

Vale's production and sales in 2Q24

Rio de Janeiro, July 16th, 2024

- **Vale's Q2 performance was marked by a significant 7.3% y/y increase in iron ore sales and consistent performance at S11D, achieving record production for a second quarter. On copper, Salobo production increased 8% y/y. On nickel, production sourced from Voisey's Bay increased 41% y/y on the back of VBME ramp-up.**
- Iron ore production reached 80.6 Mt in Q2, 1.9 Mt higher y/y, supported by a robust performance at S11D and Vargem Grande. This quarter's performance reinforces our confidence in achieving the upper end of the 2024 production guidance. Pellets production totaled 8.9 Mt, slightly lower y/y. Iron ore sales reached 79.8 Mt, 5.4 Mt (+7.3%) higher y/y.
- Copper production totaled 78.6 kt, flat y/y, as a better performance at the Salobo 1&2 and Sossego plants was offset by the bi-annual maintenance in Sudbury.
- Nickel production totaled 27.9 kt, 24% lower y/y, mainly reflecting the planned maintenance strategy at the nickel processing plants.

Production summary

000' metric tons	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y	2024 guidance
Iron ore ¹	80,598	70,826 ³	13.8%	78,743	2.4%	151,424	145,517	4.1%	310-320 Mt
Pellets	8,895	8,467	5.1%	9,111	-2.4%	17,362	17,429	-0.4%	38-42 Mt ²
Copper	78.6	81.9	-4.0%	78.8	-0.3%	160.5	145.9	10.0%	320-355 kt
Nickel	27.9	39.5	-29.4%	36.9	-24.4%	67.3	77.9	-13.6%	160-175 kt

¹ Including third-party purchases, run-of-mine and feed for pelletizing plants.

² Iron ore agglomerates guidance, including iron ore pellets and briquettes.

³ Restated from historical figures.

Sales summary

000' metric tons	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
Iron ore	79,792	63,826	25.0%	74,374	7.3%	143,618	130,032	10.4%
Fines ¹	68,512	52,546	30.4%	63,329	8.2%	121,058	109,190	10.9%
Pellets	8,864	9,225	-3.9%	8,809	0.6%	18,089	16,942	6.8%
ROM	2,416	2,056	17.5%	2,236	8.1%	4,471	3,900	14.6%
Copper	76.1	76.8	-0.9%	73.8	3.1%	152.9	136.5	12.0%
Nickel	34.3	33.1	3.6%	40.3	-14.9%	67.4	80.4	-16.2%

¹ Including third-party purchases.

Price realization summary

US\$/t	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
Iron ore fines (CFR/FOB, wmt)	98.2	100.7	-2.5%	98.5	-0.3%	99.3	102.7	-3.3%
Iron ore pellets (CFR/FOB, wmt)	157.2	171.9	-8.6%	160.4	-2.0%	164.7	161.4	2.0%
Copper ¹	9,202	7,687	19.7%	7,025	31.0%	8,456	8,123	4.1%
Nickel	18,638	16,848	10.6%	23,070	-19.2%	17,529	24,162	-27.5%

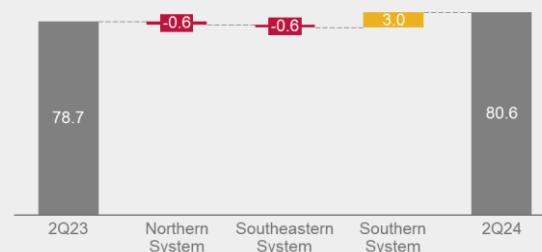
¹ Average realized price for copper operations only (Salobo and Sossego). Average realized copper price for all operations, including copper sales originated from nickel operations, was US\$ 9,187/t in 2Q24.

Business highlights in 2Q24

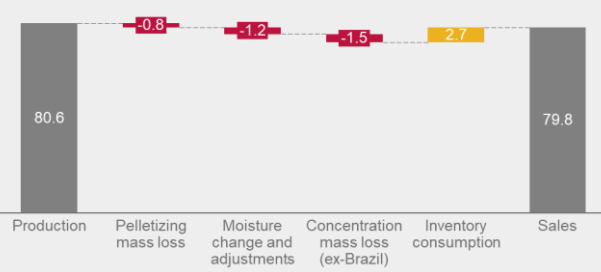
Iron Ore and Pellets operations

- Northern System: S11D achieved record production for a second quarter at 19.5 Mt, 0.4 Mt higher y/y**, as a result of the ongoing asset reliability initiatives, which are ensuring greater operational stability. At Serra Norte, the lower production y/y was in line with the mine development plan.
- Southeastern System: output was 0.6 Mt lower y/y**, driven by: (i) greater share of high-quality ore production in Brucutu, after the conversion of the plant to wet processing last year (with the Torto dam commissioning) and consequent higher mass loss in the process and (ii) planned maintenance of Conceição I plant at the Itabira Complex. These effects were partially offset by higher third-party purchases.
- Southern System: production increased by 3.0 Mt y/y**, mainly driven by: (i) solid operational performance at the Vargem Grande Complex and (ii) improved performance at the Paraopeba Complex, especially at the Viga plant, considering maintenance carried out in 2Q23.

Iron ore production, Mt (2Q24 vs. 2Q23)



Iron ore production-to-sales, Mt (2Q24)

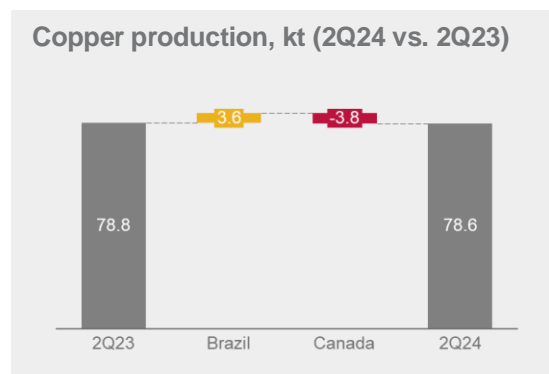


- Pellets: production was slightly lower, down 0.2 Mt y/y**, driven by lower pellet feed availability at the Vargem Grande plant and maintenance at the São Luis plant.
- Iron ore sales increased by 5.4 Mt y/y, totaling 79.8 Mt.** The robust sales performance in the quarter was supported by strong shipments, as well as by the sale of inventories from previous periods. Sales of high-silica products in the product mix continued to increase as per our tactical value creation strategy, considering market conditions.
- The all-in premium totaled US\$ -0.1/t¹**, US\$ 2.3/t lower q/q, as a result of the increase of high-silica product sales. In the 2H24, Vale expects a larger share of premium products (e.g. IOCJ and BRBF) in the sales mix, due to higher production from the Northern System, potentially supporting all-in premiums.
- The average realized iron ore fines price was US\$ 98.2/t**, US\$ 2.5/t lower q/q, largely impacted by lower iron ore prices and lower quality premiums, which were partially offset by the positive effect of pricing mechanisms. **The average realized iron ore pellet price was US\$ 157.2/t**, US\$ 14.7/t lower q/q, due to lower iron ore prices.

¹ Iron ore fines premium of US\$ -3.26/t and the weighted average contribution of the pellet business of US\$ 3.13/t.

Copper operations

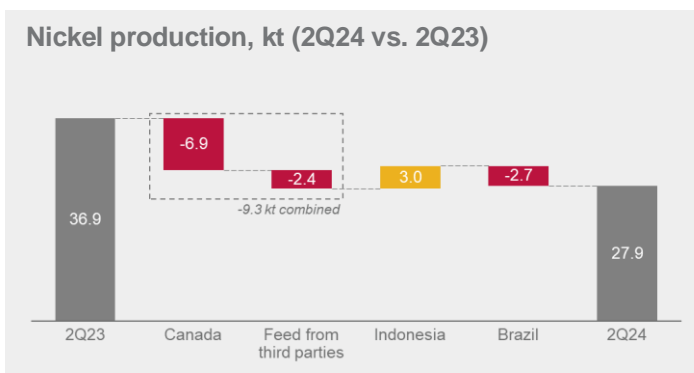
- **Salobo: copper production increased by 3.3 kt y/y** mainly as a result of increased plant productivity at Salobo 1&2. Sequential production decreased by 2.4 kt, mainly due to the fire that damaged the conveyor belt at Salobo 3 in June. The repair works are ongoing, and the Salobo 3 plant is expected to resume in August.
- **Sossego: copper production increased by 0.3 kt y/y** mainly because of higher head grades at the mill. In the quarter, the Sossego mining operations were halted with the temporary suspension of the operational license. The license was reinstated, and the mining operations resumed on June 28th.
- **Canada: copper production decreased by 3.8 kt y/y**, as a result of the scheduled bi-annual Smelter and Refinery maintenance period and subsequent extended ramp-up. This was partially offset by gains from higher-grade copper at Voisey's Bay and will be further mitigated in Q3, as planned maintenance at the Clarabelle mill was in part advanced into Q2.
- **Payable copper sales² totaled 76.1 kt in the quarter, up 2.3 kt y/y**, as lower production was offset by inventory sales.
- **The average copper realized price was US\$ 9,202/t, 20% higher q/q**, mainly due to higher LME prices.



² Sales volumes are lower than production volumes due to payable copper vs. contained copper: part of the copper contained in the concentrates is lost in the smelting and refining process, hence payable quantities of copper are approximately 3.5% lower than contained volumes.

Nickel operations

- Sudbury-sourced ore: finished nickel production decreased by 7.0 kt y/y**, impacted by the planned bi-annual maintenance and subsequent ramp-up, which took an additional two weeks to complete. The operations were re-established on June 11th, and no additional impact is expected in Q3. **Sudbury mines performed well in the quarter with a 6% increase in ore production y/y.**



- Thompson-sourced ore: finished nickel production was 0.5 kt lower y/y**, mainly because the Thompson material is being processed entirely at Long Harbour, whereas last year the material was processed at both Long Harbour and Sudbury.
- Voisey's Bay-sourced ore: finished nickel production increased by 0.7 kt y/y**, driven by the availability of Voisey's Bay-sourced feed at Long Harbour. Contained nickel in ore mined at Voisey's Bay increased by 42% y/y as the underground mines continued to ramp up.
- Third-party feed: finished nickel production decreased by 2.4 kt y/y**, as planned. The consumption of third-party feed is in line with the strategy to maximize the utilization and performance of our downstream operations.
- Indonesia-sourced material: finished nickel production increased by 3.0 kt y/y**, mainly reflecting the robust performance of the Indonesia-Matsusaka-Clydach flowsheet. Nickel in matte production at PTVI was 16.6 kt in the quarter, representing a 0.3 kt decrease y/y, as PTVI conducted planned maintenance at the kiln and furnace in Q2.
- Onça Puma: nickel production decreased by 2.7 kt y/y**, impacted by the furnace rebuild works that began in 4Q23. The rebuild concluded and the first metal production occurred in mid-May.
- Nickel sales totaled 34.3 kt in the quarter, 6.0 kt lower y/y.** The y/y decrease was in line with lower production levels. In the quarter, nickel sales were 6.4 kt higher than production as a result of the sales of inventories built in Q1, as planned.
- The average nickel realized price was US\$ 18,638/t, up 11% q/q**, in line with the variations in LME reference nickel prices.

ANNEX 1 – Production and sales summary

Iron ore

000' metric tons	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
Northern System	39,534	35,929	10.0%	40,157	-1.6%	75,463	75,928	-0.6%
Serra Norte and Serra Leste	20,012	18,218	9.8%	21,000	-4.7%	38,230	40,450	-5.5%
S11D	19,522	17,711	10.2%	19,156	1.9%	37,233	35,477	4.9%
Southeastern System	21,228	19,551⁴	8.6%	21,795	-2.6%	40,779	40,399	0.9%
Itabira (Cauê, Conceição and others)	8,003	7,599	5.3%	8,362	-4.3%	15,602	15,801	-1.3%
Minas Centrais (Brucutu and others)	6,152	6,397 ⁴	-3.8%	6,537	-5.9%	12,550	11,948	5.0%
Mariana (Alegria, Timbopeba and others)	7,073	5,555	27.3%	6,895	2.6%	12,628	12,648	-0.2%
Southern System	19,836	15,347	29.3%	16,791	18.1%	35,183	29,191	20.5%
Paraopeba (Mutuca, Fábrica and others)	7,970	6,525	22.1%	7,483	6.5%	14,495	11,809	22.7%
Vargem Grande (VGR, Pico and others)	11,866	8,822	34.5%	9,308	27.5%	20,688	17,382	19.0%
IRON ORE PRODUCTION¹	80,598	70,826⁴	13.8%	78,743	2.4%	151,424	145,517	4.1%
OWN PRODUCTION	73,282	65,013⁴	12.7%	73,200	0.1%	138,295	136,511	1.3%
THIRD-PARTY PURCHASES	7,316	5,813	25.9%	5,723	27.8%	13,129	9,007	45.8%
IRON ORE SALES	79,792	63,826	25.0%	74,374	7.3%	143,618	130,032	10.4%
FINES SALES²	68,512	52,546	30.4%	63,329	8.2%	121,058	109,190	10.9%
IOCI	13,180	9,400 ⁴	40.2%	13,626	-3.3%	22,581	24,841	-9.1%
BRBF	30,528	25,915 ⁴	17.8%	32,335	-5.6%	56,443	52,681	7.1%
Pellet feed – China (PFC1) ³	3,337	2,536	31.6%	3,189	4.6%	5,873	5,821	0.9%
Lump	1,782	1,809	-1.5%	1,865	-4.5%	3,591	3,259	10.2%
High-silica products	13,767	8,343 ⁴	65.0%	6,424	114.3%	22,110	11,960	84.9%
Other fines (60-62% Fe)	5,917	4,543	30.2%	5,889	0.5%	10,460	10,628	-1.6%
PELLET SALES	8,864	9,225	-3.9%	8,809	0.6%	18,089	16,942	6.8%
ROM SALES	2,416	2,056	17.5%	2,236	8.1%	4,471	3,900	14.6%
SALES FROM 3RD PARTY PURCHASE	7,122	5,648	26.1%	5,572	27.8%	12,770	9,117	40.1%

¹ Including third party purchases, run-of-mine and feed for pelletizing plants. Vale's product portfolio Fe content reached 62.0%, alumina 1.4% and silica 6.5% in 2Q24.

² Including third-party purchases.

³ Products concentrated in Chinese facilities.

⁴ Restated from historical figures.

Pellets

000' metric tons	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
Northern System	489	766	-36.2%	665	-26.5%	1,256	1,449	-13.3%
São Luis	489	766	-36.2%	665	-26.5%	1,256	1,449	-13.3%
Southeastern System	4,789	4,852	-1.3%	4,633	3.4%	9,642	9,301	3.7%
Itabasco (Tubarão 3)	761	557	36.6%	1,004	-24.2%	1,319	1,955	-32.5%
Hispanobras (Tubarão 4)	729	688	6.0%	57	1,178.9%	1,417	57	2,386.0%
Nibrasco (Tubarão 5 and 6)	1,261	1,153	9.4%	1,130	11.6%	2,415	2,338	3.3%
Kobrasco (Tubarão 7)	489	852	-42.6%	800	-38.9%	1,341	1,748	-23.3%
Tubarão 8	1,549	1,601	-3.2%	1,642	-5.7%	3,150	3,204	-1.7%
Southern System	1,058	1,219	-13.2%	1,200	-11.8%	2,277	2,347	-3.0%
Fábrica	-	-	-	-	-	-	-	-
Vargem Grande	1,058	1,219	-13.2%	1,200	-11.8%	2,277	2,347	-3.0%
Oman	2,557	1,629	57.0%	2,613	-2.1%	4,187	4,332	-3.3%
PELLET PRODUCTION	8,895	8,467	5.1%	9,111	-2.4%	17,362	17,429	-0.4%
PELLET SALES	8,864	9,225	-3.9%	8,809	0.6%	18,089	16,942	6.8%

Copper – Finished production by source

000' metric tons	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
Brazil	61.3	60.6	1.2%	57.7	6.2%	122.0	103.8	17.5%
Salobo	46.0	48.4	-5.0%	42.7	7.7%	94.4	75.5	25.0%
Sossego	15.3	12.3	24.4%	15.0	2.0%	27.6	28.3	-2.5%
Canada	17.3	21.3	-18.8%	21.1	-18.0%	38.6	42.1	-8.3%
Sudbury	13.9	16.8	-17.3%	16.7	-16.8%	30.7	33.0	-7.0%
Thompson	-	0.4	-100.0%	0.05	-100.0%	0.4	0.2	100.0%
Voisey's Bay	2.7	2.7	-	2.2	22.7%	5.4	4.3	25.6%
Feed from third parties ¹	0.7	1.3	-46.2%	2.1	-66.7%	2.0	4.6	-56.5%
COPPER PRODUCTION	78.6	81.9	-4.0%	78.8	-0.3%	160.5	145.9	10.0%
COPPER SALES	76.1	76.8	-0.9%	73.8	3.1%	152.9	136.5	12.0%
Copper Sales Brazil	58.2	56.4	3.2%	52.7	10.4%	114.6	95.9	19.5%
Copper Sales Canada	18.0	20.4	-11.8%	21.0	-14.3%	38.4	40.5	-5.2%

¹ External feed purchased from third parties and processed into copper in our Canadian operation.

Nickel

000' metric tons	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
FINISHED PRODUCTION BY SOURCE								
Canada	7.3	16.9	-56.8%	14.2³	-48.6%	24.2	30.4³	-20.4%
Sudbury	3.1	10.2	-69.6%	10.1 ³	-69.3%	13.3	19.6 ³	-32.1%
Thompson	1.8	2.4	-25.0%	2.3 ³	-21.7%	4.1	4.8 ³	-14.6%
Voisey's Bay	2.4	4.4	-45.5%	1.7	41.2%	6.8	6.1	11.5%
Indonesia	16.2	18.7	-13.4%	13.2	22.7%	34.9	27.2	28.3%
Brazil	3.0	-	n.m.	5.7	-47.4%	3.0	10.6	-71.7%
Feed from third-parties ¹	1.4	3.8	-63.2%	3.8 ³	-63.2%	5.2	9.7 ³	-46.4%
FINISHED PRODUCTION BY SITE								
Sudbury	4.6	13.8	-66.7%	14.6	-68.5%	18.4	28.6	-35.7%
Voisey's Bay & Long Harbour	4.2	7.7	-45.5%	3.8	10.5%	11.8	12.5	-5.6%
Onça Puma	3.0	-	n.m.	5.7	-47.4%	3.0	10.6	-71.7%
Clydach	5.5	10.2	-46.1%	4.1	34.1%	15.7	12.3	27.6%
Matsusaka	6.3	3.3	90.9%	5.4	16.7%	9.6	7.3	31.5%
Others ²	4.3	4.5	-4.4%	3.3	30.3%	8.9	6.6	34.8%
NICKEL PRODUCTION	27.9	39.5	-29.4%	36.9	-24.4%	67.3	77.9	-13.6%
NICKEL SALES	34.3	33.1	3.6%	40.3	-14.9%	67.4	80.4	-16.2%

¹ External feed purchased from third parties and processed into finished nickel in our Canadian operations.

² Includes intermediates produced in Thompson and PTVI, tolling and others.

³ Restated from historical figures.

Energy Transition Metals by-products – Finished production

	2Q24	1Q24	Δ q/q	2Q23	Δ y/y	1H24	1H23	Δ y/y
COBALT (metric tons)	189	482	-60.8%	361	-47.6%	671	958	-30.0%
PLATINUM (000' oz troy)	17	30	-43.3%	36	-52.8%	47	70	-32.9%
PALLADIUM (000' oz troy)	24	39	-38.5%	46	-47.8%	63	86	-26.7%
GOLD (000' oz troy) ¹	102	104	-1.9%	91	12.1%	206	170	21.2%
TOTAL BY-PRODUCTS (000' metric tons Cu eq.) ^{2,3}	31	38	18.4%	39	-20.5%	69	73	-5.5%

¹ Includes Gold from Copper and Nickel operations.

² Includes Iridium, Rhodium, Ruthenium and Silver.

³ Copper equivalent tons calculated using average market metal prices for each quarter. Market reference prices: for copper and cobalt: LME spot; for Gold, Silver, Platinum, and Palladium: Bloomberg; for other PGMs: Johnson Matthey.

ANNEX 2 – Energy Transition Metals: Maintenance scheduled in 2024

	Q1	Q2	Q3	Q4
Copper operations				
Salobo				
Salobo I&II	< 1 week	1 week	1 week	1 week
Salobo III	< 1 week	3 weeks	5 weeks	1 week
Sossego				
Sossego	4.5 weeks	4 weeks	1.5 weeks	1.5 week
Nickel operations				
Sudbury				
Coleman			4.5 weeks	
Creighton		1 week	5.5 weeks	
Copper Cliff North			4 weeks	
Copper Cliff South			2 weeks	
Garson			4 weeks	
Totten			2 weeks	
Clarabelle mill		1 week	3.5 weeks	
Sudbury Smelter		7 weeks		
Sudbury Refinery		6 weeks		
Port Colborne (Ni, Co & PGMs)		6 weeks		
Thompson				
Thompson mine			4.5 weeks	
Thompson mill			4.5 weeks	
Voisey's Bay & Long Harbour				
Voisey's Bay		2.5 weeks		1 week
Long Harbour Refinery		4.5 weeks		
Standalone Refineries				
Clydach		5.5 weeks		
Matusaka	6.5 weeks			
Indonesia				
PTVI (furnaces/kilns only)	0 weeks	1.5 weeks	1 weeks	<1 week
Brazil				
Onça Puma	11 weeks ¹	<1 week	<1 week	<1 week

¹ Refers to the furnace rebuild. The ramp up after maintenance is not included in the number of weeks.

Note: The maintenance schedule may be deliberately adjusted if it proves beneficial for operations and the overall business. The number of weeks is rounded to 0.0 or 0.5 and may involve more than one maintenance activity within the quarter.

Further information on Vale can be found at: vale.com

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