 levels are expected to remain elevated until replacement projects are delivered. This guidance remains subject to the timing of approvals for planned mining areas and heritage clearances.
- Iron ore shipments and bauxite production guidance remain subject to weather impacts.

Operating costs

- Guidance for 2024 Pilbara iron ore unit cash costs is unchanged at \$21.75 to \$23.50 per tonne range (based on an average A\$:US\$ exchange rate of 0.66).
- Guidance for 2024 copper C1 unit costs is unchanged at 140 to 160 US cents/lb.

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Investments, growth and development projects

- Our share of capital investment for 2024 remains unchanged and is expected to be up to \$10.0 billion, including growth capital of up to \$3.0 billion, sustaining capital of around \$4.0 billion and \$2.0 to \$3.0 billion of replacement capital. This remains subject to Traditional Owner and other stakeholder engagement, regulatory approvals and technology developments. All capital guidance is subject to ongoing inflationary pressures and exchange rates.
- Pre-tax and pre-divestment expenditure on exploration and evaluation charged to the income statement in 2024 was \$214 million, compared with \$219 million in 2023, on the same basis. Approximately 23% of the spend was by central exploration, 38% by minerals (with the majority focusing on lithium), 29% by copper and 10% by iron ore. In 2024, all qualifying expenditure relating to Simandou has been capitalised.

Pilbara projects

- Construction of our Western Range mine is now over 50% complete. Bulk earthworks and initial mining area development are well advanced and the focus is on greenfield crushing and screening, and Paraburdoo plant tie-in. First ore remains on plan for 2025.
- We continue to advance our next tranche of Pilbara mine replacement studies including the Hope Downs 1 (Hope Downs 2 and Bedded Hilltop), Brockman 4 (Brockman Syncline 1), Greater Nammuldi and West Angelas projects. Project timelines remain subject to timing of approvals and heritage clearances.
- The Rhodes Ridge pre-feasibility study (PFS) continues to progress, including resource evaluation activities. The PFS, which is targeting an initial capacity of up to 40 million tonnes per year, subject to relevant approvals, is expected to be complete by the end of 2025. This will be followed by a feasibility study. First ore is expected by the end of the decade.
- Following approval in late 2023, engineering and procurement activities for the Coastal Water desalination project are well advanced. The \$395 million plant will provide water to our port operations in Dampier.

Oyu Tolgoi underground project

- We continue to see strong performance from the underground mine, with a total of 99 drawbells opened from Panel 0, including 13 during the quarter. The operation is expected to ramp up to deliver average mined copper production of ~500 thousand tonnes per annum (100% basis) between 2028 and 2036¹.
- Sinking of ventilation shafts 3 and 4 continued to progress well during the quarter and at the end of March reached depths of 1,076 metres and 1,150 metres below ground level, respectively. Final depths required for shafts 3 and 4 are 1,130 and 1,176 metres respectively. Shaft 4 breakthrough (sinking completion) was achieved in early April. Both shafts remain on track to be commissioned in the second half of 2024.
- Construction of the conveyor to surface works continued to plan and was 94% complete at the end of the quarter. Commissioning remains on track for the second half of 2024.
- Construction works for the concentrator conversion remain on schedule. Commissioning is expected to be progressively completed from the fourth quarter of 2024 through to the second quarter of 2025.
- Construction of primary crusher 2 commenced in December 2023 and is due to be completed by the end of 2025.

Simandou iron ore project

- In February, the Board of Rio Tinto approved its share of capital expenditure to progress the Simandou iron ore project in Guinea, subject to joint venture partner and regulatory approvals² from China and Guinea. We are continuing to work with our partners to satisfy the outstanding conditions.
- We estimate³ our share of capital expenditure for the Simfer mine and co-developed infrastructure is approximately \$6.2 billion⁴. First production from the Simfer mine is expected in 2025, ramping up over 30 months to an annualised capacity of 60 million tonnes per year⁵ (27 million tonnes per year Rio Tinto share).

- During the first quarter, we continued to finalise the remaining construction contracts and progressed the full mobilisation of 7,000+ work force for the Simfer⁶ mine and Simfer-managed scope of the co-developed infrastructure.
- For the Simfer mine, good progress has been made on the earthworks, including completion of clearing the 18-kilometre airport access road. Construction also commenced on the primary crusher. For the Simfer-managed scope of the co-developed infrastructure, the rail spur tunnel, port car dumpers and transshipment vessel (TSV) wharf are now under construction.
- Biodiversity monitoring continues with water monitoring with several local communities, as do our rehabilitation efforts with the sowing of 1,730 seeds for new stock in the Canga nursery and hydroseed of 7 hectares at Siatouro for erosion control. Our community commitments continue with 11 projects underway for schools, water wells, training programs and local content business support.

Other key projects and exploration and evaluation

- At Complexe Jonquière in Quebec, Canada, early works activities for the expansion of our low carbon AP60 aluminium smelter were completed during the quarter. The execution phase of construction activities is ramping up with the mobilisation of civil and structural contractors. Once completed, the project will add 96 new AP60 pots, increasing capacity by approximately 160,000 metric tonnes of primary aluminium per year. This new capacity, in addition to 30,000 tonnes of new recycling capacity at Arvida expected to open in the fourth quarter of 2025, will offset the 170,000 tonnes of capacity lost through the gradual closure of potrooms at the Arvida smelter from 2024.
- At Kennecott, the first stope of the Lower Commercial Skarn was blasted in March. This marks Kennecott's return to underground production after more than 40 years. Activities continued on the North Rim Skarn (NRS) underground development and infrastructure. Production from the NRS is now forecast to commence around mid-year 2025 (previously first quarter of 2025) following updates to our controls after ground fall events.
- At the Resolution Copper project in Arizona, the U.S. Court of Appeals for the Ninth Circuit denied Apache Stronghold's attempt to stop the land exchange between Resolution Copper and the federal government. Apache Stronghold has asked the court to rehear the case. We continue to progress the Final Environmental Impact Statement (FEIS) with the United States Forest Service (USFS), but they have yet to advise on the date of re-publication. We also advanced partnership discussions with federally-recognised Native American Tribes who are part of the formal consultation process. While there is significant local support for the project, we respect the views of groups who oppose it and will continue our efforts to address and mitigate concerns.
- At the Winu copper-gold project in Western Australia, Project Planning Agreements were executed with the Nyangumarta and Martu groups, the Traditional Owners of the land on which the proposed Winu mine and airstrip will be located. Study activities, drilling and fieldwork progressed sufficiently to commence Winu's formal Western Australian Environmental Protection Authority (EPA) approval process. Work in 2024 to complete the environmental approval deliverables and the Project Agreement negotiations with both Traditional Owner groups remains the priority.
- Nuton, Rio Tinto's copper heap leaching technology venture, continues to develop its path for deployment with a portfolio of six partnerships (Cactus with ASCU, Yerington with Lion Copper & Gold, Johnson Camp with Excelsior, AntaKori with Regulus, Escondida with BHP and Los Azules with McEwen) in four countries: United States, Chile, Peru and Argentina. In March, Lion Copper & Gold announced the results of the Preliminary Economic Assessment (PEA) for its Yerington Project. Lion Copper and Gold's assessment incorporated the Nuton case. Nuton continues to develop its pipeline of projects.
- We continue to believe that the Jadar lithium-borate project in Serbia has the potential to be a world-class asset, that will support the development of other future industries in Serbia, acting as a catalyst for tens of thousands of jobs for current and future generations, and sustainably producing materials critical to the energy transition. We are focused on consultation with all stakeholders to explore options related to the project's future.

- At the Rincon lithium project in Argentina, development of the three thousand tonne per annum lithium carbonate starter plant is ongoing as we progressed the construction of an additional 400-bed camp facility (500 already completed) and concrete works. Structural, mechanical, piping, electrical and instrumentation installation activity is ramping up to plan. We progressed studies for the full-scale operation during the quarter, and the exploration campaign to further understand Rincon's basin, brine and water reservoirs. We continue to engage with communities, the province of Salta and the Government of Argentina to ensure an open and transparent dialogue with stakeholders about the works underway. We continue to expect first production from the starter plant by the end of 2024.

¹ The 500 thousand tonnes per annum copper production target (stated as recoverable metal) for the Oyu Tolgoi underground and open pit mines for the years 2028 to 2036 was previously reported in a release to the Australian Securities Exchange (ASX) dated 11 July 2023 "Investor site visit to Oyu Tolgoi copper mine, Mongolia". All material assumptions underpinning that production target and those production profiles continue to apply and have not materially changed.

² Closing of the joint venture arrangements for the co-developed infrastructure remain subject to a number of conditions including Chinese and Guinean regulatory approvals.

³ A true-up mechanism will apply between Simfer and WCS to equalise their out of pocket costs of constructing the co-developed rail and port infrastructure.

⁴ Estimated numbers, subject to approval by all joint venture partners and government authorities.

⁵ The estimated annualised capacity of approximately 60 million dry tonnes per annum iron ore for the Simandou life of mine schedule was previously reported in a release to the ASX dated 6 December 2023 titled "Investor Seminar 2023". Rio Tinto confirms that all material assumptions underpinning that production target and those production profiles continue to apply and have not materially changed.

⁶ Simfer Jersey Limited is a joint venture between the Rio Tinto Group (53%) and Chalco Iron Ore Holdings Ltd (CIOH) (47%), a Chinalco-led joint venture of leading Chinese SOEs (Chinalco (75%), Baowu (20%), China Rail Construction Corporation (2.5%) and China Harbour Engineering Company (2.5%)). Simfer S.A. is the holder of the mining concession covering Simandou Blocks 3 & 4, and is owned by the Guinean State (15%) and Simfer Jersey Limited (85%). Simfer Infraco Guinée S.A.U. will deliver Simfer's scope of the co-developed rail and port infrastructure, and is, on the date of this notice, a wholly-owned subsidiary of Simfer Jersey Limited, but will be co-owned by the Guinean State (15%) after closing of the co-development arrangements. Simfer Jersey will ultimately own 42.5% of Compagnie du Transguinéen, which will own and operate the co-developed infrastructure during operations.

Sustainability highlights

February marked two years since the Everyday Respect Report was released. We recognised this milestone by sharing stories highlighting some of the actions we have taken to implement the 26 recommendations as we progress on our journey of culture change to create a safer, more respectful and inclusive organisation. We are proud of all we have achieved, but recognise that we are only two years into our journey and have much to learn and do. One of the final recommendations, a Progress Review, was launched on 9 April to help us understand where we still need to make improvements. We continue to commit to transparency and will share the results of the independent Progress Review.

This quarter we launched Inclusive Voices, our employee-led Employee Resource Group community, to amplify voices of diverse groups across our business. We also worked on removing other barriers to inclusion and bringing our Everyday Respect priorities to life through starting to build a series of “how to” guides starting with our Parental Leave guide released in March.

Communities & Social Performance (CSP)

In March, we officially launched a global community perception monitoring program, [Local Voices](#). The program is an important part of our commitment to truly listen to communities so we can continually find better ways to work together. Other key highlights from the quarter are provided below, with further information available on our [website](#):

[26 January 2024 | Sokhulu and RBM agree to implement trust reform and support long-term community benefit](#)

[26 March 2024 | Rio Tinto commits \\$10 million to boost Tom Price sports and recreation](#)

[8 April 2024 | Yinhawangka People and Rio Tinto partner to co-design 'Living Cultures Program'](#)

Climate change, product stewardship and our value chain

To reach our 2030 goal of a 50% reduction in emissions (Scope 1 and 2), our single largest lever - accounting for around one-quarter of our emissions - is to develop a competitive renewable energy solution for the Boyne and Tomago aluminium smelters in our Pacific Aluminium Operations. In February, we agreed to buy th

e majority of electricity from Windlab's Bungaban wind energy project. This, combined with our announcement in January of a power purchase agreement (PPA) for European Energy's Upper Calliope solar farm in Queensland, will make Rio Tinto the biggest industrial buyer of renewable power in Australia. The combined 2.2GW of renewable PPAs represent the equivalent of 10% of Queensland's current power demand and have the potential to lower carbon emissions by about 5 million tonnes per year. Turning to steel decarbonisation, in February, we announced a partnership with BHP and BlueScope to investigate the development of Australia's first ironmaking electric smelting furnace pilot plant.

Further detail on these PPAs and partnerships is provided in the links below:

[24 January 2024 | Rio Tinto to drive development of Australia's largest solar farm at Gladstone](#)

[09 February 2024 | Australia's leading iron ore producers partner with BlueScope on steel decarbonisation](#)

[21 February 2024 | Rio Tinto signs Australia's biggest renewable power deal as it works to repower its Gladstone operations](#)

[27 February 2024 | Rio Tinto IOC and Government of Canada partner to decarbonize iron ore processing in Labrador West](#)

Our markets

The global economy remains resilient, despite the aggressive policy rate hikes in the past two years, with a recovery in industrial production ahead. Inflation is trending downwards, but slower than expectations, as energy price risks and shipping cost volatility remain. Labour markets are still resilient.

- China's economic recovery has been uneven, prompting more government support to sustain growth and meet the target of around 5% GDP growth this year. The manufacturing sector remains strong, given increased industrial production and exports, while property activity remains weak, despite improved policy support. There is continued issuance of financing for infrastructure projects, although efforts are being taken to restructure local government debts.
- The US market outlook remains optimistic, given the labour market strength, looser financial conditions, and healthy household and corporate balance sheets. The Federal Reserve is still focused on the downward direction of inflation, although the pace of decline is slowing and some headwinds have appeared. The services sector continues to hold up relatively well, while the manufacturing PMI turned expansionary in January.
- The eurozone economy stagnated in the fourth quarter of 2023 and is likely to have stayed weak in the first quarter of this year. It is expected to pick up gradually over the year on the back of a further decline in inflation, cuts in official interest rates, recovery in industrial production and investments in the energy transition. However, the pace of recovery is uneven amongst countries, with Germany lagging given weakness in its manufacturing sector.
- Iron ore prices declined by 27% over the quarter, while the average monthly price in the first quarter of \$123/dmt (Platts CFR 62% Fe index) was 4% lower than last year's fourth quarter. China's domestic steel demand trended at levels similar to last year, but steel exports rose 30% year-on-year during the first two months and are likely to remain historically elevated, in turn, supporting iron ore demand. Seaborne shipments in the first quarter rose 1% year-on-year and China's portside inventories increased by 24 million tonnes to 144 million tonnes. Steel mill margins in China oscillated around break-even levels, maintaining iron ore product price relativities within historically narrow bands, while lump premiums declined in the absence of pollution controls and sintering restrictions in China.
- The LME aluminium price declined by 3% over the quarter, while the average price rose 0.4% from the fourth quarter of 2023, to \$2,199/t. Aluminium orders improved in Europe and North America, while Chinese demand continued to be resilient on growth from renewables and electric vehicles (EVs). Global aluminium production remained stable, with restarts in Yunnan, China, only expected in the second quarter. Global reported aluminium inventory levels remain low, maintaining tight physical markets. China bauxite import prices remained resilient in the first quarter, supported by firm demand and disruptions to domestic bauxite supply.
- The copper LME price was higher in the first quarter, with the average price up 3% quarter-on-quarter to \$3.83/lb. Besides a substantial cut to mine production guidance from the major copper miners, the growth in smelter capacity has led to a severe tightening in the copper concentrates market and a sharp fall in Treatment Charge (TC) and Refining Charge (RC). Copper demand growth continues to be driven by energy transition sectors, including EV, power grid and renewables. Chinese demand growth has been robust, despite the weakening property sector.
- Lithium prices have remained at subdued levels through the first quarter with the weak sentiment impacting price outlooks, triggering production curtailment and project delays. Conversely, global EV sales growth rose 31% year-on-year in the first two months of this year, compared to 26% year-on-year over the same period last year. Chinese EV makers announced a series of price cuts in the first quarter to increase sales further.
- The global TiO₂ feedstock market experienced some positive sentiment in the first quarter, although this is from a low base after depressed conditions through most of 2023. Underlying pigment demand has stabilised with some pockets of the market showing encouraging growth. Against this backdrop, there has been some supply curtailment reported.
- The borates market remained well supplied and demand continued to be soft in the first quarter, driven by weakness in the housing and construction markets.

Iron Ore

Rio Tinto share of production (Million tonnes)	Q1 2024	vs Q1 2023	vs Q4 2023
Pilbara Blend and SP10 Lump ¹	19.9	+1%	-11%
Pilbara Blend and SP10 Fines ¹	29.8	-3%	-11%
Robe Valley Lump	1.5	+35%	-4%
Robe Valley Fines	2.7	+36%	-1%
Yandicoogina Fines (HIY)	12.1	-11%	-12%
Total Pilbara production	66.1	-2%	-10%
Total Pilbara production (100% basis)	77.9	-2%	-11%

Rio Tinto share of shipments (Million tonnes)	Q1 2024	vs Q1 2023	vs Q4 2023
Pilbara Blend Lump	12.8	-18%	-12%
Pilbara Blend Fines	23.2	-19%	-2%
Robe Valley Lump	1.2	+16%	-19%
Robe Valley Fines	2.9	+30%	-4%
Yandicoogina Fines (HIY)	12.2	-11%	-10%
SP10 Lump ¹	4.5	+165%	-3%
SP10 Fines ¹	9.2	+35%	-24%
Total Pilbara shipments ²	66.1	-5%	-10%
Total Pilbara shipments (100% basis) ²	78.0	-5%	-10%
Total Pilbara Shipments (consolidated basis) ^{2, 3}	67.9	-5%	-10%

Production figures are sometimes more precise than the rounded numbers shown, hence small rounding differences may appear.

¹ SP10 includes other lower grade products.

² Shipments includes material shipped from the Pilbara to our portside trading facility in China which may not be sold onwards by the group in the same period.

³ While Rio Tinto has a 53% net beneficial interest in Robe River Iron Associates, it recognises 65% of the assets, liabilities, sales revenues and expenses in its accounts (as 30% is held through a 60% owned subsidiary and 35% is held through a 100% owned subsidiary). The consolidated basis sales reported here include Robe River Iron Associates on a 65% basis to enable comparison with revenue reported in the financial statements.

Pilbara operations

We produced 77.9 million tonnes (Rio Tinto share 66.1 million tonnes) in the first quarter, 2% lower than the corresponding period of 2023. Compared to the first quarter of 2023, planned ore depletion, predominantly at Yandicoogina, was partially offset by productivity gains across other operations. We continue to work on asset management and pit health and expect further productivity gains over the remainder of the year.

Shipments of 78.0 million tonnes (Rio Tinto share 66.1 million tonnes) were 5% lower than the first quarter of 2023. Lower volumes were predominantly the result of weather disruption at the ports, leading to a lower stock draw-down compared to last year, as well as reduced production at the mines. SP10 volumes accounted for 18%¹ of shipments in the first quarter, in line with the second half of 2023.

Approximately 10% of sales in the first quarter were priced by reference to the prior quarter's average index lagged by one month. The remainder was sold either on current quarter average, current month average, average of two months, forward month or on the spot market. Approximately 27% of sales in the first quarter were made on a free on board (FOB) basis, with the remainder sold including freight.

China Portside Trading

Our iron ore portside sales in China were 6.5 million tonnes in the first quarter of 2024 (6.2 million tonnes in the first quarter of 2023). At the end of March, inventory levels were 7.0 million tonnes (6.4 million tonnes at the end of December), including 4.8 million tonnes of Pilbara product. In the first quarter of 2024, approximately 90% of our portside sales were either screened or blended in Chinese ports.

¹ Based on total Pilbara shipments on a 100% basis.

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Aluminium

Rio Tinto share of production ('000 tonnes)	Q1 2024	vs Q1 2023	vs Q4 2023
Bauxite	13,418	+11%	-11%
Bauxite third party shipments	8,496	+8%	-21%
Alumina	1,864	0%	-3%
Aluminium	826	+5%	-2%
Recycled aluminium	74	n/a	n/a

Bauxite

Bauxite production of 13.4 million tonnes was 11% higher than the first quarter of 2023. The increase in production versus 2023 represents continuing improvements in operational stability at Weipa and Gove.

We shipped 8.5 million tonnes of bauxite to third parties in the first quarter, 8% higher than the same period of 2023.

Alumina

Alumina production of 1.9 million tonnes was flat compared to the first quarter of 2023 but 3% lower than the previous quarter due to a breakage of the Queensland Gas Pipeline, operated by a third-party, which impacted our Gladstone operations in March. The pipeline has now been repaired and has been undergoing a monitoring process during March and April while production ramps up.

As the result of sanction measures by the Australian Government, Rio Tinto has taken on 100% of capacity of Queensland Alumina Limited (QAL) for as long as the sanctions continue. This results in use of Rusal's 20% share of capacity by Rio Tinto under the tolling arrangement with QAL. This additional output is excluded from the production tables in this report as QAL remains 80% owned by Rio Tinto and 20% owned by Rusal. On 1 February 2024, the Federal Court of Australia rendered its decision in the litigation initiated by Rusal against Rio Tinto and QAL, dismissing Rusal's case. The decision has been appealed by Rusal.

Aluminium

Aluminium production of 0.8 million tonnes was 5% higher than the first quarter of 2023. Kitimat is now back at full capacity; however, Tomago was impacted by challenges around cell stability during the quarter. At ISAL, although operations were not directly affected by volcanic eruptions in Iceland, we were asked by authorities to reduce our electricity load meaning that the smelter has been operating at 90% capacity rates. All our other smelters continued to demonstrate stable performance during the quarter.

Recycled aluminium

Rio Tinto's share of production from Matalco was 74 thousand tonnes in the first quarter (148 thousand tonnes on a 100% basis). Full year 2023 production from Matalco was 582 thousand tonnes (on a 100% basis) of recycled aluminium products.

Copper

Rio Tinto share of production ('000 tonnes)	Q1 2024	vs Q1 2023	vs Q4 2023
Mined copper			
Kennecott	32.5	+7%	-32%
Escondida	77.2	+7%	+8%
Oyu Tolgoi (66% basis)	30.4	+8%	+13%
Total mined copper production	140.1	+7%	-4%
Total mined copper production (consolidated basis ¹)	155.8	+7%	-3%
Refined copper			
Kennecott	47.8	+10%	+50%
Escondida	14.7	-3%	+4%

¹ Includes Oyu Tolgoi and Kennecott on a 100% consolidated basis, and Escondida on an equity share basis.

Kennecott

Mined copper production was 7% higher than the first quarter of 2023 but 32% lower than the previous quarter, primarily, due to unplanned conveyor downtime. The impacted conveyor is now fully operational again. Kennecott also continues to manage geotechnical risk in the mine which is heightened through winter and spring months.

Refined copper production was 10% higher than the first quarter of 2023 and 50% up on the prior quarter as the smelter returns to normal operations following completion of the largest rebuild of the smelter and refinery in Kennecott's history in 2023.

Escondida

Mined copper production was 7% higher than the first quarter of 2023 due to higher concentrator feed grade (0.92% in the first quarter of 2024 vs 0.78% in the corresponding period of 2023). Refined copper production was 3% lower than the same quarter of last year due to planned lower stacking for sulphide leach.

Oyu Tolgoi

Mined copper production increased 8% from the first quarter of 2023 as the ramp-up in underground production continued. During the quarter, we delivered 1.3 million tonnes of ore milled from the underground mine at an average copper head grade of 1.67% and 9.0 million tonnes from the open pit with an average grade of 0.39%. This ramp-up is in line with the long-term plan to reach 500 thousand tonnes of copper production (stated as recoverable metal) for the Oyu Tolgoi underground and open pit mines for the years 2028 to 2036¹.

¹ The 500 thousand tonnes per annum copper production target (stated as recoverable metal) for the Oyu Tolgoi underground and open pit mines for the years 2028 to 2036 was previously reported in a release to the ASX dated 11 July 2023 "[Investor site visit to Oyu Tolgoi copper mine, Mongolia](#)". All material assumptions underpinning that production target and those production profiles continue to apply and have not materially changed.

Minerals

Rio Tinto share of production (million tonnes)	Q1 2024	vs Q1 2023	vs Q4 2023
Iron ore pellets and concentrate			
IOC	2.6	+3%	-3%

Rio Tinto share of production ('000 tonnes)	Q1 2024	vs Q1 2023	vs Q4 2023
Minerals			
Borates - B ₂ O ₃ content	121	-2%	+9%
Titanium dioxide slag	254	-11%	-8%

Rio Tinto share of production ('000 carats)	Q1 2024	vs Q1 2023	vs Q4 2023
Diavik	740	-22%	+12%

Iron Ore Company of Canada (IOC)

Iron ore production was 3% higher than the first quarter of 2023, driven by stronger pellet production. Concentrate production was affected by seasonal challenges at the operation.

Shipments were 25% higher than the first quarter of 2023, driven by rail and port availability and utilisation.

Borates

Borates production in the first quarter was 2% lower than the corresponding period of 2023 but up 9% compared to the previous quarter due to the re-start of the plant following completion of a scheduled shut in December.

Iron and Titanium

Titanium dioxide slag production was 11% lower than the first quarter of 2023. We entered 2024 with six out of nine furnaces operating at our RTIT Quebec Operations and three out of four online at Richards Bay Minerals (RBM). During the first quarter, we started to rebuild one of the three offline furnaces in Quebec.

Diamonds

At Diavik, our share of carats was 22% lower than the first quarter of 2023 due to a production pause to grieve and honour lost colleagues. Lower ore mined from the depletion of two ore bodies in 2023 was partially offset by continued improvements in A154N underground ore deliveries and ore development from the A21 underground project.

Exploration and evaluation

Pre-tax and pre-divestment expenditure on exploration and evaluation charged to the income statement in 2024 was \$214 million, compared with \$219 million in 2023 on the same basis. Approximately 23% of the spend was by central exploration, 38% by minerals (with the majority focusing on lithium), 29% by copper and 10% by iron ore.

Exploration highlights

Rio Tinto has a strong portfolio of projects with activity in 18 countries across eight commodities in early exploration and studies stages. The bulk of the exploration expenditure in the first quarter focused on copper in Chile, Kazakhstan and Serbia, Nickel in Peru, Australia, Brazil and Canada, Lithium in Canada, US, Rwanda and Australia, potash in Canada and heavy mineral sands (HMS) in South Africa and Malawi. The Rio Tinto operated Nuevo Cobre joint venture copper project in Chile progressed the geological field program, baseline environmental studies and engagement with the local Colla community. Rio Tinto has transferred ownership and operational responsibilities for the Fort a La Corne diamond project in Saskatchewan, Canada, to Star Diamond Corporation in exchange for shares. Mine-lease exploration continued at Rio Tinto managed businesses including Bingham Canyon in the US and Pilbara Iron Ore in Australia.

A summary of activity for the quarter is as follows:

Commodities	Studies Stage	Advanced projects	Greenfield/ Brownfield programs
Bauxite			Cape York, Australia
Battery Materials	Rincon Lithium, Argentina Lithium borates: Jadar, Serbia Nickel: Tamarack, US (3rd party operated)		Nickel Greenfield: Australia, Brazil, Canada, Finland, Peru Lithium Greenfield: Australia, Brazil, Canada, Chile, China, Finland, Rwanda, US
Copper	Copper/molybdenum: Resolution, US Copper/Gold: Winu, Australia	Copper: La Granja, Peru (3rd party operated)	Copper Greenfield: Angola, Australia, Brazil, Canada, Chile, China, Colombia, Kazakhstan, Laos, Peru, Papua New Guinea, Serbia, US, Zambia Copper Brownfield: US (Bingham), Australia (Winu)
Diamonds		Chiri, Angola	Diamonds Greenfield: Angola
Iron Ore	Pilbara, Australia Simandou, Guinea	Pilbara, Australia	Greenfield and Brownfield: Pilbara, Australia
Minerals	Potash: KL262 (3rd party operated), Canada HMS: Mutamba, Mozambique	Texas, Canada (potash), Kamiesberg, South Africa (HMS) (3rd party operated), Kasiya, Malawi (rutile-graphite) (3rd party operated)	

Forward-looking statement

This announcement includes “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical facts included in this report, including, without limitation, those regarding Rio Tinto’s financial position, business strategy, plans and objectives of management for future operations (including development plans and objectives relating to Rio Tinto’s products, production forecasts and reserve and resource positions), are forward-looking statements. The words “intend”, “aim”, “project”, “anticipate”, “estimate”, “plan”, “believes”, “expects”, “may”, “should”, “will”, “target”, “set to” or similar expressions, commonly identify such forward-looking statement.

Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Rio Tinto, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements, particularly in light of the current economic climate and the significant volatility, uncertainty and disruption arising in connection with the Ukraine conflict. Such forward-looking statements are based on numerous assumptions regarding Rio Tinto’s present and future business strategies and the environment in which Rio Tinto will operate in the future. Among the important factors that could cause Rio Tinto’s actual results, performance or achievements to differ materially from those in the forward-looking statements include, but are not limited to: an inability to live up to Rio Tinto’s values and any resultant damage to its reputation; the impacts of geopolitics on trade and investment; the impacts of climate change and the transition to a low-carbon future; an inability to successfully execute and/or realise value from acquisitions and divestments; the level of new ore resources, including the results of exploration programmes and/or acquisitions; disruption to strategic partnerships that play a material role in delivering growth, production, cash or market positioning; damage to Rio Tinto’s relationships with communities and governments; an inability to attract and retain requisite skilled people; declines in commodity prices and adverse exchange rate movements; an inability to raise sufficient funds for capital investment; inadequate estimates of ore resources and reserves; delays or overruns of large and complex projects; changes in tax regulation; safety incidents or major hazard events; cyber breaches; physical impacts from climate change; the impacts of water scarcity; natural disasters; an inability to successfully manage the closure, reclamation and rehabilitation of sites; the impacts of civil unrest; the impacts of the Ukraine conflict; breaches of Rio Tinto’s policies, standard and procedures, laws or regulations; trade tensions between the world’s major economies; increasing societal and investor expectations, in particular with regard to environmental, social and governance considerations; the impacts of technological advancements; and such other risks identified in Rio Tinto’s most recent Annual Report and accounts in Australia and the United Kingdom and the most recent Annual Report on Form 20-F filed with the United States Securities and Exchange Commission (the “SEC”) or Form 6-Ks furnished to, or filed with, the SEC. Forward-looking statements should, therefore, be construed in light of such risk factors and undue reliance should not be placed on forward-looking statements. These forward-looking statements speak only as of the date of this report. Rio Tinto expressly disclaims any obligation or undertaking (except as required by applicable law, the UK Listing Rules, the Disclosure Guidance and Transparency Rules of the Financial Conduct Authority and the Listing Rules of the Australian Securities Exchange) to release publicly any updates or revisions to any forward-looking statement contained herein to reflect any change in Rio Tinto’s expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.

Nothing in this announcement should be interpreted to mean that future earnings per share of Rio Tinto plc or Rio Tinto Limited will necessarily match or exceed its historical published earnings per share. Past performance cannot be relied on as a guide to future performance.

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This announcement is authorised for release to the market by Andy Hodges, Rio Tinto's Group Company Secretary.

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Classification: 3.1 Additional regulated information required to be disclosed under the laws of a Member State

Rio Tinto production summary

Rio Tinto share of production

		Quarter			Full Year 2023	% change	
		2023 Q1	2023 Q4	2024 Q1		Q1 24 vs Q1 23	Q1 24 vs Q4 23
Principal commodities							
Alumina	('000 t)	1,860	1,919	1,864	7,537	0%	-3%
Aluminium (Primary)	('000 t)	785	846	826	3,272	+5%	-2%
Bauxite	('000 t)	12,089	15,098	13,418	54,619	+11%	-11%
Borates	('000 t)	124	111	121	495	-2%	+9%
Copper - mined (consolidated)	('000 t)	145.2	160.0	155.8	619.6	+7%	-3%
Copper - refined	('000 t)	58.9	46.1	62.5	175.2	+6%	+36%
Iron Ore	('000 t)	69,784	76,514	68,701	290,171	-2%	-10%
Titanium dioxide slag	('000 t)	285	275	254	1,111	-11%	-8%
Other Metals & Minerals							
Diamonds	('000 cts)	954	659	740	3,340	-22%	+12%
Gold - mined	('000 oz)	64.4	75.6	66.6	281.5	+3%	-12%
Gold - refined	('000 oz)	22.0	20.6	35.3	74.2	+60%	+71%
Molybdenum	('000 t)	0.1	0.8	0.7	1.8	+461%	-5%
Salt	('000 t)	1,450	1,438	1,425	5,973	-2%	-1%
Silver - mined	('000 oz)	935	1,100	973	3,811	+4%	-11%
Silver - refined	('000 oz)	432	406	550	1,407	+27%	+36%

Throughout this report, figures in italics indicate adjustments made since the figure was previously quoted on the equivalent page or reported for the first time. Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result between the total of the quarter figures and the year to date figures.

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Rio Tinto share of production

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
ALUMINA							
Production ('000 tonnes)							
Jonqui�re (Vaudreuil)	100 %	371	346	325	349	352	1,392
Jonqui�re (Vaudreuil) specialty Alumina plant	100 %	25	27	28	29	27	109
Queensland Alumina	80 %	632	677	720	664	675	2,693
S�o Luis (Alumar)	10 %	94	66	88	90	87	338
Yarwun	100 %	739	745	736	786	722	3,006
Rio Tinto total alumina production		1,860	1,861	1,897	1,919	1,864	7,537
ALUMINIUM							
Primary production ('000 tonnes)							
Australia - Bell Bay	100 %	45	46	47	47	47	186
Australia - Boyne Island	59 %	70	73	76	76	75	295
Australia - Tomago	52 %	75	75	77	77	73	304
Canada - six wholly owned	100 %	367	389	398	410	405	1,565
Canada - Alouette (Sept-�les)	40 %	62	63	64	64	63	253
Canada - B�cancour	25 %	29	29	28	30	29	117
Iceland - ISAL (Reykjavik)	100 %	51	52	52	54	49	209
New Zealand - Tiwai Point	79 %	66	66	66	67	66	265
Oman - Sohar	20 %	20	20	20	20	20	80
Rio Tinto total primary aluminium production		785	814	828	846	826	3,272
Recycled production ('000 tonnes)							
Matalco	50 %	—	—	—	—	74	—
Rio Tinto total recycled aluminium production		—	—	—	—	74	—
BAUXITE							
Production ('000 tonnes) (a)							
Gove	100 %	2,579	2,739	3,015	3,234	3,104	11,566
Porto Trombetas (b)	22 %	275	327	391	509	508	1,502
Sangaredi	(c)	1,744	1,614	1,524	1,544	1,583	6,425
Weipa	100 %	7,492	8,813	9,010	9,811	8,224	35,126
Rio Tinto total bauxite production		12,089	13,492	13,940	15,098	13,418	54,619

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or dor  bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) On 30 November 2023, Rio Tinto's ownership interest in Porto Trombetas increased from 12% to 22%. Production is reported including this change from 1 December 2023.

(c) Rio Tinto has a 22.95% shareholding in the Sangaredi mine but benefits from 45.0% of production.

Rio Tinto share of production

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
BORATES							
Production ('000 tonnes B₂O₃ content)							
Rio Tinto Borates - borates	100 %	124	133	127	111	121	495
COPPER							
Mine production ('000 tonnes) (a)							
Bingham Canyon	100 %	30.3	24.8	48.8	47.8	32.5	151.6
Escondida	30 %	72.3	77.4	78.6	71.6	77.2	299.9
Oyu Tolgoi (b)	66 %	28.1	28.3	27.7	26.8	30.4	110.9
Rio Tinto total mine production		130.7	130.5	155.1	146.2	140.1	562.4
Rio Tinto total mine production - consolidated basis		145.2	145.0	169.4	160.0	155.8	619.6
Refined production ('000 tonnes)							
Escondida	30 %	15.2	21.7	15.6	14.1	14.7	66.7
Kennecott (c)	100 %	43.6	14.4	18.5	32.0	47.8	108.6
Rio Tinto total refined production		58.9	36.2	34.1	46.1	62.5	175.2

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) On 16 December 2022, Rio Tinto completed the acquisition of 100% of Turquoise Hill Resources Ltd, increasing our ownership in Oyu Tolgoi from 33.52% to 66%. From 1 January 2023, our share of production has been updated to reflect this change.

(c) We continue to process third party concentrate to optimise smelter utilisation, including 1.6 thousand tonnes of cathode produced from purchased concentrate in 2024 year-to-date. Purchased and tolled copper concentrates are excluded from reported production figures and production guidance. Sales of cathodes produced from purchased concentrate are included in reported revenues.

DIAMONDS

Production ('000 carats)

Diavik	100 %	954	970	757	659	740	3,340
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GOLD

Mine production ('000 ounces) (a)

Bingham Canyon	100 %	20.6	18.7	32.0	33.5	26.7	104.8
Escondida	30 %	14.7	16.1	14.4	14.6	11.7	59.7
Oyu Tolgoi (b)	66 %	29.1	26.6	33.8	27.5	28.2	117.0
Rio Tinto total mine production		64.4	61.4	80.2	75.6	66.6	281.5

Refined production ('000 ounces)

Kennecott	100 %	22.0	19.2	12.4	20.6	35.3	74.2
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(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) On 16 December 2022, Rio Tinto completed the acquisition of 100% of Turquoise Hill Resources Ltd, increasing our ownership in Oyu Tolgoi from 33.52% to 66%. From 1 January 2023, our share of production has been updated to reflect this change.

Rio Tinto share of production

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
IRON ORE							
Production ('000 tonnes) (a)							
Hamersley mines	(b)	54,433	55,004	57,322	59,138	53,373	225,898
Hope Downs	50 %	5,885	5,763	5,519	6,074	5,081	23,241
Iron Ore Company of Canada	59 %	2,526	2,063	2,384	2,703	2,613	9,676
Robe River - Pannawonica (Mesas J and A)	53 %	3,123	3,897	4,106	4,330	4,245	15,456
Robe River - West Angelas	53 %	3,816	3,905	3,910	4,269	3,388	15,899
Rio Tinto iron ore production ('000 tonnes)		69,784	70,632	73,241	76,514	68,701	290,171
Breakdown of Production:							
Pilbara Blend and SP10 Lump (c)		19,612	21,042	21,418	22,228	19,885	84,301
Pilbara Blend and SP10 Fines (c)		30,851	31,750	31,700	33,485	29,836	127,786
Robe Valley Lump		1,136	1,488	1,665	1,592	1,534	5,882
Robe Valley Fines		1,987	2,409	2,441	2,739	2,711	9,574
Yandicoogina Fines (HIY)		13,672	11,880	13,633	13,768	12,122	52,952
Pilbara iron ore production ('000 tonnes)		67,258	68,569	70,857	73,811	66,088	280,495
IOC Concentrate		1,241	1,120	1,137	1,298	1,130	4,796
IOC Pellets		1,285	943	1,247	1,405	1,483	4,880
IOC iron ore production ('000 tonnes)		2,526	2,063	2,384	2,703	2,613	9,676
Breakdown of Shipments:							
Pilbara Blend Lump		15,689	14,691	14,812	14,533	12,844	59,725
Pilbara Blend Fines		28,528	27,474	25,375	23,706	23,168	105,083
Robe Valley Lump		1,051	1,152	1,297	1,506	1,223	5,005
Robe Valley Fines		2,262	2,489	2,706	3,054	2,943	10,511
Yandicoogina Fines (HIY)		13,689	12,558	13,669	13,628	12,228	53,544
SP10 Lump (c)		1,686	1,652	4,180	4,620	4,474	12,137
SP10 Fines (c)		6,832	6,613	9,699	12,208	9,221	35,353
Pilbara iron ore shipments ('000 tonnes) (d)		69,738	66,629	71,736	73,255	66,100	281,358
Pilbara iron ore shipments - consolidated basis ('000 tonnes) (d) (f)		71,505	68,322	73,553	75,058	67,910	288,438
IOC Concentrate		984	1,247	1,232	1,196	1,162	4,659
IOC Pellets		1,143	1,352	1,066	1,369	1,493	4,929
IOC Iron ore shipments ('000 tonnes) (d)		2,127	2,599	2,298	2,565	2,654	9,588
Rio Tinto iron ore shipments ('000 tonnes) (d)		71,864	69,228	74,034	75,820	68,755	290,947
Rio Tinto iron ore sales ('000 tonnes) (e)		74,273	71,678	74,488	76,269	69,356	296,707

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) Includes 100% of production from Paraburdoo, Mt Tom Price, Western Turner Syncline, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass, Channar, Gudai-Darri and the Eastern Range mines. Whilst Rio Tinto owns 54% of the Eastern Range mine, under the terms of the joint venture agreement, Hamersley Iron manages the operation and is obliged to purchase all mine production from the joint venture and therefore all of the production is included in Rio Tinto's share of production.

(c) SP10 includes other lower grade products.

(d) Shipments includes material shipped to our portside trading facility in China which may not be sold onwards in the same period.

(e) Represents the difference between amounts shipped to portside trading and onward sales from portside trading, and third party volumes sold.

(f) While Rio Tinto has a 53% net beneficial interest in Robe River Iron Associates, it recognises 65% of the assets, liabilities, sales revenues and expenses in its accounts (as 30% is held through a 60% owned subsidiary and 35% is held through a 100% owned subsidiary). The consolidated basis sales reported here include Robe River Iron Associates on a 65% basis to enable comparison with revenue reported in the financial statements.

Rio Tinto share of production

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
MOLYBDENUM							
Mine production ('000 tonnes) (a)							
Bingham Canyon	100 %	0.1	0.3	0.6	0.8	0.7	1.8

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

SALT							
Production ('000 tonnes)							
Dampier Salt	68 %	1,450	1,652	1,434	1,438	1,425	5,973

SILVER							
Mine production ('000 ounces) (a)							
Bingham Canyon	100 %	356	296	462	504	370	1,618
Escondida	30 %	404	302	350	420	398	1,476
Oyu Tolgoi (b)	66 %	176	177	189	176	205	717
Rio Tinto total mine production		935	775	1,001	1,100	973	3,811
Refined production ('000 ounces)							
Kennecott	100 %	432	329	240	406	550	1,407

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) On 16 December 2022, Rio Tinto completed the acquisition of 100% of Turquoise Hill Resources Ltd, increasing our ownership in Oyu Tolgoi from 33.52% to 66%. From 1 January 2023, our share of production has been updated to reflect this change.

TITANIUM DIOXIDE SLAG							
Production ('000 tonnes)							
Rio Tinto Iron & Titanium (a)	100 %	285	303	247	275	254	1,111

(a) Quantities comprise 100% of Rio Tinto Fer et Titane and Rio Tinto's 74% interest in Richards Bay Minerals (RBM).

Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result between the total of the quarter figures and the year to date figures.

Rio Tinto percentage interest shown above is at 31 March 2024.

Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
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ALUMINA

Smelter Grade Alumina - Aluminium Group

Alumina production ('000 tonnes)

Australia

Queensland Alumina Refinery - Queensland	80 %	790	846	900	830	844	3,366
Yarwun refinery - Queensland	100 %	739	745	736	786	722	3,006

Brazil

São Luis (Alumar) refinery	10 %	936	657	883	899	867	3,375
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Canada

Jonquière (Vaudreuil) refinery - Quebec (a)	100 %	371	346	325	349	352	1,392
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(a) Jonquière's (Vaudreuil's) production shows smelter grade alumina only and excludes hydrate produced and used for specialty alumina.

Speciality Alumina - Aluminium Group

Speciality alumina production ('000 tonnes)

Canada

Jonquière (Vaudreuil) plant – Quebec	100 %	25	27	28	29	27	109
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Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

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Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
ALUMINIUM							
Primary Aluminium							
Primary aluminium production ('000 tonnes)							
<i>Australia</i>							
Bell Bay smelter - Tasmania	100 %	45	46	47	47	47	186
Boyne Island smelter - Queensland	59 %	117	123	127	128	126	496
Tomago smelter - New South Wales	52 %	145	146	149	149	142	589
<i>Canada</i>							
Alma smelter - Quebec	100 %	120	121	121	123	121	484
Alouette (Sept-Îles) smelter - Quebec	40 %	156	159	159	160	157	634
Arvida smelter - Quebec	100 %	43	43	43	43	43	172
Arvida AP60 smelter - Quebec	100 %	14	14	15	15	15	59
Bécancour smelter - Quebec	25 %	115	118	114	119	116	465
Grande-Baie smelter - Quebec	100 %	57	57	58	58	57	229
Kitimat smelter - British Columbia	100 %	72	92	103	109	107	377
Laterrière smelter - Quebec	100 %	61	62	59	62	61	244
<i>Iceland</i>							
ISAL (Reykjavik) smelter	100 %	51	52	52	54	49	209
<i>New Zealand</i>							
Tiwai Point smelter	79 %	83	83	83	85	83	334
<i>Oman</i>							
Sohar smelter	20 %	98	99	100	100	99	398
Recycled Aluminium							
Recycled aluminium production ('000 tonnes)							
Matalco	50 %	—	—	—	—	148	—

Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
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BAUXITE

Bauxite production ('000 tonnes)

Australia

Gove mine - Northern Territory	100 %	2,579	2,739	3,015	3,234	3,104	11,566
Weipa mine - Queensland	100 %	7,492	8,813	9,010	9,811	8,224	35,126

Brazil

Porto Trombetas (MRN) mine (a)	22 %	2,288	2,724	3,258	3,202	2,310	11,472
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Guinea

Sangaredi mine (b)	23 %	3,876	3,586	3,387	3,430	3,517	14,278
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Rio Tinto share of bauxite shipments

Share of total bauxite shipments ('000 tonnes)		12,264	13,603	13,954	15,513	12,715	55,335
Share of third party bauxite shipments ('000 tonnes)		7,880	9,159	9,550	10,749	8,496	37,337

(a) On 30 November 2023, Rio Tinto's ownership interest in Porto Trombetas increased from 12% to 22%. Production is reported including this change from 1 December 2023.

(b) Rio Tinto has a 22.95% shareholding in the Sangaredi mine but benefits from 45.0% of production.

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
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BORATES

Rio Tinto Borates - borates

100 %

US

Borates ('000 tonnes) (a)		124	133	127	111	121	495
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(a) Production is expressed as B₂O₃ content.

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
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COPPER & GOLD

Escondida

30 %

Chile

Sulphide ore to concentrator ('000 tonnes)		33,309	30,749	33,332	34,752	31,653	132,143
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Average copper grade (%)		0.78	0.93	0.85	0.77	0.92	0.83
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Mill production (metals in concentrates):

Contained copper ('000 tonnes)		210.0	228.9	225.7	217.6	238.6	882.1
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Contained gold ('000 ounces)		49.0	53.5	48.1	48.6	39.0	199.2
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Contained silver ('000 ounces)		1,346	1,008	1,168	1,401	1,328	4,921
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Recoverable copper in ore stacked for leaching ('000 tonnes) (a)		31.0	29.1	36.4	21.0	18.6	117.5
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Refined production from leach plants:

Copper cathode production ('000 tonnes)		50.8	72.4	52.0	46.9	49.0	222.2
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(a) The calculation of copper in material mined for leaching is based on ore stacked at the leach pad.

Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
COPPER & GOLD (continued)							
Kennecott							
Bingham Canyon mine	100 %						
<i>Utah, US</i>							
Ore treated ('000 tonnes)		7,405	5,339	9,804	10,579	8,271	33,126
Average ore grade:							
Copper (%)		0.47	0.52	0.56	0.50	0.43	0.51
Gold (g/t)		0.12	0.16	0.16	0.14	0.14	0.15
Silver (g/t)		2.16	2.36	2.10	2.10	1.97	2.16
Molybdenum (%)		0.012	0.018	0.018	0.019	0.021	0.017
Copper concentrates produced ('000 tonnes)		116	92	180	191	127	579
Average concentrate grade (% Cu)		26.1	26.8	26.8	25.0	25.6	26.1
Production of metals in copper concentrates:							
Copper ('000 tonnes) (a)		30.3	24.8	48.8	47.8	32.5	151.6
Gold ('000 ounces)		20.6	18.7	32.0	33.5	26.7	104.8
Silver ('000 ounces)		356	296	462	504	370	1,618
Molybdenum concentrates produced ('000 tonnes):							
Molybdenum in concentrates ('000 tonnes)		0.1	0.3	0.6	0.8	0.7	1.8
Kennecott smelter & refinery							
	100 %						
Copper concentrates smelted ('000 tonnes)		200	41	59	187	171	486
Copper anodes produced ('000 tonnes) (b)		55.1	18.2	1.4	44.1	56.7	118.9
Production of refined metal:							
Copper ('000 tonnes) (c)		43.6	14.4	18.5	32.0	47.8	108.6
Gold ('000 ounces) (d)		22.0	19.2	12.4	20.6	35.3	74.2
Silver ('000 ounces) (d)		432	329	240	406	550	1,407

(a) Includes a small amount of copper in precipitates.

(b) New metal excluding recycled material.

(c) We continue to process third party concentrate to optimise smelter utilisation, including 1.6 thousand tonnes of cathode produced from purchased concentrate in 2024 year-to-date. Purchased and tolled copper concentrates are excluded from reported production figures and production guidance. Sales of cathodes produced from purchased concentrate are included in reported revenues.

(d) Includes gold and silver in intermediate products.

Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
COPPER & GOLD (continued)							
Oyu Tolgoi mine (a)	66 %						
<i>Mongolia</i>							
Ore Treated ('000 tonnes) - Open Pit		9,613	8,809	8,789	8,714	9,011	35,924
Ore Treated ('000 tonnes) - Underground		675	900	900	888	1,313	3,363
Ore Treated ('000 tonnes) - Total		10,288	9,709	9,689	9,602	10,323	39,288
Average mill head grades:							
Open Pit							
Copper (%)		0.43	0.41	0.39	0.42	0.39	0.41
Gold (g/t)		0.21	0.19	0.25	0.22	0.19	0.22
Silver (g/t)		1.16	1.10	1.19	1.24	1.25	1.17
Underground							
Copper (%)		1.36	1.56	1.73	1.59	1.67	1.57
Gold (g/t)		0.35	0.38	0.37	0.37	0.42	0.37
Silver (g/t)		3.26	3.67	3.94	3.42	3.28	3.59
Total							
Copper (%)		0.49	0.52	0.52	0.53	0.55	0.51
Gold (g/t)		0.22	0.21	0.26	0.23	0.22	0.23
Silver (g/t)		1.30	1.34	1.44	1.44	1.50	1.38
Copper concentrates produced ('000 tonnes)		201.8	200.3	197.6	196.0	208.5	795.7
Average concentrate grade (% Cu)		21.1	21.4	21.3	20.8	22.1	21.1
Production of metals in concentrates:							
Copper in concentrates ('000 tonnes)		42.6	42.8	42.0	40.7	46.1	168.1
Gold in concentrates ('000 ounces)		44.1	40.3	51.2	41.7	42.8	177.3
Silver in concentrates ('000 ounces)		266	268	287	266	311	1,086
Sales of metals in concentrates:							
Copper in concentrates ('000 tonnes)		41.4	43.2	42.7	38.4	43.7	165.7
Gold in concentrates ('000 ounces)		44.0	40.4	48.7	41.5	41.5	174.6
Silver in concentrates ('000 ounces)		242	257	269	240	272	1,008

(a) On 16 December 2022, Rio Tinto completed the acquisition of 100% of Turquoise Hill Resources Ltd, increasing our ownership in Oyu Tolgoi from 33.52% to 66%. From 1 January 2023, our share of production has been updated to reflect this change.

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
DIAMONDS							
Diavik Diamonds	100 %						
<i>Northwest Territories, Canada</i>							
Ore processed ('000 tonnes)		427	446	427	388	343	1,688
Diamonds recovered ('000 carats)		954	970	757	659	740	3,340

Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
IRON ORE							
Rio Tinto Iron Ore							
<i>Western Australia</i>							
Pilbara Operations							
Saleable iron ore production ('000 tonnes)							
Hamersley mines	(a)	54,433	55,004	57,322	59,138	53,373	225,898
Hope Downs	50 %	11,771	11,527	11,037	12,148	10,163	46,482
Robe River - Pannawonica (Mesas J and A)	53 %	5,892	7,353	7,747	8,171	8,009	29,162
Robe River - West Angelas	53 %	7,200	7,368	7,377	8,054	6,393	29,999
Total production ('000 tonnes)		79,296	81,251	83,484	87,511	77,938	331,542
Breakdown of total production:							
Pilbara Blend and SP10 Lump (b)		23,196	24,910	25,268	26,308	23,386	99,682
Pilbara Blend and SP10 Fines (b)		36,537	37,108	36,836	39,264	34,422	149,745
Robe Valley Lump		2,143	2,808	3,142	3,004	2,894	11,097
Robe Valley Fines		3,748	4,544	4,605	5,167	5,115	18,065
Yandicoogina Fines (HIY)		13,672	11,880	13,633	13,768	12,122	52,952
Breakdown of total shipments:							
Pilbara Blend Lump		18,733	17,757	17,785	17,355	15,635	71,629
Pilbara Blend Fines		35,349	33,668	31,008	29,840	28,475	129,866
Robe Valley Lump		1,983	2,173	2,447	2,842	2,308	9,444
Robe Valley Fines		4,268	4,696	5,105	5,762	5,553	19,832
Yandicoogina Fines (HIY)		13,689	12,558	13,669	13,628	12,228	53,544
SP10 Lump (b)		1,686	1,652	4,180	4,620	4,612	12,137
SP10 Fines (b)		6,832	6,613	9,699	12,208	9,221	35,353
Total shipments ('000 tonnes) (c)		82,540	79,118	83,892	86,255	78,033	331,805
	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
Iron Ore Company of Canada	59 %						
<i>Newfoundland & Labrador and Quebec in Canada</i>							
Saleable iron ore production:							
Concentrates ('000 tonnes)		2,113	1,908	1,936	2,210	1,924	8,167
Pellets ('000 tonnes)		2,189	1,605	2,124	2,393	2,526	8,311
IOC Total production ('000 tonnes)		4,302	3,513	4,060	4,603	4,450	16,478
Shipments:							
Concentrates ('000 tonnes)		1,676	2,124	2,098	2,037	1,978	7,934
Pellets ('000 tonnes)		1,947	2,302	1,815	2,331	2,542	8,394
IOC Total Shipments ('000 tonnes) (c)		3,622	4,426	3,913	4,368	4,520	16,329
Global Iron Ore Totals							
Iron Ore Production ('000 tonnes)		83,599	84,764	87,543	92,114	82,388	348,020
Iron Ore Shipments ('000 tonnes)		86,162	83,543	87,805	90,623	82,553	348,134
Iron Ore Sales ('000 tonnes) (d)		88,490	85,601	88,030	91,072	82,790	353,193

(a) Includes 100% of production from Paraburdoo, Mt Tom Price, Western Turner Syncline, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass, Channar, Gudai-Darri and the Eastern Range mines. Whilst Rio Tinto owns 54% of the Eastern Range mine, under the terms of the joint venture agreement, Hamersley Iron manages the operation and is obliged to purchase all mine production from the joint venture and therefore all of the production is included in Rio Tinto's share of production.

(b) SP10 includes other lower grade products.

(c) Shipments includes material shipped to our portside trading facility in China which may not be sold onwards in the same period.

(d) Include Pilbara and IOC sales adjusted for portside trading movements and third party volumes sold.

Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	2023
SALT							
Dampier Salt	68 %						
<i>Western Australia</i>							
Salt production ('000 tonnes)		2,121	2,416	2,097	2,103	2,085	8,737
TITANIUM DIOXIDE SLAG							
Rio Tinto Iron & Titanium	100 %						
<i>Canada and South Africa</i>							
(Rio Tinto share) (a)							
Titanium dioxide slag ('000 tonnes)		285	303	247	275	254	1,111

(a) Quantities comprise 100% of Rio Tinto Fer et Titane and Rio Tinto's 74% interest in Richards Bay Minerals' production. Ilmenite mined in Madagascar is being processed in Canada.

Rio Tinto percentage interest shown above is at 31 March 2024. The data represents production and sales on a 100% basis unless otherwise stated.

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