

Vale S.A.  
Form 6-K  
July 21, 2016  
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**United States**  
**Securities and Exchange Commission**

Washington, D.C. 20549

**FORM 6-K**

**Report of Foreign Private Issuer**

**Pursuant to Rule 13a-16 or 15d-16**

**of the**

**Securities Exchange Act of 1934**

**For the month of**

**July 2016**

**Vale S.A.**

**Avenida das Américas, No. 700 Bloco 8, Sala 218  
22640-100 Rio de Janeiro, RJ, Brazil**

(Address of principal executive office)

(Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.)

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(Check One) Form 20-F  Form 40-F

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(Check One) Yes  No

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**VALE PRODUCTION IN 2Q16**



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Production highlights

Rio de Janeiro, July 21, 2016 – Vale S.A. (Vale) reached 86.8 Mt of iron ore production(1) in the second quarter of 2016 (2Q16), 9.3 Mt higher than in 1Q16, mainly due to the good performance of the Northern System.

Carajás achieved a production record for a second quarter of 36.5 Mt in 2Q16, representing an increase of 4.9 Mt (or 15.5%) in relation to 2Q15, mainly due to the increase in the overall equipment efficiency of the truck fleet and the ramp-up of the N4WS and N5S extension pits.

Pellet production, excluding Samarco's attributable production, reached 10.0 Mt in 2Q16, 12.4% and 17.9% lower than in 1Q16 and 2Q15, respectively, mainly as a result of (i) the halt of the Fábrica pelletizing plant, due to delays in obtaining environmental permits for the expansion of adjacent mines; and (ii) the scheduled maintenance stoppages at the Tubarão plants in 2Q16. Tubarão 8 production achieved the monthly record of 637 kt in May.

Global Recovery (GR), measured by final production output divided by the total tons extracted, reached 39% in 2013, 41% in 2014 and 46% in 2015. On a quarter-on-quarter basis, GR increased from 45.4% in 2Q15 to 46.1% in 2Q16(2).

Nickel production reached a record for a second quarter of 78,500 t in 2Q16, representing an increase of 11,400 t in relation to 2Q15, mainly due to the stronger operational performance from PTVI and the ongoing ramp-ups of Long Harbour and Vale New Caledonia (VNC).

Copper production reached a record for a second quarter of 107,400 t in 2Q16, representing an increase of 2,500 t in relation to 2Q15, mainly due to the better operational performance at Sudbury and the successful ramp-up of Salobo.

Gold production reached a record for a second quarter of 109,000 oz in 2Q16.



Coal production totaled 1.5 Mt in 2Q16, 9.5% and 25.2% lower than in 1Q16 and 2Q15, respectively, mainly due to the lower production at Carborough Downs as a result of geological instability issues in 2Q16.

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(1) Excluding Samarco's attributable production and including iron ore acquired from third parties

(2) Due to external factors, such as seasonal weather conditions, the comparison should always be made on a year-on-year basis.

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In June, the total mine movement in Mozambique reached a new monthly record of 12.7 Mt due to higher equipment productivity and the development of new mining areas which will feed the Moatize II coal handling and preparation plant. Commissioning of the Moatize II plant is almost concluded and its start-up is expected by early August. The ramp-up of Moatize II will enable the increase in production and the reduction in costs in the next quarters.

**Production summary**

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change	
							2Q16/2Q15	1H16/1H15
Iron ore(1)	86,823	77,544	89,311	164,367	166,729	12.0%	-2.8%	-1.4%
Pellets(1)	10,049	11,478	12,237	21,527	23,625	-12.4%	-17.9%	-8.9%
Manganese Ore	553	596	554	1,149	1,146	-7.3%	-0.2%	0.3%
Coal	1,505	1,663	2,012	3,168	3,707	-9.5%	-25.2%	-14.5%
Nickel	78.5	73.5	67.1	152.0	136.3	6.8%	17.0%	11.5%
Copper(2)	107.4	111.9	104.9	219.2	212.0	-4.0%	2.4%	3.4%
Cobalt	1,312	1,400	1,122	2,711	2,092	-6.3%	16.9%	29.7%
Gold (000 oz troy)	109	118	100	227	203	-7.6%	9.0%	12.2%
Potash	101	111	111	211	219	-9.1%	-9.8%	-3.8%
Phosphate rock	1,805	1,615	2,114	3,420	4,106	11.8%	-14.6%	-16.7%

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(1) Excluding Samarco's attributable production and including third party purchases.

(2) Including Lubambe's attributable production.

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## Iron Ore

<b>000 metric tons</b>	<b>2Q16</b>	<b>1Q16</b>	<b>2Q15</b>	<b>1H16</b>	<b>1H15</b>	<b>2Q16/1Q16</b>	<b>% change 2Q16/2Q15</b>	<b>1H16/1H15</b>
Northern System	36,493	32,385	31,609	68,878	59,130	12.7%	15.5%	16.5%
Carajás	36,493	32,385	31,609	68,878	59,130	12.7%	15.5%	16.5%
Southeastern System	25,166	22,544	29,123	47,710	55,041	11.6%	-13.6%	-13.3%
Itabira	8,491	7,512	9,428	16,003	16,751	13.0%	-9.9%	-4.5%
Minas Centrais	10,008	9,987	10,006	19,995	18,925	0.2%	0.0%	5.7%
Mariana	6,667	5,045	9,689	11,712	19,365	32.1%	-31.2%	-39.5%
Southern System	24,575	22,033	27,299	46,608	49,941	11.5%	-10.0%	-6.7%
Paraopeba	7,007	5,630	8,422	12,637	14,956	24.5%	-16.8%	-15.5%
Vargem Grande	7,362	7,323	7,330	14,685	13,218	0.5%	0.4%	11.1%
Minas Itabirito	10,206	9,080	11,547	19,286	21,768	12.4%	-11.6%	-11.4%
Midwestern System	589	582	1,281	1,172	2,616	1.2%	-54.0%	-55.2%
Corumbá	552	253	891	805	1,784	117.6%	-38.1%	-54.9%
Urucum	38	329	390	367	832	-88.5%	-90.3%	-55.9%
<b>IRON ORE</b>	<b>86,823</b>	<b>77,544</b>	<b>89,312</b>	<b>164,367</b>	<b>166,729</b>	<b>12.0%</b>	<b>-2.8%</b>	<b>-1.4%</b>

**Production summary**

Vale's iron ore production(3) was 86.8 Mt in 2Q16, 9.3 Mt higher than in 1Q16, due to weather-related seasonality and better productivity in the Northern System, and was 2.5 Mt

lower than in 2Q15 mainly due to: (i) the strategic decision to marginally reduce production from lower-margin operations and other actions; (ii) the stoppage of run of mine supply to Samarco.

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Based on the same criterion of margin optimization, production in 1H16 and forecast projection for the remainder of 2016 adjusted to seasonality indicate an annual production in the lower end of the 340-350Mt guidance range for 2016.

Iron ore and pellets shipments from Brazil and Argentina reached 77.2 Mt in 2Q16, 5.6 Mt and 2.6 Mt higher than in 1Q16 and 2Q15 respectively, with the ongoing elimination of logistics bottlenecks. Inventories were moved from the mines to the Distribution Centers (DCs) abroad

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(3) Including third party purchases and excluding Samarco's attributable production

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for offshore blending and additional commercial flexibility. Iron ore inventories at the mines and Brazilian ports decreased 4 Mt in 2Q16 vs. 2Q15, while inventories in China and Malaysia increased 2 Mt in the period. This is consistent with our target to reduce overall inventories by the end of 2016 and simultaneously achieve a downstream shift of products inventories along the supply chain.

These supply chain optimization efforts will continue in 2017, with important inventory reductions in the Southern System resulting in lower production volumes for Vale than the range of 380-400Mt announced at the 2015 Vale Day.

Aligned with Vale's strategy of margin optimization, the Fe content decreased slightly from 64.3% in 1Q16 to 63.6% in 2Q16 due the change of some beneficiation plants from wet to dry processing in the Southeastern system in order to reduce the need to use tailing dams and to take the opportunity of lower demerit discounts for higher silica products.

**Northern system**

Carajás achieved a new production record for a second quarter of 36.5 Mt in 2Q16, 12.7% and 15.5% higher than in 1Q16 and 2Q15, respectively. The increase vs. 1Q16 is mostly due to the lower impact from rainfall and better overall equipment efficiency. The increase vs. 2Q15 was mainly due to the above-mentioned productivity gains and the ramp-up of the N4WS mine and N5S extension pits, which more than offset the impact of the higher precipitation in 2Q16 vs. 2Q15.

**Southeastern system**

The Southeastern System, which encompasses the Itabira, Minas Centrais and Mariana mining hubs, produced 25.2 Mt in 2Q16, 2.6 Mt higher than in 1Q16 and 4.0 Mt lower than in 2Q15, mainly due to the stoppage of supply of run of mine to Samarco (2.9 Mt).

**Southern system**

The Southern System, composed of the Paraopeba, Vargem Grande and Minas Itabirito mining hubs, produced 24.6 Mt in 2Q16, 11.5% higher than in 1Q16 and 10.0% lower than in 2Q15, due to the decision to reduce production from lower margin operations.

**Midwestern system**

The Midwestern System, composed of the Urucum and the Corumbá mines, produced 0.6 Mt in 2Q16, in line with 1Q16 and 0.7 Mt lower than in 2Q15, as a result of Vale's strategy to optimize margins.



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## Pellets

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change 2Q16/2Q15	1H16/1H15
<b>Southeastern System</b>	<b>6,657</b>	<b>7,221</b>	<b>7,199</b>	<b>13,878</b>	<b>14,320</b>	<b>-7.8%</b>	<b>-7.5%</b>	<b>-3.2%</b>
Itabasco (Tubarão 3)	1,119	1,100	1,135	2,219	2,260	1.8%	-1.4%	-1.8%
Hispanobras (Tubarão 4)	1,088	1,128	1,135	2,215	2,188	-3.5%	-4.2%	1.3%
Nibrasco (Tubarão 5 and 6)	1,715	2,159	2,228	3,873	4,469	-20.6%	-23.0%	-13.3%
Kobrasco (Tubarão 7)	969	1,088	1,088	2,058	2,176	-11.0%	-10.9%	-5.5%
Tubarão 8	1,767	1,746	1,613	3,513	3,227	1.2%	9.5%	8.8%
<b>Southern System</b>	<b>1,544</b>	<b>2,330</b>	<b>2,619</b>	<b>3,874</b>	<b>4,991</b>	<b>-33.8%</b>	<b>-41.1%</b>	<b>-22.4%</b>
Fábrica		861	951	861	1,806	n.m.	n.m.	-52.3%
Vargem Grande	1,544	1,469	1,667	3,012	3,184	5.1%	-7.4%	-5.4%
Oman	1,848	1,927	2,419	3,776	4,314	-4.1%	-23.6%	-12.5%
<b>TOTAL PELLETS</b>	<b>10,049</b>	<b>11,478</b>	<b>12,237</b>	<b>21,527</b>	<b>23,625</b>	<b>-12.4%</b>	<b>-17.9%</b>	<b>-8.9%</b>
Samarco (1)			3,645		14,285	n.m.	n.m.	n.m.

(1) Vale's attributable production capacity of 50%.

**Production overview**

Pellet production, excluding Samarco's attributable production, totaled 10.0 Mt in 2Q16, 12.4% and 17.9% lower than in 1Q16 and 2Q15, respectively, mainly as a result of: (i) the halt of the Fábrica pelletizing plant, due to delays in obtaining environmental permits for the expansion of adjacent mines; and (ii) the scheduled maintenance stoppages at the Tubarão plants in 2Q16.

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Vale is currently studying the reopening of its pelletizing plants of Tubarão 1 and 2 in order to offset a supply shortage resulting from the stoppage of Samarco.

### **Southeastern system**

Production at the Tubarão pellet plants Tubarão 3, 4, 5, 6, 7 and 8 reached 6.7 Mt in 2Q16, 7.8% and 7.5% lower than in 1Q16 and 2Q15, respectively, mainly due to the scheduled maintenance stoppages in 2Q16. Tubarão 8 production achieved the monthly record of 637 kt in May.



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**Southern system**

Production at the Fábrica pellet plant was suspended on March 28<sup>th</sup> due to delays in obtaining environmental permits for the expansion of adjacent mines. On July 2<sup>nd</sup> the environmental permits were granted and operations resumed, with production forecast to achieve nominal capacity by August.

Production at the Vargem Grande pellet plant totaled 1.5 Mt, 5.1% and 7.4% lower than in 1Q16 and 2Q15, respectively, mainly as a result of a lower availability of pellet feed.

**Oman operations**

Production at the Oman pellet plant reached 1.8 Mt in 2Q16, 4.5% and 23.9% lower than in 1Q16 and 2Q15, respectively, due to the scheduled cold maintenance shutdown in one of the lines from May to June.

**Samarco**

Samarco's operations were suspended as a result of the failure of the Fundão tailings dam on November 5<sup>th</sup>, 2015. Samarco plans to resume operations by 2017, although timing is uncertain.

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000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change 2Q16/2Q15	1H16/1H15
<b>MANGANESE ORE</b>	<b>553</b>	<b>596</b>	<b>554</b>	<b>1,149</b>	<b>1,146</b>	<b>-7.3%</b>	<b>-0.2%</b>	<b>0.3%</b>
Azul	397	434	346	831	753	-8.6%	14.6%	10.3%
Urucum	156	162	208	318	392	-3.9%	-25.0%	-18.9%
<b>FERROALLOYS</b>	<b>29</b>	<b>25</b>	<b>31</b>	<b>53</b>	<b>58</b>	<b>15.3%</b>	<b>-8.0%</b>	<b>-8.4%</b>
Brazil	29	25	31	53	58	15.3%	-8.0%	-8.4%

**Production overview**

Manganese ore production decreased by 7.3% in 2Q16 vs. 1Q16 and was in line with 2Q15.

The Barbacena plant resumed production in February with the lower spot energy prices, while the Ouro Preto ferroalloy plant in Minas Gerais remains closed as market demand still does not justify the resumption of the operation.

**Manganese ore production**

Production at the Azul manganese mine reached 397,000 t in 2Q16, 8.6% lower than in 1Q16 as a result of lower physical availability in the plant, and 14.7% higher than in 2Q15 due to the availability of higher grade ore.

Production at the Urucum mine reached 156,000 t in 2Q16, 3.9% and 25.0% lower than in 1Q16 and 2Q15, respectively, as a result of lower availability of operation mining faces.

**Ferroalloy production**

Ferroalloy production in 2Q16 was 28,630 t, 15.3% higher than in 1Q16, due to the reopening of the Barbacena plant in February, driven by lower energy prices, and 8.0% lower than in 2Q15 due to lower efficiency at the Simões Filho plant.

Production was comprised of 20,090 t of ferrosilicon manganese alloys (FeSiMn), 6,640 t of high-carbon manganese alloys (FeMnHC) and 1,900 t of medium-carbon manganese alloys (FeMnMC).



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Nickel

**Finished production by source**

<b>000 metric tons</b>	<b>2Q16</b>	<b>1Q16</b>	<b>2Q15</b>	<b>1H16</b>	<b>1H15</b>	<b>2Q16/1Q16</b>	<b>% change 2Q16/2Q15</b>	<b>1H16/1H15</b>
Canada	43.1	40.5	43.0	83.6	81.5	6.3%	0.2%	2.5%
Sudbury	18.9	19.5	11.7	38.4	23.1	-3.1%	61.5%	66.2%
Thompson	8.1	6.2	7.0	14.3	12.8	30.6%	15.7%	12.3%
Voisey s Bay	11.3	10.9	15.2	22.2	28.6	3.7%	-25.7%	-22.5%
Feed from third parties(1)	4.8	3.9	9.1	8.7	17.1	24.8%	-47.4%	-49.3%
Indonesia	20.7	17.8	13.4	38.5	31.4	16.3%	54.5%	22.6%
New Caledonia(2)	8.4	9.7	4.8	18.0	11.3	-13.4%	75.0%	59.3%
Brazil	6.4	5.6	5.9	11.9	12.0	14.3%	8.5%	-0.9%
<b>TOTAL NICKEL</b>	<b>78.5</b>	<b>73.5</b>	<b>67.1</b>	<b>152.0</b>	<b>136.3</b>	<b>6.8%</b>	<b>17.0%</b>	<b>11.5%</b>

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

(2) Production at VNC reached 8.400 t in 2Q16, whereas production of finished nickel from VNC also totaled 8.400 t in 2Q16, despite the differences stemming from the required processing time into finished nickel.

**Production overview**

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Production of nickel reached a record for a second quarter of 78,500 t in 2Q16, being 6.8% higher than in 1Q16, mainly due to strong performances in Thompson, Indonesia (PTVI) and Onça Puma. Production was 17.0% higher than in 2Q15.

### **Canadian operations**

Production from the Sudbury mine reached 18,900 t in 2Q16, in line with 1Q16 production and 61.5% higher than in 2Q15 as a result of an electrical fire in the matte processing plant in 2Q15.

Production from the Thompson mine reached 8,100 t in 2Q16, 30.6% higher than in 1Q16 and 15.7% higher than in 2Q15. The use of Thompson sourced ore was prioritized due to the severe winter weather conditions, which delayed shipments from Voisey's Bay concentrates to the Thompson refinery. Thompson operations have a previously scheduled maintenance shutdown for three weeks in August, and during this period annual preventive work will be carried out in the smelter, refinery and utilities.

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Production from the Voisey's Bay mine reached 11,300 t in 2Q16, 3.7% higher than in 1Q16. Production in 2Q16 was 25.7% lower than in 2Q15 as Voisey's Bay sourced ore was negatively affected by winter weather conditions and logistics constraints in 2016, with on-site build-up of inventories for consumption in the following quarters.

Production at the Long Harbour processing plant reached 3,800 t in 2Q16, 72.5% higher than in 1Q16 and 154.8% higher than in 2Q15. Long Harbour product quality has exceeded the industry-wide accepted ASTM B39-79 refined Ni grade.

**Indonesian operation (PTVI)**

Production of finished nickel from PTVI reached 20,700 t in 2Q16, 16.3% and 54.5% higher than in 1Q16 and in 2Q15, respectively, mainly as a result of the scheduled maintenance in 2Q15 and in 1Q16.

**New Caledonia operation (VNC)**

Production of finished products from VNC reached a record level for a second quarter of 8,400 t in 2Q16, 13.4% lower and 75.0% higher than in 1Q16 and 2Q15, respectively. Production from VNC sourced ore was impacted by the termination of SUMIC's off take since the share of VNC's production, previously booked as sales volume for SUMIC, will now be further processed at Vale's Dalian refinery. Production from VNC sourced ore decreased in 2Q16 due to the lag effect of further processing and should increase in the following quarters. Production of NiO and NHC at VNC reached 8,400 t in 2Q16. NiO represented 79.8% and NHC 20.2% of VNC's 2Q16 site production. New Caledonia operations are undergoing their annual maintenance shutdown for three weeks in July. During this period a portion of the slurry pipeline will be replaced and annual descaling of pipes will be completed.

**Brazilian operation (Onça Puma)**

Production from the Onça Puma operation reached a record level for a second quarter of 6,400 t in 2Q16, 14.3% and 8.5% higher than in 1Q16 and in 2Q15, respectively. Production was positively impacted by improvements in calcine handling and additional kiln capacity.

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Copper

**Finished production by source**

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change 2Q16/2Q15	1H16/1H15
<b>BRAZIL</b>	<b>64.4</b>	<b>63.4</b>	<b>67.0</b>	<b>127.8</b>	<b>129.4</b>	<b>1.6%</b>	<b>-3.9%</b>	<b>-1.3%</b>
Sossego	23.6	22.3	29.0	46.0	56.2	5.8%	-18.6%	-18.1%
Salobo	40.7	41.1	38.0	81.8	73.3	-1.0%	7.1%	11.6%
<b>CANADA</b>	<b>41.2</b>	<b>46.5</b>	<b>35.1</b>	<b>87.7</b>	<b>77.3</b>	<b>-11.4%</b>	<b>17.4%</b>	<b>13.4%</b>
Sudbury	28.9	30.9	22.4	59.8	47.7	-6.5%	29.0%	25.1%
Thompson	0.8	0.6	0.7	1.4	0.8	33.3%	14.3%	74.4%
Voisey's Bay	7.3	7.8	5.9	15.1	13.4	-6.4%	23.7%	13.0%
Feed from third parties	4.3	7.1	6.1	11.4	15.4	-39.4%	-29.5%	-25.6%
<b>TOTAL</b>								
<b>EX-LUBAMBE</b>	<b>105.6</b>	<b>109.9</b>	<b>102.1</b>	<b>215.5</b>	<b>206.7</b>	<b>-3.9%</b>	<b>3.4%</b>	<b>4.2%</b>
Lubambe(1)	1.7	2.0	2.7	3.8	5.3	-15.0%	-37.0%	-29.3%
<b>TOTAL COPPER</b>	<b>107.4</b>	<b>111.9</b>	<b>104.9</b>	<b>219.2</b>	<b>212.0</b>	<b>-4.0%</b>	<b>2.4%</b>	<b>3.4%</b>

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(1) Attributable production.

**Production overview**

Production of copper(4) was a record for a second quarter with 105,600 t in 2Q16, 3.9% lower than in 1Q16, mainly due to less feed from third parties and 3.4% higher than in 2Q15 mainly due to higher production from Sudbury and Salobo's ramp-up.

**Brazilian operations**

Production of copper in concentrate at Sossego totaled 23,600 t in 2Q16, 5.8% higher than in 1Q16 and 18.6% lower than in 2Q15, mainly as a result of lower ore grade.

Production of copper in concentrate at Salobo totaled a record for a second quarter of 40,700 t in 2Q16, in line with 1Q16 and 7.1% higher than in 2Q15. Salobo achieved a monthly production record of 14,600 t of copper in concentrates in May, with overall production in 2Q16 negatively impacted by planned maintenance works in June. Production is expected to reach its full production capacity on a monthly basis during 2H16.

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(4) Excluding Lubambe attributable production



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**Canadian operations**

Production of copper from Sudbury reached 28,900 t in 2Q16, 6.5% lower than in 1Q16 due to a special campaign for recycling low copper grade slag and 29.0% higher than in 2Q15, mainly due to a fire in matte processing in May 2015.

Production of copper from Voisey s Bay reached 7,300 t in 2Q16, 6.4% lower than in 1Q16, as less Voisey s Bay copper concentrate was delivered to Sudbury. Production was 23.7% higher than in 2Q15 due to annual preventive maintenance carried out at Voisey s Bay in 2Q15.

**African operation (Lubambe)**

Lubambe delivered 4,300 t of copper in concentrate on a 100% basis (attributable production of 1,700 t).

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Nickel and copper by-products

**Finished production by source**

	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change 2Q16/2Q15	1H16/1H15
<b>COBALT (metric tons)</b>	<b>1,312</b>	<b>1,400</b>	<b>1,122</b>	<b>2,711</b>	<b>2,091</b>	-6.3%	16.9%	29.6%
Sudbury	225	173	97	398	309	30.1%	132.0%	29.0%
Thompson	171	182	146	353	188	-6.0%	17.1%	88.4%
Voisey s Bay	194	145	367	339	495	33.8%	-47.1%	-31.6%
VNC	682	849	441	1,531	1,000	-19.7%	54.6%	53.1%
Others	40	50	70	90	100	-20.0%	-42.9%	-10.2%
<b>PLATINUM (000 oz troy)</b>	<b>49</b>	<b>46</b>	<b>46</b>	<b>96</b>	<b>88</b>	6.5%	6.5%	8.9%
Sudbury	49	46	46	96	88	6.5%	6.5%	8.9%
<b>PALLADIUM (000 oz troy)</b>	<b>95</b>	<b>100</b>	<b>109</b>	<b>195</b>	<b>206</b>	-5.0%	-12.8%	-5.5%
Sudbury	95	100	109	195	206	-5.0%	-12.8%	-5.5%
<b>GOLD (000 oz troy)</b>	<b>109</b>	<b>118</b>	<b>100</b>	<b>227</b>	<b>203</b>	-7.6%	9.0%	12.2%
Sudbury	22	23	23	45	50	-4.3%	-4.3%	-9.3%
Sossego	16	19	22	35	43	-15.8%	-27.3%	-17.8%
Salobo	71	76	56	147	110	-6.6%	26.8%	33.7%
<b>SILVER (000 oz troy)</b>	<b>554</b>	<b>516</b>	<b>255</b>	<b>1,070</b>	<b>736</b>	7.4%	117.3%	45.3%
Sudbury	554	516	255	1,070	736	7.4%	117.3%	45.3%

**Cobalt**

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Cobalt production totaled 1,312 t in 2Q16, 6.3% lower than in 1Q16 and 16.9% higher than in 2Q15, respectively, driven by higher production from Sudbury and New Caledonia sources.

Cobalt production from Ontario increased to 225 t in 2Q16 from the 173 t in 1Q16 and 97 t in 2Q15. Cobalt production from Voisey's Bay totaled 194 t in 2Q16, up 33.8% from 1Q16. VNC cobalt production reached 682 t in 2Q16 as VNC continues the ramp-up of its production.

### **Platinum and palladium**

Platinum production was 49,000 oz and palladium production was 95,000 oz, 6.5% higher than in 1Q16 and 5.0% lower than in 1Q16, respectively.

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**Gold**

Gold production in 2Q16 reached a record for a second quarter of 109,000 oz.

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## Coal

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change 2Q16/2Q15	1H16/1H15
<b>METALLURGICAL</b>								
<b>COAL</b>	<b>1,062</b>	<b>1,366</b>	<b>1,628</b>	<b>2,428</b>	<b>2,896</b>	<b>-22.3%</b>	<b>-34.8%</b>	<b>-16.2%</b>
Moatize	808	603	886	1,411	1,613	34.0%	-8.8%	-12.5%
Carborough Downs	254	763	742	1,017	1,283	-66.7%	-65.8%	-20.7%
<b>THERMAL COAL</b>	<b>443</b>	<b>297</b>	<b>384</b>	<b>740</b>	<b>811</b>	<b>49.2%</b>	<b>15.4%</b>	<b>-8.7%</b>
Moatize	443	297	384	740	811	49.2%	15.4%	-8.7%
<b>TOTAL COAL</b>	<b>1,505</b>	<b>1,663</b>	<b>2,012</b>	<b>3,168</b>	<b>3,707</b>	<b>-9.5%</b>	<b>-25.2%</b>	<b>-14.5%</b>

**Production overview**

Coal production totaled 1.5 Mt in 2Q16, 9.5% and 25.2% lower than in 1Q16 and 2Q15, respectively, mainly due to the lower production at Carborough Downs which faced geological instability issues in 2Q16.

**Australian operations**

Carborough Downs faced operational challenges in 2Q16, resulting in a production of 254,000 t, 66.7% and 65.8% lower than in 1Q16 and 2Q15, respectively. Carborough Downs experienced recent roof fall events with the start-up of operations after the longwall move in May 2016. Underground mining has been stopped as roof consolidation and overall recovery works are underway. This stoppage in production has impacted the ability to meet various sales contracts obligations and thus resulted in a declaration of force majeure on July 8th, 2016.

**Moatize operations**

Production at Moatize was 1,251,000 t in 2Q16, with an increase in both metallurgical and thermal coal production vs. 1Q16. Production recovered after the maintenance stoppage and waste removal, which impacted production in 1Q16.

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Production of metallurgical coal was 34.0% higher than in 1Q16 but 8.8% lower than in 2Q15. Production of thermal coal was 49.2% and 15.4% higher than in 1Q16 and 2Q15, respectively.

In June, the total mine movement reached a new monthly record of 12.7 Mt due to higher equipment productivity and the development of new mining areas which will feed the Moatize II coal handling and preparation plant. Commissioning of the Moatize II plant is almost concluded and its start-up is expected by early August. The ramp-up of Moatize II will enable the increase in production and the reduction in costs in the next quarters.

The ramp-up of the Nacala Logistics Corridor continued as planned, with 1.655 Mt being transported on the railway in 2Q16 against 761 kt in 1Q16. Nineteen shipments (1.567 Mt) were completed in 2Q16 compared to thirteen shipments (982 kt) in 1Q16.

Force majeure was declared at the Sena-Beira railway, which has been interrupted since June 8th due to incidents on the railway.

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## Fertilizer Nutrients

**Potash**

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change	
							2Q16/2Q15	1H16/1H15
<b>POTASH</b>	<b>101</b>	<b>111</b>	<b>111</b>	<b>211</b>	<b>219</b>	<b>-9.1%</b>	<b>-9.8%</b>	<b>-3.8%</b>
Taquari-Vassouras	101	111	111	211	219	-9.1%	-9.8%	-3.8%

**Phosphates**

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change	
							2Q16/2Q15	1H16/1H15
<b>PHOSPHATE ROCK</b>	<b>1,805</b>	<b>1,615</b>	<b>2,114</b>	<b>3,420</b>	<b>4,106</b>	<b>11.8%</b>	<b>-14.6%</b>	<b>-16.7%</b>
Brazil	969	702	1,102	1,671	2,203	38.1%	-12.1%	-24.2%
Bayóvar	836	913	1,012	1,750	1,904	-8.5%	-17.4%	-8.1%
MAP(1)	235	258	287	493	578	-9.1%	-18.2%	-14.8%
TSP(2)	246	213	240	459	471	15.2%	2.5%	-2.5%
SSP(3)	454	326	470	780	934	39.4%	-3.4%	-16.5%
DCP(4)	114	122	84	236	222	-7.0%	35.1%	6.6%

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(1) Monoammonium phosphate

(2) Triple superphosphate

(3) Single superphosphate

(4) Dicalcium phosphate



**Potash**

Potash production totaled 101,000 t in 2Q16, 9.1% and 9.8% lower than in 1Q16 and 2Q15 respectively. The decline was due to an unscheduled maintenance stoppage at the Taquari-Vassouras beneficiation plant and the mining of a lower grade of ore.

**Phosphate Rock**

Production of phosphate rock was 1.8 Mt in 2Q16, 11.8% higher than in 1Q16 due to higher production in Brazil, which was partially offset by lower production in Peru (Bayóvar). Production was 14.6% lower than in 2Q15 due to a decline in production in the Brazilian and Peruvian (Bayóvar) operations.

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Production in Brazil was 969,000 t in 2Q16, 38.1% higher than in 1Q16, due to the resumption of the Araxá plant after the scheduled maintenance stoppage in 1Q16 and higher production at the Tapira plant despite an unscheduled maintenance stoppage in 2Q16. Production was 12.1% lower than in 2Q15 due to unscheduled maintenance stoppages at the Catalão, Tapira and Cajati plants in 2Q16 and the stoppage of the Patos de Minas plant since July 2015. After the unscheduled maintenance stoppages, all of the above mentioned plants resumed operations.

Production at Bayóvar was 836,000 t in 2Q16, 8.5% and 17.4% lower than in 1Q16 and 2Q15, respectively, due to an unscheduled maintenance stoppage at the concentration plant.

**MAP**

Production of MAP (monoammonium phosphate) totaled 235,000 t in 2Q16, 9.1% and 18.2% lower than in 1Q16 and 2Q15 respectively. The decline resulted from a scheduled maintenance stoppage in June 2016 at the Cubatão plant, which has already resumed production, and the prioritization of TSP production in the Uberaba plant due to market conditions.

**TSP**

Production of TSP (triple superphosphate) totaled 246,000 t in 2Q16, 15.2% and 2.5% higher than in 1Q16 and 2Q15, respectively. The increase was the result of better productivity at the Uberaba plant and the prioritization of phosphoric acid use for TSP production, rather than for MAP, due to market conditions.

**SSP**

Production of SSP (single superphosphate) totaled 454,000 t in 2Q16, 39.4% higher than in 1Q16 due to the resumption of operations at the Araxá, Cubatão and Catalão plants after scheduled maintenance stoppages in 1Q16. Production was 3.4% lower than in 2Q15 due to operational adjustments in Cubatão and unscheduled maintenance stoppages in Araxá.

**DCP**

DCP (dicalcium phosphate) production totaled 114,000 t in 2Q16, 7.0% lower than in 1Q16, as the Uberaba plant underwent production adjustments. Production was 35.1% higher than in 2Q15, due to a scheduled maintenance stoppage at the Cajati plant in 2Q15.



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## Nitrogen

000 metric tons	2Q16	1Q16	2Q15	1H16	1H15	2Q16/1Q16	% change 2Q16/2Q15	1H16/1H15
AMMONIA	40	26	46	66	90	53.0%	-13.5%	-26.3%
NITRIC ACID	115	120	118	235	231	-3.6%	-2.1%	1.5%
AMMONIUM NITRATE	128	135	122	263	242	-5.5%	4.6%	9.0%

**Ammonia production**

Ammonia production totaled 40,000 t in 2Q16, 53.0% higher than in 1Q16 due to unscheduled maintenance stoppages in that quarter, but 13.5% lower than in 2Q15 due to corrective stoppages at the Cubatão plant in 2Q16. This plant remains under corrective maintenance.

**Nitric acid and ammonium nitrate production**

Nitric acid production totaled 115,000 t in 2Q16, 3.6% and 2.1% lower than in 1Q16 and 2Q15, respectively, due to unscheduled maintenance stoppages at the Cubatão plants.

Ammonium nitrate production totaled 128,000 t in 2Q16, 5.5% lower than in 1Q16 due to lower availability of diluted nitric acid and 4.6% higher than in 2Q15, due to a scheduled maintenance stoppage at the Cubatão unit in April 2015.

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**Signatures**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: July 21, 2016

By: Vale S.A.  
(Registrant)

/s/ Rogerio Nogueira  
Director of Investor Relations