

OPERATIONAL PERFORMANCE



Sergey Dyachenko

First Vice-President –
Chief Operating Officer



In 2019, the Company increased the output of all key metals as a result of improved operating efficiency, optimization of production flow and ongoing ramp-up of Bystrinsky project.

Total nickel output increased 5% year-on-year to 229 kt owing to the ramp-up of the refining shop operating new chlorine leaching technology and expansion of carbonyl nickel production capacity at Kola MMC. Total copper output increased 5% year-on-year to a record of 499 kt driven by improved operating efficiency, increased mined ore volumes and higher copper grades at Talnakh mines as well as the ramp-up of Bystrinsky (Chita) project that was fully commissioned in September 2019. Palladium and platinum output increased 7% and 8% year-on-year to 2.9 moz and 0.7 moz, respectively, owing primarily to the release of work-in-progress inventory.

Ore output (mln t)

Asset	2017	2018	2019
Assets in Russia (copper-nickel sulphide ore)	25.0	25.2	26.3
Polar Division and Medvezhy Ruchey	17.4	17.3	18.4
Kola MMC	7.6	7.9	7.9
Assets in Russia (gold-iron-copper ores)	0	7.9	10.5
GRK Bystrinkoye	0	7.9	10.5
Nkomati (South Africa)¹	3.5	3.1	3.5

Average mined grades

Asset	2017	2018	2019
Nickel, %			
Polar Division and Medvezhy Ruchey	1.3	1.3	1.3
Kola MMC	0.5	0.6	0.5
Nkomati	0.3	0.3	0.3
Copper, %			
Polar Division and Medvezhy Ruchey	2.2	2.2	2.2
Kola MMC	0.2	0.2	0.2
GRK Bystrinkoye	n/a	0.4	0.6
Nkomati	0.1	0.1	0.1
PGMs, g/t²			
Polar Division and Medvezhy Ruchey	6.8	6.8	6.9
Kola MMC	0.1	0.1	0.1
Nkomati	n/a	n/a	n/a

^{1/} All metrics for Nkomati are hereinafter shown based on the 50% ownership. Nkomati's operating results are not consolidated into the Group's total results.

^{2/} Five platinum group metals: palladium, platinum, rhodium, ruthenium, and iridium.

Metals recovery in concentration¹

Asset	2017	2018	2019
Nickel, %			
Polar Division and Medvezhy Ruchey	79.9	81.5	83.1 ¹
Kola MMC	69.8	69.5	67.9
Nkomati	70.7	65.9	64.2
Copper, %			
Polar Division and Medvezhy Ruchey	94.7	94.6	95.2 ¹
Kola MMC	75.4	74.1	73.2
GRK Bystrinkoye	n/a	82.9	87.7
Nkomati	90.9	88.4	87.7
PGMs, %			
Polar Division and Medvezhy Ruchey	81.5	82.7	85.2 ¹

Metals recovery in smelting

Asset	2017	2018	2019
Nickel, %			
Polar Division and Medvezhy Ruchey ²	93.9	94.6	94.6
Kola MMC ³	96.5	96.7	96.7
Kola MMC ⁴	98.2	98.0	97.0
Norilsk Nickel Harjavalta ⁴	98.5	97.9	97.9
Copper, %			
Polar Division and Medvezhy Ruchey ²	94.0	94.4	94.1
Kola MMC ³	96.2	96.1	96.2
Kola MMC ⁴	97.4	97.6	96.5
Norilsk Nickel Harjavalta ⁴	99.7	99.7	99.8
PGMs, %			
Polar Division and Medvezhy Ruchey ²	95.6	95.9	95.8
Kola MMC ⁴	96.7	94.0	91.6
Norilsk Nickel Harjavalta ⁴	99.3	99.8	99.8

1/ Metals recovery in bulk concentrate.

2/ Feedstock to finished products.

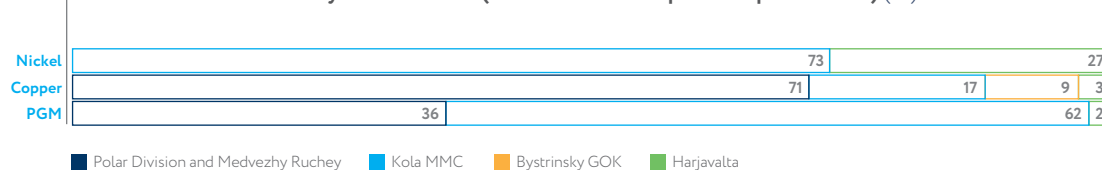
3/ Feedstock to converter matte.

4/ In refining, converter matter to finished products.

Saleable metals production

Product	2017	2018	2019
Group total			
Nickel, kt	217.1	218.8	228.7
– from own Russian feedstock	210.1	216.9	225.2
Copper, kt	401.1	473.7	499.1
– from own Russian feedstock	397.8	473.5	498.8
Palladium, koz	2,780	2,729	2,922
– from own Russian feedstock	2,728	2,729	2,919
Platinum, koz	670	653	702
– from own Russian feedstock	650	653	700
Assets in Russia			
Nickel, kt	157.4	158.0	166.3
Copper, kt	387.6	455.6	486.2
Palladium, koz	2,738	2,671	2,868
Platinum, koz	660	642	690
Norilsk Nickel Harjavalta (Finland)			
Nickel, kt	59.7	60.8	62.4
Copper, kt	13.4	18.0	12.9
Palladium, koz	42	58	54
Platinum, koz	10	11	12
Nkomati (South Africa)⁵			
Nickel, kt	8.0	6.6	6.5
Copper, kt	4.5	3.1	3.4
Palladium, koz	46	33	33
Platinum, koz	20	13	14

Production breakdown by asset in 2019 (share of the Group's total production) (%)



5/ Nkomati's operating results are not consolidated into the Group's total results.