Copper Plant's smelting shop recycles sludge from the copper tankhouses of Copper Plant and Kola MMC to produce precious metal concentrates, commercial selenium and tellurium.

The precious metals produced by the Norilsk Division are refined at Krastsvetmet, URALINTECH, and Prioksky Plant of Non-Ferrous Metals under tolling agreements.

Copper production remained basically flat y-o-y in 2020, with a slight decrease of 1% due to a lower-than-expected copper content in the stored copper concentrate provided by Rostec and concentrate stock drawdowns by Rostec. PGM output increased by 15% y-o-y, mainly due to temporary processing of chlorine dissolution residue by Copper Plant (during the deployment of a new precious metal production technology at Kola MMC) and higher precious metal content in the copper cake supplied by Norilsk Nickel Harjavalta.

The Polar Division products:

- Copper cathodes
- Nickel converter matte sent for processing to Kola MMC
- Precious metal concentrates
- Commercial sulphur, selenium
- Tellurium in billots

PRODUCTION VOLUMES

Product	2018	2019	2020
Copper, t	353,131	355,706	351,413
Palladium, koz	987	1,042	1,180
Platinum, koz	260	251	302

KOLA DIVISION (RUSSIA)

Kola MMC is Nornickel's wholly owned subsidiary and a valuable production asset located in the Kola Peninsula in the Murmansk Region of Russia.

In 2020, Kola MMC accounted for 73%, 14% and 57% of the Group's total nickel, copper, and PGM finished products, respectively.

MINING

Kola MMC mines disseminated copper-nickel sulphide ores.

At Kola MMC, various ore mining methods are used:

- The Zhdanovskoye and Zapolyarnoye deposits use three mining methods: gravity caving with front ore passes, sublevel caving with room-and-pillar ore removal, and room-and-pillar mining. To ensure full utilisation of the concentrator's design capacity, off-balance (sub-economic) open-pit mining waste is processed as well
- The Kotselvaara and Semiletka deposits primarily use stoping from sublevel drifts and sublevel caving. Room-and-pillar short-hole and long-hole stoping are also used on a limited scale

In 2020, Kola MMC produced about 7.7 mln t of ore (down 3% y-o-y), with the marginal decrease attributable to dwindling surplus ore inventories that had built up at the end of 2019 due to scheduled maintenance at the concentrator.

ORE OUTPUT (MLN T)

Mining asset	Mine type	2018	2019	2020
Total ore		7.90	7.91	7.65
Zhdanovskoye deposit:		**7.14**	**7.25**	**7.08**
Severny Mine	Underground	6.56	6.49	6.43
Severny Mine	Open-pit	0.58	0.77	0.65
Zapolyarnoye deposit:		**0.08**	**0.06**	**0.05**
Severny underground section	Underground	0.08	0.06	0.05
Kotselvaara and Semiletka deposits:		**0.68**	**0.60**	**0.52**
Kaula-Kotselvaara mine	Underground	0.68	0.60	0.52

CONCENTRATION

The concentrator produces briquetted copper-nickel concentrate. Briquettes are delivered to a smelting shop in Nikel to produce converter matte.

In 2020, Kola MMC's concentrator processed 7.96 mln t of ore (up 5%).

The rate of metals recovery in bulk concentrate decreased, due to a higher share of complex morphology ores with disseminated sulphide minerals in the charge.

CONCENTRATION FACILITIES

- Zapolyarny Concentrator

ORE PROCESSING

Concentrator	2018	2019	2020
Ore processing by the concentrator, mln t	7.90	7.60	7.96

SMELTING

Nornickel has continued to ramp up Tankhouse 2 to design capacity for the production of nickel cathode using the technology of electrowinning from chlorine dissolved tube furnace nickel powder.

In 2020, Kola MMC used only Nornickel's own Russian feedstock in metals production. Growth in saleable nickel output was mostly driven by the start-up of saleable nickel loading point at the concentrator. Saleable copper output decreased due to changes in the output mix of saleable products and the redistribution of copper semi-products within the Company. Lower PGM output in 2020 was caused by temporary shipments of chlorine leaching residuals to the Polar Division (during the deployment of a new precious metal production technology at Kola MMC) and larger amount of transportation and production work-in-progress along the Kola MMC – Norilsk Nickel Harjavalta – the Polar Division leg due to shipments of converter matte with a higher PGM content to Norilsk Nickel Harjavalta.

Products:

- Nickel cathodes
- Nickel carbonyl
- Saleable nickel concentrate
- Copper cathodes
- Saleable copper concentrate from converter matte separation
- Sulphide concentrate from the concentrator
- Cobalt cathodes
- Cobalt concentrate
- Precious metal concentrates
- Sulphuric acid
- Crushed converter matte for Harjavalta

DOWNSTREAM FACILITIES

- Smelting shop (Nikel), shut down in December 2020
- Briquetting section (Zapolyarny), shut down in December 2020
- Smelting shop (Monchegorsk), shut down in March 2021
- Chemical-and-metallurgical shop (Monchegorsk)
- Refining shop (Monchegorsk)
- Tankhouses 1 and 2 (Monchegorsk)

PRODUCTION VOLUMES

Product	2018	2019	2020
Nickel, t	158,005	166,265	172,357
from own Russian feed	157,519	166,265	172,357
Copper, t	83,070	86,976	70,618
from own Russian feed	82,987	86,976	70,618
Palladium, koz	1,684	1,826	1,630
from own Russian feed	1,684	1,826	1,630
Platinum, koz	381	439	390
from own Russian feed	381	439	390