

Vale's production and sales in 3Q22

Rio de Janeiro, October 17th, 2022

- Iron ore production increased 21% q/q to 89.7 Mt, reflecting the dry season in the Northern System and higher third-party ore purchases and production in the Southern System.
- Sales of iron ore fines and pellets increased 6.0% q/q to 77.6 Mt. The usual production-to-sales gap in Q3 resulted from transiting inventories across the supply chain, which Vale expects to revert in the next quarter, depending on market conditions.
- Nickel production increased 51% q/q to 51.8 kt, as refineries came back from a maintenance period in 2Q22 and the conclusion of the furnace 4 rebuild at PTVI. Nickel sales increased 13% q/q, but lagged production due to sales commitments in 4Q22 during scheduled maintenance, low availability of containerships impacting Onça Puma and shipping congestion in the UK in 3Q22.
- Copper production increased 33% q/q to 74.3 kt, following extended maintenance at Sossego mill in the first half of the year, better plant performance at Salobo in the quarter and the recovery of copper from copper precipitate holding facilities in North Atlantic operations. Copper sales were up 37% q/q, in line with higher production.

Production summary

000' metric tons	3Q22	2Q22	3Q21	9M22	9M21	% change			2022 Guidance
						3Q22/2Q22	3Q22/3Q21	9M22/9M21	
Iron ore ¹	89,701	74,108	88,689	226,937	231,222	21.0%	1.1%	-1.9%	310-320 Mt
Pellets	8,256	8,672	8,341	23,852	22,637	-4.8%	-1.0%	5.4%	34-38 Mt
Nickel ²	51.8	34.2	30.2	131.8	120.2	51.5%	71.5%	9.7%	175-190 kt
Copper	74.3	55.9	69.2	186.8	219.3	32.9%	7.4%	-14.8%	270-285 kt

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

² Nickel production in 2Q22 was restated from 34.8 kt.

Sales summary

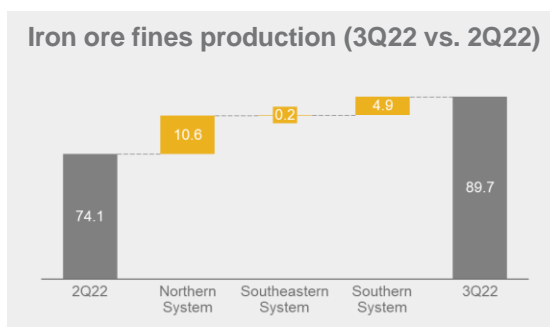
000' metric tons	3Q22	2Q22	3Q21	9M22	9M21	% change		
						3Q22/2Q22	3Q22/3Q21	9M22/9M21
Iron ore ¹	69,049	64,318	66,725	185,713	190,631	7.4%	3.5%	-2.6%
Pellets	8,521	8,843	8,037	24,375	21,955	-3.6%	6.0%	11.0%
Nickel	44.3	39.3	41.8	122.6	137.2	12.7%	6.0%	-10.6%
Copper	70.5	51.5	65.4	172.2	210.8	36.9%	7.8%	-18.3%

¹ Including third-party purchases and run-of-mine. Excluding Midwestern System volumes.

Businesses' highlights in 3Q22

Iron Ore and Pellets operations

- **Northern System production increased q/q** benefiting from the dry weather in third quarter ¹. Performance y/y was mainly impacted by lower ROM availability at Serra Norte, due to slower licensing processes. At S11D, mine movement was flat y/y, but the need to process more waste yielded a lower strip ratio and iron ore production.



- **Southeastern System production was flat q/q.**
- **Southern System production increased q/q** mainly due to (i) higher third-party purchases; (ii) additional production and sales of run-of-mine from Paraopeba Complex; and (iii) solid performance at Vargem Grande, boosted by several productivity initiatives implemented in the previous quarters.
- **Pellets production was slightly lower q/q.** As a result of portfolio optimization and market conditions, Vale decided to prioritize production of direct reduction pellets in Oman plants.
- **All-in premium totalled US\$ 6.6/t²** (vs. US\$ 7.3/t in 2Q22) due to lower market premiums for low-alumina products and the absence of seasonal JV's dividends. The negative effect was partially offset by record contractual pellet premiums and an improved product portfolio quality mix with a larger share of blended products.

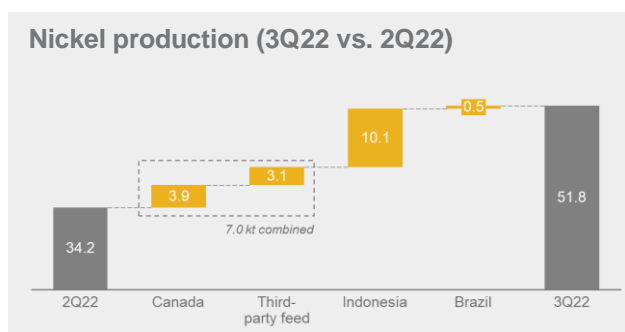
¹ Rainfall level: 31 mm at Serra Norte in 3Q22 (vs. 227 mm in 2Q22) and 36 mm at S11D in 3Q22 (vs. 237 mm in 2Q22).

² Iron ore premium of US\$ 0.6/t and weighted average contribution of pellets of US\$ 6.0/t.

Nickel operations

- **Finished nickel production from Sudbury sourced ore rose 5.1 kt q/q, reaching 12.2 kt, the highest production level since 1Q21.**

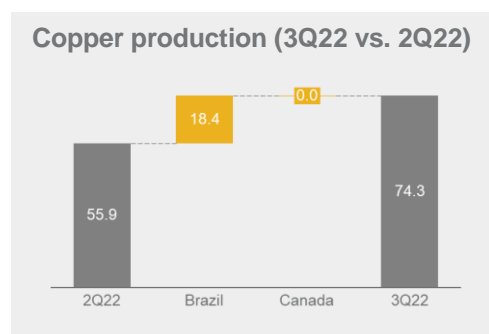
This was mainly due to a strong performance at Copper Cliff Refinery after scheduled maintenance during 2Q22.



- **Finished nickel production from Thompson sourced ore increased 35% q/q,** as 2Q22 was impacted by scheduled maintenance at Long Harbour Refinery.
- **Finished nickel production from Voisey's Bay sourced ore was 1.8 kt lower q/q** as we proceed with the ongoing transitional period between the depletion of Ovoid mine and ramp-up to full production of the Voisey's Bay underground project.
- **Finished nickel production from third parties increased 3.1 kt q/q** as refineries returned to full operation after maintenance in 2Q22. Consumption of feed from third parties is expected to remain at higher levels than in recent years, aiming to maximize the utilization and performance of our downstream operations.
- **Finished nickel production from Indonesia sourced material was 10.1 kt higher q/q,** in line with the 39% increase to 17.5 kt in Nickel in matte production following completion of the furnace 4 rebuild. In addition, both downstream refineries, Clydach and Matsusaka, performed well during the quarter after maintenance during 2Q22.
- **Onça Puma continued to perform well, with nickel production increasing 8% q/q.** The annual maintenance of the kiln is scheduled in 4Q22.
- **Nickel sales were 13% higher q/q but lower than 3Q22 production.** This reflected (i) inventory buildup to meet sales commitments during planned maintenance at Long Harbour and Matsusaka in 4Q22; (ii) logistics issues at Onça Puma resulting from low availability of containerships at Vila do Conde during the quarter; and (iii) shipping congestion at UK ports impacting Clydach. Nickel sales are expected to revert in 4Q22.

Copper operations

- **Sossego copper production** was 13.3 kt higher q/q following the conclusion of extended SAG mill maintenance in June. The y/y performance was negatively impacted by corrective maintenance at the plant in September, which continued into 4Q22.
- **Salobo copper production** increased 5.1 kt q/q, despite additional planned and corrective maintenance performed in 3Q22. Consistent with our focus on plant reliability, planned maintenance activities will continue in 4Q22.
- **Copper production in Canada** was flat q/q, as planned maintenance in Sudbury mines and mill in the quarter was offset by (i) the recovery of metal from copper precipitate holding facilities in Thompson, as part of our approach to sustainable mining; (ii) stable performance at Voisey's Bay mill following planned maintenance in 2Q22; and (iii) higher copper produced from third-party feed, consistent with increased third-party feed consumption.
- **Copper sales³ were higher q/q**, in line with higher production.



³ Sales volumes are lower compared to 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.

ANNEX – Production and sales summary

Iron ore

000' metric tons	3Q22	2Q22	3Q21	9M22	9M21	% change		
						3Q22/2Q22	3Q22/3Q21	9M22/9M21
Northern System	49,652	39,073	53,020	126,457	138,814	27.1%	-6.4%	-8.9%
Serra Norte and Serra Leste	30,678	22,548	31,961	75,812	84,177	36.1%	-4.0%	-9.9%
S11D	18,974	16,525	21,059	50,646	54,637	14.8%	-9.9%	-7.3%
Southeastern System	19,725	19,557	19,532	54,237	51,121	0.9%	1.0%	6.1%
Itabira (Cauê, Conceição and others)	7,017	7,061	7,795	20,276	20,709	-0.6%	-10.0%	-2.1%
Minas Centrais (Brucutu and others)	5,845	5,950	5,696	15,364	14,642	-1.8%	2.6%	4.9%
Mariana (Alegria, Timbopeba and others)	6,864	6,547	6,041	18,599	15,770	4.8%	13.6%	17.9%
Southern System	20,324	15,477	16,138	46,244	41,287	31.3%	25.9%	12.0%
Paraopeba (Mutuca, Fábrica and others)	10,725	6,968	6,867	21,703	18,083	53.9%	56.2%	20.0%
Vargem Grande (Vargem Grande, Pico and others)	9,599	8,510	9,271	24,541	23,204	12.8%	3.5%	5.8%
IRON ORE PRODUCTION¹	89,701	74,108	88,689	226,937	231,222	21.0%	1.1%	-1.9%
IRON ORE SALES²	69,049³	64,318	66,725	185,713	190,631	7.4%	3.5%	-2.6%
IRON ORE AND PELLETS SALES²	77,569	73,161	74,762	210,088	212,586	6.0%	3.8%	-1.2%

¹ Including third party purchases, run-of-mine and feed for pelletizing plants. Excluding Midwestern System volumes. Vale's product portfolio Fe content reached 62.1%, alumina 1.4% and silica 6.4% in 3Q22.

² Including third-party purchases and run-of-mine. Excluding Midwestern System volumes.

³ Run-of-mine sales totalled 3.7 Mt in 3Q22.

Pellets

000' metric tons	3Q22	2Q22	3Q21	9M22	9M21	% change		
						3Q22/2Q22	3Q22/3Q21	9M22/9M21
Northern System	899	836	1,020	2,473	2,729	7.5%	-11.9%	-9.4%
São Luis	899	836	1,020	2,473	2,729	7.5%	-11.9%	-9.4%
Southeastern System	3,284	4,088	4,357	11,061	11,930	-19.7%	-24.6%	-7.3%
Itabrasco (Tubarão 3)	525	930	972	1,765	2,297	-43.5%	-46.0%	-23.2%
Hispanobras (Tubarão 4)	-	-	-	-	169	-	-	-100.0%
Nibrasco (Tubarão 5 and 6)	349	921	1,069	2,334	2,742	-62.1%	-67.4%	-14.9%
Kobrasco (Tubarão 7)	924	963	826	2,856	2,236	-4.0%	11.9%	27.7%
Tubarão 8	1,485	1,273	1,490	4,104	4,486	16.7%	-0.3%	-8.5%
Southern System	1,268	1,136	803	3,083	2,434	11.6%	57.9%	26.7%
Fábrica	-	-	-	-	-	-	-	-
Vargem Grande	1,268	1,136	803	3,083	2,434	11.6%	57.9%	26.7%
Oman	2,805	2,612	2,161	7,235	5,544	7.4%	29.8%	30.5%
PELLETS PRODUCTION	8,256	8,672	8,341	23,852	22,637	-4.8%	-1.0%	5.4%
PELLETS SALES	8,521	8,843	8,037	24,375	21,955	-3.6%	6.0%	11.0%

Nickel – Finished production by source

000' metric tons	3Q22	2Q22	3Q21	9M22	9M21	% change		
						3Q22/2Q22	3Q22/3Q21	9M22/9M21
Canada	20.0	16.1	12.4	55.1	58.0	24.2%	61.3%	-5.0%
Sudbury ¹	12.2	7.1	2.4	27.9	23.4	71.8%	408.3%	19.2%
Thompson	2.7	2.0	0.6	7.7	4.8	35.0%	350.0%	60.4%
Voisey's Bay	5.1	6.9	9.4	19.5	29.8	-26.1%	-45.7%	-34.6%
Indonesia	19.2	9.1	15.1	45.9	45.0	111.0%	27.2%	2.0%
Brazil	6.8	6.3	2.2	18.5	13.7	7.9%	209.1%	35.0%
Feed from third-parties²	5.8	2.7	0.6	12.3	3.5	114.8%	866.7%	251.4%
NICKEL PRODUCTION	51.8	34.2	30.2	131.8	120.2	51.5%	71.5%	9.7%
NICKEL SALES	44.3	39.3	41.8	122.6	137.1	12.7%	6.0%	-10.6%

¹ Sudbury nickel production in 2Q22 was restated from 7.7 kt.

² External feed purchased from third parties and processed into finished nickel in our Canadian operations.

Copper – Finished production by source

000' metric tons	3Q22	2Q22	3Q21	9M22	9M21	% change		
						3Q22/2Q22	3Q22/3Q21	9M22/9M21
Brazil	53.4	35.0	63.4	126.1	168.7	52.6%	-15.8%	-25.3%
Salobo	34.7	29.6	38.0	98.3	110.8	17.2%	-8.7%	-11.3%
Sossego	18.7	5.4	25.4	27.8	57.9	246.3%	-26.4%	-52.0%
Canada	20.9	20.9	5.8	60.7	50.7	0.0%	260.3%	19.7%
Sudbury	12.3	16.9	1.0	43.1	33.4	-27.2%	1130.0%	29.0%
Thompson	3.6	0.2	-	4.1	0.3	1,700.0%	N/A	1266.7%
Voisey's Bay	3.3	2.5	4.6	8.9	15.2	32.0%	-28.3%	-41.4%
Feed from third parties	1.7	1.3	0.3	4.6	2.0	30.8%	466.7%	130.0%
COPPER PRODUCTION	74.3	55.9	69.2	186.8	219.3	32.9%	7.4%	-14.8%
COPPER SALES	70.5	51.5	65.4	172.2	210.8	36.9%	7.8%	-18.3%
Copper Sales Brazil	52.9	34.6	62.3	121.6	163.5	53.0%	-15.0%	-25.6%
Copper Sales Canada	17.6	16.9	3.1	50.6	47.3	4.1%	467.7%	7.0%

Base Metals by-products – Finished production

	3Q22	2Q22	3Q21	9M22	9M21	% change		
						3Q22/2Q22	3Q22/3Q21	9M22/9M21
COBALT (000' metric tons)	609	541	452	1,906	1,919	12.6%	34.7%	-0.7%
PLATINUM (000' oz troy)	32	21	2	76	62	52.4%	1,500.0%	22.6%
PALLADIUM (000' oz troy)	37	28	4	94	79	32.1%	825.0%	19.0%
GOLD (000' oz troy) ¹	84	60	93	216	275	40.0%	-9.7%	-21.5%
TOTAL BY-PRODUCTS (000' metric tons Cu eq.) ^{2 3}	41	28	23	101	108	46.4%	78.3%	-6.5%

¹ Includes gold from Copper and Nickel operations.

² Includes iridium, rhodium, ruthenium and silver.

³ Copper equivalent tonnes calculated using average market metal prices for each quarter. Market reference prices: for copper, cobalt, gold and silver: LME spot; for Platinum and Palladium: NYMEX spot; for other PGMs: Johnson Matthey.

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

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