



Vale's iron ore briquettes

# VALE'S PRODUCTION AND SALES IN 3Q21

www.vale.com

vale.ri@vale.com

Tel.: (5521) 3485-3900

## Investor Relations Department

Ivan Fadel

André Werner

Mariana Rocha

Samir Bassil

B3: VALE3

NYSE: VALE

LATIBEX: XVALO

---

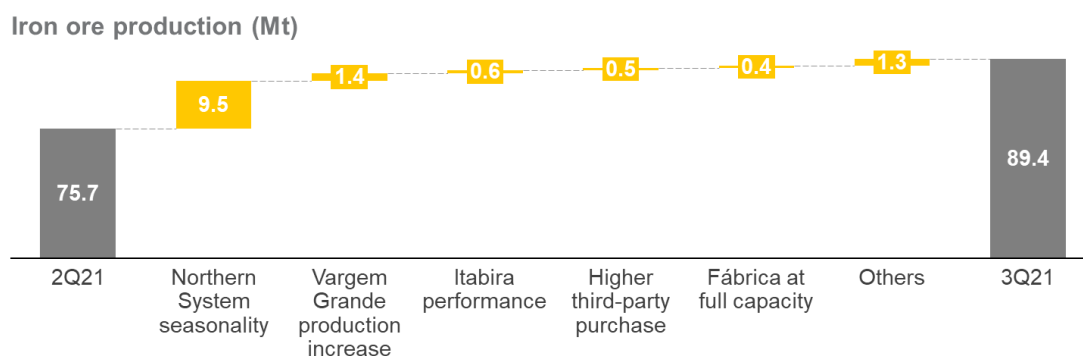
This press release may include statements about Vale's current expectations about future events or results (forward-looking statements). Many of those forward-looking statements can be identified by the use of forward-looking words such as "anticipate," "believe," "could," "expect," "should," "plan," "intend," "estimate" "will" and "potential," among others. All forward-looking statements involve various risks and uncertainties. Vale cannot guarantee that these statements will prove correct. These risks and uncertainties include, among others, factors related to: (a) the countries where Vale operates, especially Brazil and Canada; (b) the global economy; (c) the capital markets; (d) the mining and metals prices and their dependence on global industrial production, which is cyclical by nature; and (e) global competition in the markets in which Vale operates. Vale cautions you that actual results may differ materially from the plans, objectives, expectations, estimates and intentions expressed in this presentation. Vale undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information or future events or for any other reason. To obtain further information on factors that may lead to results different from those forecast by Vale, please consult the reports that Vale files with the U.S. Securities and Exchange Commission (SEC), the Brazilian Comissão de Valores Mobiliários (CVM) and, in particular, the factors discussed under "Forward-Looking Statements" and "Risk Factors" in Vale's annual report on Form 20-F.



# Production and sales in 3Q21

**Rio de Janeiro, October 19<sup>th</sup>, 2021** – The third quarter of Vale S.A. (“Vale”) was noticeable by (i) increased production of iron ore and coal, following their respective production recovery plans and better weather conditions, (ii) the sharp drop in iron ore prices (-US\$ 37/dmt of 62%Fe index vs. 2Q21) leading to a review on production and sales of high-silica iron ore products, (iii) gradual resumption of the North Atlantic Base Metals operations after conclusion of a new five-year collective bargaining agreement in Sudbury, and (iv) incident at Totten mine with all 39 employees having safely returned to the surface.

**Vale’s iron ore fines production<sup>1</sup> totaled 89.4 Mt in 3Q21**, 18.1% higher than in 2Q21, as a result of: (i) seasonal improvement of weather-related conditions in Northern System, boosting Serra Norte and S11D performance; (ii) Vargem Grande production increase by dry processing while adjusting the flowsheet of one of its wet-processing plants; (iii) Itabira’s performance improvement related to better run-of-mine (“ROM”) availability; (iv) higher third-party purchase, although proportionally lower than the previous quarter (5.8% of total production in 3Q21 vs 6.2% in 2Q21); and (v) Fábrica’s reaching its full capacity of 6 Mtpy, after the resumption of beneficiation process in 2Q21.



On September 9<sup>th</sup>, during 2021 Analyst and Investor Tour, Vale presented an updated view of its production capacity resumption plan and launched new portfolio solutions for decarbonize steelmaking industry. The presentation is available [here](#).

**Vale remains committed to its capacity resumption plan**, which is also associated with eliminating restrictions and optimizing costs. In 3Q21, Maravilhas III dam operations in Vargem Grande complex started following the issuance of a positive Stability Condition Declaration (DCE). As an additional step on the resumption plan, **Vale started to commission the long-distance conveyor belt segment close to Vargem Grande dam** in October, resuming after

<sup>1</sup> Including third-party purchases, run-of-mine and feed for pelletizing plants. Vale’s product portfolio Fe content reached 62.9%, alumina 1.4% and silica 5.2%.

several tests certifying the absence of increased risk to the structure. At the end of commissioning, an increase of 6 Mtpy is expected in the production capacity of the Vargem Grande site.

**Vale's pellet production totalled 8.3 Mt in 3Q21**, in line with 2Q21, still restricted by pellet feed availability in Itabira and Brucutu.

**Production and sales strategy is based on market conditions, prioritizing value over volume**, with focus on margin maximization. As consequence, for the fourth quarter this year, Vale should lower its supply of high-silica low-margin products by around 4 Mt, as demand for this kind of product has been weaker. This movement does not change our production guidance for the year, of 315-335 Mt, but should take us below the middle of the range. If this scenario persists, we should also reduce the offer of low-margin products in 2022 by around 12-15 Mt. The purchase level of third-party ores may also be adjusted accordingly.

**Sales volumes of iron ore fines and pellets totalled 75.9 Mt in 3Q21**, in line with 2Q21. The approximately 13 Mt gap between production and sales in 3Q21 was an effect of (i) Vale's value over volume approach, by reducing the sales of high-silica iron ore products in September due to market price level; and (ii) transiting inventories across the supply chain, which is expected to revert in 4Q21, depending on market conditions.

Iron ore price premium was US\$ 6.6/t<sup>2</sup>, US\$ 1.8/t lower than in 2Q21, due to (i) lower premiums paid to low alumina ores, as BRBF and IOCJ; and (ii) lower contribution from Pellets business as the 65/62% Fe index spread narrowed; which were partially offset by (i) higher Fe content premiums, despite the lower benchmark index, as a result of the lower sales of high-silica iron ore products; and (ii) higher contractual pellet premiums.

**Production of finished nickel was 30.2 kt in 3Q21**, 27.2% lower than 2Q21, mainly due to the labour disruption at Sudbury, which halted operations for 70 days, of which 40 days were in 3Q21, with an impact of 11kt on finished nickel production in the quarter. In addition, Onça Puma went through extended maintenance during 3Q21, with production resuming late September.

The labor disruption at Sudbury ended on August 4th, 2021, after a new five-year collective bargaining agreement. A process to return to work safely commenced on August 9th, and critical maintenance activities were started. During September production partially resumed, and in October all mines are planned to be back in operation, with the exception of Totten.

Damage to the Totten mine shaft, on September 26<sup>th</sup>, has rendered the normal conveyance system inoperable, as a result production at the site was halted. Vale is assessing the

---

<sup>2</sup> Iron ore premium of US\$ 1.9/t and weighted average contribution of pellets of US\$ 4.6/t.

necessary measures to safely repair the mine shaft and operations are expected to resume by early 2022.

From October 4th to 7th and since October 18th, Onça Puma mine operation was halted, following the suspension of the operating license by the Environmental and Sustainability office of the Pará State (Secretaria de Estado de Meio Ambiente e Sustentabilidade, SEMAS).

**Copper production reached 69.2 kt in 3Q21**, 5.7% lower compared to 2Q21, mainly due to the labour disruption at Sudbury, which affected total copper production by 16 kt in the quarter. This was partially offset by a more robust performance at Sossego, as plant availability increased in the quarter after scheduled maintenance was completed in 2Q21.

In October, a fire partially affected the conveyor belt at Salobo mine, with no injuries and no environmental damage. Copper concentration at Salobo is currently halted, but expected to resume by the end of October.

**We expect to produce 45-50 kt of nickel and 75-80 kt of copper in 4Q21, resulting in a production of approximately 165-170 kt of nickel and 295-300 kt of copper for the year of 2021.** The range considers the risks associated with the scheduled resumption of operations at Totten mine and Salobo plant and the stoppage of Onça Puma mine. In addition, the range accounts for the continued ramp up of all Sudbury operations.

## Production summary

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
Iron ore <sup>1</sup>	89,421	75,685	88,676	233,137	215,877	18.1%	0.8%	8.0%
Pellets	8,341	8,008	8,562	22,637	22,559	4.1%	-2.6%	0.3%
Manganese Ore	108	113	109	312	621	-4.4%	-0.9%	-49.8%
Coal	2,497	2,091	1,402	5,678	4,648	19.4%	78.1%	22.2%
Nickel	30.2	41.5	38.6	120.2	132.9	-27.2%	-21.8%	-9.6%
Copper	69.2	73.4	87.6	219.3	266.6	-5.7%	-21.0%	-17.7%
Cobalt (metric tons)	452	754	622	1,919	1,849	-40.1%	-27.3%	3.8%
Gold (000' oz troy)	93	96	116	275	349	-3.1%	-19.8%	-21.2%

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

## Sales summary

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
Iron ore <sup>1</sup>	67,844	67,218	65,769	194,361	172,040	0.9%	3.2%	13.0%
Pellets	8,037	7,647	8,464	21,955	22,725	5.1%	-5.0%	-3.4%
Manganese Ore	111	169	428	537	917	-34.3%	-74.1%	-41.4%
Coal	2,640	1,544	1,381	5,199	4,332	70.9%	91.2%	20.0%
Nickel <sup>2</sup>	41.8	47.4	50.2	137.2	124.3	-11.8%	-16.7%	10.3%
Copper	65.4	74.2	80.6	210.8	253.3	-11.9%	-18.9%	-16.8%

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

<sup>2</sup> Historical figures exclude VNC sales.

## Production guidance

	2021
Iron ore (Mt)	315-335
Nickel (kt)	165-170
Copper (kt)	295-300

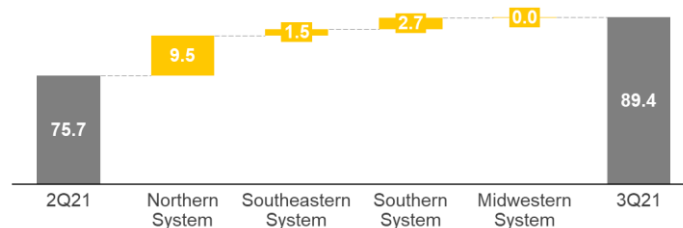
# Iron ore

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
<b>Northern System</b>	<b>53,020</b>	<b>43,501</b>	<b>56,850</b>	<b>138,814</b>	<b>139,213</b>	<b>21.9%</b>	<b>-6.7%</b>	<b>-0.3%</b>
Serra Norte and Serra Leste	31,961	26,916	32,459	84,177	78,258	18.7%	-1.5%	7.6%
S11D	21,059	16,585	24,391	54,637	60,955	27.0%	-13.7%	-10.4%
<b>Southeastern System</b>	<b>19,532</b>	<b>18,059</b>	<b>16,307</b>	<b>51,121</b>	<b>40,817</b>	<b>8.2%</b>	<b>19.8%</b>	<b>25.2%</b>
Itabira (Cauê, Conceição and others)	7,795	7,233	6,465	20,709	17,796	7.8%	20.6%	16.4%
Minas Centrais (Brucutu and others)	5,696	5,490	4,394	14,642	12,233	3.8%	29.6%	18.2%
Mariana (Alegria, Timbopeba and others)	6,041	5,337	5,448	15,770	10,788	13.2%	10.9%	46.2%
<b>Southern System</b>	<b>16,138</b>	<b>13,441</b>	<b>14,930</b>	<b>41,287</b>	<b>34,054</b>	<b>20.1%</b>	<b>8.1%</b>	<b>21.2%</b>
Paraopeba (Mutuca, Fábrica and others)	6,867	5,899	7,064	18,083	16,585	16.4%	-2.8%	9.0%
Vargem Grande (Vargem Grande, Pico and others)	9,271	7,542	7,866	23,204	17,469	22.9%	17.9%	32.8%
<b>Midwestern System</b>	<b>731</b>	<b>684</b>	<b>589</b>	<b>1,915</b>	<b>1,793</b>	<b>6.9%</b>	<b>24.1%</b>	<b>6.8%</b>
Corumbá	731	684	589	1,915	1,793	6.9%	24.1%	6.8%
<b>IRON ORE PRODUCTION<sup>1</sup></b>	<b>89,421</b>	<b>75,685</b>	<b>88,676</b>	<b>233,137</b>	<b>215,877</b>	<b>18.1%</b>	<b>0.8%</b>	<b>8.0%</b>
<b>IRON ORE SALES<sup>2</sup></b>	<b>67,844</b>	<b>67,218</b>	<b>65,769</b>	<b>194,361</b>	<b>172,040</b>	<b>0.9%</b>	<b>3.2%</b>	<b>13.0%</b>
<b>IRON ORE AND PELLETS SALES<sup>2</sup></b>	<b>75,881</b>	<b>74,865</b>	<b>74,233</b>	<b>216,316</b>	<b>194,765</b>	<b>1.4%</b>	<b>2.2%</b>	<b>11.1%</b>

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

<sup>2</sup> Including third-party purchases and run-of-mine.

## Production variation (3Q21 x 2Q21) Mt



## Northern System

Northern System production increased 21.9% vs. 2Q21, mainly as a result of better weather in the region, with lower rainfall levels<sup>3</sup>, guaranteeing more stability in production. However, compared to 3Q20, production was lower mainly due to (i) licensing delays consistently impacting Serra Norte's ROM availability; and (ii) productivity impacts related to the processing of jaspilite materials in S11D ore body, which was partially offset by Serra Leste production.

Vale will install the remaining three of four jaspilite crushers in S11D during 4Q21 and 2022, which is expected improve S11D capacity throughout next year. In addition to the four jaspilite

<sup>3</sup> 3Q21 = 84mm vs. 2Q21 = 279mm in Serra Norte.

crushers, a new crusher is required to process large compact waste blocks, restricting S11D production capacity on around 5 Mtpy until it is installed. The start-up is expected by 2025.

## **Southeastern System**

Southeastern System performance improved sequentially largely by (i) higher productivity of Itabira and Mariana complexes' processing plants due to the ROM quality improvement of the mines that feed these plants; and (ii) higher availability of hematite ores in Brucutu.

In September, the Regional Superintendence of Labor (SRT) issued a term of partial suspension of the Mariana Complex interdiction, near the Xingu dam, in order to allow the regular operation of the Vitória a Minas Railroad (EFVM) on the Fábrica Nova branch. Internal access between the Timbopeba site and the Alegria site was also allowed. During the interdiction period, Vale implemented an unmanned train operation covering a 16 km stretch to expedite Timbopeba site production and increased the ROM availability from Alegria mine.

## **Southern System**

The better operational performance (vs. 2Q21) can largely be attributed to (i) Vargem Grande production increase by dry processing while adjusting the processing flowsheet of one of its wet-processing plants and after the scheduled maintenance at the Pico site in April; (ii) higher third-party purchase; (iii) Fábrica site reaching its full capacity after the resumption of beneficiation plants in 2Q21; (iv) more ROM availability in Mutuca, as expected in its mining plan.

In 3Q21, Maravilhas III (Phase I) dam operations in Vargem Grande complex started following the issuance of a positive Stability Condition Declaration (DCE).

In addition, Brazilian National Mining Agency (ANM) issued a Term of Suspension in October of the interdiction of part of the Long-Distance Belt Conveyor (TCLD) system of the Vargem Grande Complex, which had been halted since Feb/2019. Vale is commissioning the long-distance conveyor belt segment close to Vargem Grande dam, resuming after several tests certifying the absence of increased risk to the structure. At the end of commissioning, an increase of 6 Mtpy is expected in the production capacity of the Vargem Grande site.



# Pellets

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
<b>Northern System</b>	<b>1,020</b>	<b>748</b>	<b>1,176</b>	<b>2,729</b>	<b>2,978</b>	<b>36.4%</b>	<b>-13.3%</b>	<b>-8.4%</b>
São Luis	1,020	748	1,176	2,729	2,978	36.4%	-13.3%	-8.4%
<b>Southeastern System</b>	<b>4,357</b>	<b>3,963</b>	<b>4,906</b>	<b>11,930</b>	<b>13,575</b>	<b>9.9%</b>	<b>-11.2%</b>	<b>-12.1%</b>
Itabasco (Tubarão 3)	972	742	821	2,297	2,164	31.0%	18.4%	6.1%
Hispanobras (Tubarão 4)	-	-	863	169	1,855	-	-100%	-90.9%
Nibrasco (Tubarão 5 and 6)	1,069	974	1,007	2,742	3,074	9.8%	6.2%	-10.8%
Kobrasco (Tubarão 7)	826	803	849	2,236	2,200	2.9%	-2.7%	1.6%
Tubarão 8	1,490	1,445	1,366	4,486	4,283	3.1%	9.1%	4.8%
<b>Southern System</b>	<b>803</b>	<b>975</b>	<b>-</b>	<b>2,434</b>	<b>129</b>	<b>-17.6%</b>	<b>n.m.</b>	<b>1,786.8%</b>
Fábrica	-	-	-	-	-	-	-	-
Vargem Grande	803	975	-	2,434	129	-17.6%	n.m.	1,786.8%
<b>Oman</b>	<b>2,161</b>	<b>2,322</b>	<b>2,480</b>	<b>5,544</b>	<b>5,877</b>	<b>-6.9%</b>	<b>-12.9%</b>	<b>-5.7%</b>
<b>PELLETS PRODUCTION</b>	<b>8,341</b>	<b>8,008</b>	<b>8,562</b>	<b>22,637</b>	<b>22,559</b>	<b>4.1%</b>	<b>-2.6%</b>	<b>0.3%</b>
<b>PELLETS SALES</b>	<b>8,037</b>	<b>7,647</b>	<b>8,464</b>	<b>21,955</b>	<b>22,725</b>	<b>5.1%</b>	<b>-5.0%</b>	<b>-3.4%</b>

## Production overview

Pellet production was in line with 2Q21, still limited by the pellet feed availability from Itabira and Brucutu sites. Quarterly results variations are mostly explained by (i) lower maintenance activities in São Luis; (ii) higher pellet feed availability from Itabira increasing Tubarão pellet production; and (iii) lower pellet production in Vargem Grande due to less availability of pellet feed from Plant #2, while adaptations in the wet-processing flow are being carried out.

Vale launched a cold agglomerated product called iron ore briquettes, an agglomerated product produced from pellet feed or sinter feed ores. The iron ore briquette is part of Vale's strategy to reduce by 15% Scope 3 emissions by 2035. Following this strategy Vale decided to convert Tubarão 1 & 2 pellet plants to briquetting plants, utilizing some common facilities, and optimizing investments. Therefore, from this report onwards, the information on Tubarão 1 & 2 plants will no longer be available in this session.

Also, a third plant is under construction in Vargem Grande Complex. Vale's initial briquetting capacity at Tubarão 1 & 2 and Vargem Grande will be approximately 7 Mtpy and the operations are expected to start up in 2023 with an estimated investment of US\$ 185 million. More information is available [here](#).

## Manganese ore and ferroalloys

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
<b>MANGANESE ORE PRODUCTION</b>	108	113	109	312	621	-4.4%	-0.9%	-49.8%
Azul	-	-	-	-	230	-	-	-100%
Urucum	77	78	89	219	330	-1.5%	-13.6%	-33.7%
Morro da Mina	31	35	20	94	61	-12.9%	57.0%	54.9%
<b>MANGANESE ORE SALES</b>	111	169	428	537	917	-34.3%	-74.1%	-41.4%
<b>FERROALLOYS PRODUCTION</b>	19	19	15	54	58	0.0%	26.7%	-6.1%
<b>FERROALLOYS SALES</b>	16	15	15	45	52	6.7%	6.7%	-13.1%

### Production and sales overview

Manganese ore production totaled 108 kt in 3Q21, 4.4% lower than in 2Q21, primarily attributable to the programmed reduction in production at Morro da Mina, in line with its mining plan. When compared to 3Q20, production was in line.

Manganese ore sales were 34.3% and 74.1% lower than in 2Q21 and 3Q20, respectively, given the suspension of operations in the Azul mine and the end of its remaining inventory.

On September 28<sup>th</sup>, Vale signed the agreement for the sale of its manganese ferroalloy assets in Minas Gerais to the Grupo VDL. The conclusion of the divestment, still subject to approval by the Administrative Council for Economic Defense (CADE), will end Vale's activities in the production of manganese ferroalloys, simplifying Vale's portfolio.

# Nickel

## Finished production by source

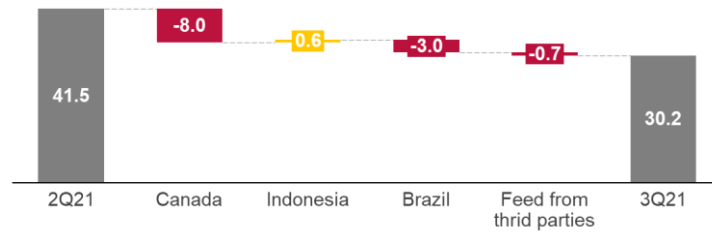
000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
Canada	12.4	20.4	18.9	58.0	67.3	-39.2%	-34.4%	-13.8%
Sudbury	2.4	9.0	6.5	23.4	32.0	-73.3%	-63.1%	-26.9%
Thompson	0.6	1.4	2.2	4.8	8.5	-57.1%	-72.7%	-43.5%
Voisey's Bay	9.4	10.0	10.1	29.8	26.8	-6.0%	-6.9%	11.2%
Indonesia	15.1	14.5	15.3	45.0	51.4	4.1%	-1.3%	-12.5%
Brazil	2.2	5.2	3.2	13.7	9.4	-57.7%	-31.3%	45.7%
Feed from third-parties <sup>1</sup>	0.6	1.3	1.3	3.5	4.8	-53.8%	-53.8%	-27.1%
<b>NICKEL PRODUCTION</b>	<b>30.2</b>	<b>41.5</b>	<b>38.6</b>	<b>120.2</b>	<b>132.9</b>	<b>-27.2%</b>	<b>-21.8%</b>	<b>-9.6%</b>
<b>NICKEL SALES<sup>2</sup></b>	<b>41.8</b>	<b>47.4</b>	<b>50.2</b>	<b>137.1</b>	<b>124.3</b>	<b>-11.8%</b>	<b>-16.7%</b>	<b>10.3%</b>

<sup>1</sup> External feed purchased from third-parties and processed into finished nickel in our Canadian operations.

<sup>2</sup> Excludes VNC sales volumes.

## Production Variation (3Q21 x 2Q21)

kt



## Canadian operations

Finished production from Sudbury and Thompson ore sources declined 73.3% and 57.1% vs, 2Q21, respectively. The production decrease was a direct result of the labour disruption at Sudbury. Both Sudbury and Thompson source concentrate are further processed at Sudbury's Copper Cliff Smelter.

Finished production from Voisey's Bay ore source in 3Q21 was marginally lower than 2Q21, due to weather conditions caused by the Hurricane Larry at Long Harbour.

## Indonesian operation (PTVI)

Finished production from PTVI source reached 15.1 kt in 3Q21, 4.1% higher than 2Q21 and 5.9% lower than 3Q20.

Clydach Nickel Refinery had a strong performance following unscheduled maintenance to one of the kilns during 2Q21. This was partially offset by a failure of the briquetting machine at the Matsusaka Refinery, which impacted finished Tonimet Briquette production in 3Q21.

Nickel-in-matte production at PTVI site reached 18.1 kt in 3Q21, increasing 21% compared to 2Q21, mainly due to a strong performance throughout the quarter with no major maintenance interruptions.

### **Brazilian operation (Onça Puma)**

Production at Onça Puma reached 2.2 kt in 3Q21, 57.7% lower than 2Q21, mainly due to an extended maintenance during the quarter, as previously scheduled. The maintenance was successfully completed by quarter end.

### **Feed from third-parties**

Finished nickel produced from third-party feed reached 0.6 kt in 3Q21, 53.8% lower than 2Q21, mainly due to the labour disruption at Sudbury, which impacted the ability to process the material. The purchase of third-party feed is a normal process to sustain a regular finished nickel production flow.

### **Sales**

Nickel sales volumes were 41.8 kt in 3Q21, 11.8% lower than 2Q21, mainly as a result of the labour disruption at Sudbury, partially offset by inventory sales and third party sales.

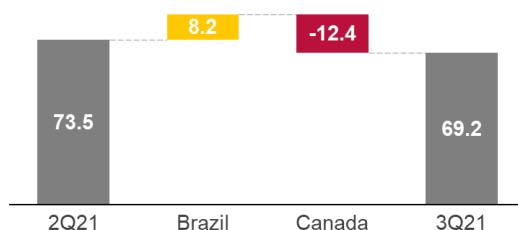
# Copper

## Finished production by source

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
<b>BRAZIL</b>	<b>63.4</b>	<b>55.2</b>	<b>67.6</b>	<b>168.7</b>	<b>193.0</b>	<b>14.9%</b>	<b>-6.2%</b>	<b>-12.6%</b>
Salobo	38.0	38.7	45.4	110.8	128.9	-1.8%	-16.3%	-14.0%
Sossego	25.4	16.6	22.2	57.9	64.1	53.0%	14.4%	-9.7%
<b>CANADA</b>	<b>5.8</b>	<b>18.2</b>	<b>20.0</b>	<b>50.7</b>	<b>73.6</b>	<b>-68.1%</b>	<b>-71.0%</b>	<b>-31.1%</b>
Sudbury	1.0	13.0	13.1	33.4	58.1	-92.3%	-92.4%	-42.5%
Thompson	-	0.1	0.2	0.3	0.7	-100.0%	-100.0%	-57.1%
Voisey's Bay	4.6	4.5	5.7	15.2	11.5	2.2%	-19.3%	32.2%
Feed from third-parties	0.3	0.6	1.0	2.0	3.3	-50.0%	-70.0%	-39.4%
<b>COPPER PRODUCTION</b>	<b>69.2</b>	<b>73.5</b>	<b>87.6</b>	<b>219.3</b>	<b>266.6</b>	<b>-5.7%</b>	<b>-21.0%</b>	<b>-17.7%</b>
<b>COPPER SALES</b>	<b>65.4</b>	<b>74.2</b>	<b>80.6</b>	<b>210.8</b>	<b>253.3</b>	<b>-11.9%</b>	<b>-18.9%</b>	<b>-16.8%</b>
Copper Sales Brazil	62.3	55.8	62.3	163.5	180.5	11.6%	0.0%	-9.4%
Copper Sales Canada	3.1	18.4	18.3	47.3	72.7	-83.2%	-83.1%	-34.9%

## Production Variation (3Q21 x 2Q21)

kt



## Production and sales overview

In 3Q21, copper production at Salobo totalled 38.0 kt, 1.8% lower than 2Q21 and 16.3% lower than 3Q20. Total mine movement continued to increase vs. 2Q21, achieving 11.4 Mt in September, the highest result year to date. Production decrease was a result of corrective maintenance and low crusher availability during the quarter, which limited the ability to reach full production capacity at the site.

Copper production at Sossego totalled 25.4 kt, 53.0% higher than 2Q21 and 14.4% higher than 3Q20. Production volumes improved compared to 2Q21 and 3Q20 as a result of increased plant availability, after scheduled maintenance was completed in 2Q21, allowing for good performance in the quarter.

In 3Q21, copper production in Canada reached 5.8 kt, 68.1% lower than 2Q21 and 71.0% lower than 3Q20, as volumes were directly impacted by Sudbury labour disruption.



Sales volumes<sup>4</sup> of copper were 65.4 kt in 3Q21, 11.9% lower than 2Q21, mainly due to the labour disruption at Sudbury. This was partially offset by higher sales from Brazilian operations as a result of production increase.

---

<sup>4</sup> 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.

# Base Metals by-products

## Finished production by source

Metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
COBALT	452	754	622	1,919	1,849	-40.1%	-27.3%	3.8%
PLATINUM (000' oz troy)	2	30	26	62	109	-93.3%	-92.3%	-43.1%
PALLADIUM (000' oz troy)	4	36	37	79	147	-88.9%	-89.2%	-46.3%
GOLD (000' oz troy) <sup>1</sup>	93	96	116	275	349	-3.1%	-19.8%	-21.2%
<b>TOTAL BY-PRODUCTS (000' metric tons Cu eq.)<sup>2 3</sup></b>	<b>23</b>	<b>42</b>	<b>43</b>	<b>108</b>	<b>202</b>	<b>-45.2%</b>	<b>-46.5%</b>	<b>-46.5%</b>

<sup>1</sup> Includes gold from Copper and Nickel operations.

<sup>2</sup> Includes iridium, rhodium, ruthenium and silver.

<sup>3</sup> 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.

## Production overview

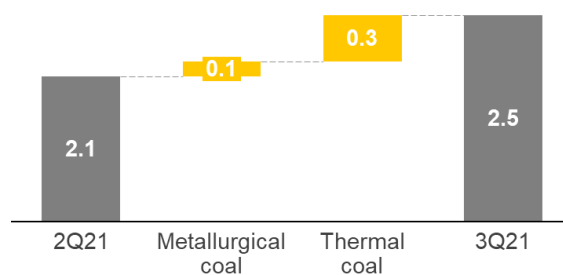
Finished production of Base Metals by-products was largely impacted by the labour disruption at Sudbury. Both Sudbury and Thompson source concentrate are further processed at Sudbury's Copper Cliff Smelter, impacting the production of cobalt and PGMs.

# Coal

000' metric tons	3Q21	2Q21	3Q20	9M21	9M20	% change		
						3Q21/2Q21	3Q21/3Q20	9M21/9M20
<b>COAL PRODUCTION</b>	<b>2,497</b>	<b>2,091</b>	<b>1,402</b>	<b>5,678</b>	<b>4,648</b>	<b>19.4%</b>	<b>78.1%</b>	<b>22.2%</b>
Metallurgical coal	1,069	980	756	2,607	2,436	9.1%	41.4%	7.0%
Thermal coal	1,428	1,111	646	3,071	2,211	28.5%	121.0%	38.9%
<b>COAL SALES</b>	<b>2,640</b>	<b>1,544</b>	<b>1,381</b>	<b>5,199</b>	<b>4,332</b>	<b>71.0%</b>	<b>91.2%</b>	<b>20.0%</b>
Metallurgical coal	1,150	713	809	2,336	2,030	61.3%	42.1%	15.1%
Thermal coal	1,490	831	572	2,863	2,302	79.3%	160.5%	24.4%

## Production Variation (3Q21 x 2Q21)

Mt



## Production and sales overview

Coal production was 19.4% higher than in 2Q21 and 78.1% higher than in 3Q20 as a result of the improved productivity of the revamped plant.

The production is ramping-up and is expected to be concluded by the next quarter. However, due to the upcoming rainy season, the annual production rate of 15 Mtpy may not be reached until the end of the year, although an improvement is expected for 4Q21.

Coal sales grew strongly both on a quarter-on-quarter and year-over-year basis following the improved operational performance and stronger demand of the seaborne market.