

Where and what is mined in Russia?

Russia sits upon huge banks of some key deposits. But as the nation covers ten time zones, bordering Finland on one end and China on the other, finding and developing them can be a challenging prospect.

In this report from MiningWorld Russia, we take you through all the ins and outs of Russia's resource wealth, including substances mined and where the real activity takes place. Read on for a detailed look into where and what is extracted in Russia.



Coal mining in Russia

Russia's principal coal-bearing basins are the Kuznetsk, the Pechora, and the South Yakutia basins, plus the Russian sector of the Donets coal basin.

Kuznetsk

The Kuznetsk basin is one of the largest coal fields in the world.

56% of bituminous coal produced in Russia comes from Kuzbass, alongside nearly 80% of all coking coal production, and 100% of the most valuable coking coals. Additionally, more than 13% of cast iron and steel, 23% of steel bar, 11% of aluminium, 19% of coke, 55% of ferrosilicium,

over 10% of chemical fibres and yarn, 100% of mining drag-type conveyors, and 14% of silk fabric are produced there.

A challenge for Kuzbass is logistics, as it is located some distance from Russia's main coal consuming regions.

Pechora

The Pechora coal basin is the basin located in the Komi Republic.

Close to 12.8 million tons of hard fuels are produced in the Pechora basin, with consumers located in the northern reaches of European Russia.

Before 2000, 100% of coal produced here used underground methods that proved to be expensive. The mining depth is 400m to 1,200m; deeper than that in Kuzbass. Its formations are characterized by their medium thickness – 1.53m (1.85m in Kuzbass). The coal is costly due to increased production overheads, stemming from the miners having Northern supplements to their wages.

In July 2000, Yunyaginskiy open-pit coal mine started operations, becoming the first – and still

the only – such open-pit coal mine under the sub-zero conditions of Russia's extreme North (beyond the Arctic Circle). Previously, this mining technique was considered impossible for polar regions. There are no familiar sites like this anywhere outside of Russia.

As such, Pechora coal basin's geology is characterized by fairly difficult ecological situation.

The basin has low prospects of development due to high costs of coal production. It contains two types of coal: coking type and anthracite. Production conditions are difficult due to caving-in, bending, and breaking of formations.

South Yakutia

The South Yakutia coal basin is located in Neryungrinsky District of Yakutia.

As of 2010, the open-pit Neryungrinsky Coal Mine is the only one of South Yakutia's well-known fields being actively developed. In the short term, the plan instead is to develop potentially the largest field in Russia: Elginsky Coal Mine.

At Elginsky, coal is produced exclusively by open-pit mining, i.e. using open pits (quarries), without mine construction.

Siberian Coal Energy Company (SUEK) is the Russian leader in coal development. It produces

coal in huge quantities across its operations, including: 32.6 million tons in Kemerovo Oblast, 26.5 million tons in Krasnoyarsk Krai, 12.6 million tons in the Republic of Buryatia, 10.6 million tons in the Republic of Khakassia, 5.4 million tons in Zabaykalsky, 4.6 million tons in Khabarovsk, and 4.1 million tons in Primorsky.

UK Kuzbassrazrezugol OAO is the second largest coal production company in the Russian Federation.



Production of resources by Russian region

Moscow and the surrounding areas

The Arkhangelsk Region

In recent decades, the Arkhangelsk Region's prospects have been increasingly geared towards a wealth of unique subsurface resources. During 75 years of Arkhangelsk exploration and extraction activity, more than 1,500

deposits have been explored and developed in the region.

Amongst these are bauxites, diamonds, oil and gas, subsurface fresh and mineral water, carbonate materials for pulp and paper industry and

cement production, gypsum, structural stone (basalts, granite gneiss), mortar sand, sand and gravel, brick clay, basalts for mineral wool production, iodine water, turfs, and so on.

The Kaliningrad Region

The resource reserve base of the Kaliningrad Region holds vast fields of oil, amber, turf, sand and gravel, clay, fresh and mineral water, therapeutic muds, potassium salts, and brown coal. More than 400 mining enterprises and organizations are involved in their extraction throughout the region.

Every year, 800,000-850,000 tons of oil, up to 250 tons of amber, 250,000-300,000 cubic metres of turf, 1.5 million cubic metres of construction materials, and 65,000 cubic metres of mineral water are produced in Kaliningrad.

Rock salt reserves of the Gusevo field total 16 billion tons. Its geographical location makes the prospects of salt supply to the Northwest Russia, Nordic countries, and Baltic states

a plausible reality. Salts produced in the basin may also be used as raw materials for chemical industry.

One of the important resources explored in Kaliningrad are phosphorites. Along with elements such as potassium, ferrum, and manganese, they are an essential source of nutrients for the local wildlife. Phosphorous-based mineral fertilizers play a vital role in increase of agricultural land fertility, hence their significance as a mined product.

Kaliningrad's amber reserves comprise 90% of total global volumes.

Brown coal fields are also developed here. This particular coal variety is suitable to be used as energy feedstock, raw

material for production of mineral wax, lignin-alkaline reagent, coal-humic and organomineral fertilizers, fuel briquettes, amongst other coal-chemical products.

Some rich deposits of brick and keramzite clays, and sand and gravel material, have been discovered in the region too. Such clays are good as raw materials for the manufacturing of common and cavity bricks. Meanwhile, sand and gravel is used for production of fractional gravel and crushed rock, for construction, and also for repairing roads and railways. Numerous peat deposits have been explored in Kaliningrad, with aggregate reserves amounting to 2.5 to 3 billion cubic metres.





The Leningrad Region

The Leningrad Region is rich in resources such as shale oil, bauxites, clay, phosphorites, granite, limestone, and sand. More than 80 resource deposits are being developed there.

26 different resources are being explored too, including 20 types of non-metallic resources used for the production of construction materials and organic fertilizers. 173 deposits

have been recorded in the State Register of Reserves, 46% of which are seeing active development.

The Murmansk Region

The Murmansk Region plays a leading role in the country in terms of resource reserves. It contains significant amounts of large and often unique fields of the most valuable types of

resource of global, federal, and regional significance. Murmansk alone meets Russia's demand for phosphate ores, nepheline, quartzo-feldspathic materials, muscovite, phlogopite, vermiculite,

and ores of rare and rare-earth metals. Moreover, copper-nickel and iron ores, ornamental and cladding stones, and construction materials are being mined in large volumes here as well.

The Kursk / Belgorod Regions / The Komi Republic

Both the Kursk and Belgorod Regions are centres of iron ore production. Elsewhere, the

Komi Republic covers part of the Pechora coal basin, making it a regional coal mining hub.

The Moscow Region

The Moscow Region also has a number of key resources available. At the top, in terms of reserves and usage, is turf. However, various clays, deposits of phosphorites, glass-making sand, and calcareous rock, and potassium salts can also be found. Moscow is among the largest regions in Russia regarding discovered reserves of sands.

Mining companies occupy nearly 390 square kilometres throughout Moscow, covering 0.9% of the region's total area. Amongst the main resources that are produced here include sands, gravel, clays, limestone, dolomites, phosphorites, turf, potassium salt, and mineralized waters.

In 1998, 138 deposits of solid minerals (without turf) were developed in the territory of Moscow region. The most valuable, strategically important, natural resources Moscow's adjacent areas are underground waters.

The Kaluga Region

The Kaluga Region accommodates nearly 500 developed fields extracting 19 types of resource. For example, brown coal comprises 36% of the explored reserves of the Moscow Region basin,

refractory and high-melting clays comprise 61%, glass-making sand 20%, phosphorites 17%, and rottenstone 10%, of all reserves explored in Central Russia.



Nizhny Novgorod / Penza Region / Republic of Karelia

Nizhny Novgorod is known for large reserves of turf, glass-making sand, and deposits of mineral salt. In the Penza Region

clays, sands, limestone, and diatomites are mined, whereas valuable stone is extracted in the Republic of Karelia.

The Pskov Region

The most valuable natural resources of the Pskov Region are reserves of limestone, sand and gravel, dolomites, calcareous clay, gypsum, high

and low-melting clay, lean moulding sands, raw materials for production of mineral colours, therapeutic muds, and underground mineral waters.





The Ryazan Region

The Ryazan Region is rich in resources: limestones, marls, coal and high-melting clays and sands. Cement limestones and glass-melting and quartz sands are especially valuable. There are also fields of phosphate rocks, gyprocks, bog iron ore, coal and mineral colours. A heavy bed of high quality turf is Ryazan's most important natural product, however.

Non-metallic resources that are developed and produced throughout Ryazan are mostly used for the manufacturing of construction materials (carbonates for cements, gravel, lime and lime dust; clays and clay loams for ceramics production, brick; and masonry sand).

The National Register of Natural Resources of the Region includes:

- 29 deposits of ragstone for gravel
- 25 deposits of low melting clays
- 19 deposits of masonry sands
- 4 deposits of carbonate rocks for finish lime
- 4 deposits of cement materials
- 1 deposit of high-melting clays for tile and art pottery production
- 1 gypsum deposit

The Smolensk Region

A wide range of resources are embedded in the Smolensk Region, such as low-energy brown coals, turf, and a variety of construction materials (clays,

clay loams, dolomite rocks, chalk, marls, limestones, etc.). Thirty types of resources are currently extracted in Smolensk.



The Tver Region

Considerable resource reserves can be found in the Tver Region, including sand and gravel materials, masonry and silicate sands, low-melting and coal clays, limestones of various

application, turf, sapropel, fresh groundwater, and brown coal. Turf reserves are the most considerable. Tver is one of Russia's most active extraction regions.

The Ivanovo Region

2 deposits of glass-melting sands, big enough to receive nationwide attention, have been discovered in the Ivanovo Region.

The Kostroma Region

Turf and sapropel are the most widespread resource reserves of the Kostroma Region. Its reserves of shale oil and phosphate rocks are also massive. Kostroma also has known expansive reserves

of construction materials, such as sand and gravel, masonry sands, clays and clay loams, carbonate rocks for cement production, limestone for lime and lime dust production. There

are 123 explored deposits of commonly occurring resources currently being actively developed throughout the region.



The Tambov Region

Mineral resources in the Tambov Region are made up of 13 different varieties. 8 types of crude minerals are under development: titanium and zirconium sands, phosphate rocks, mineral colours, moulding

sands, turf, sapropelles, construction materials and ground waters. The National Register of Natural Resources of the Tambov Oblast records 248 discovered deposits.

The Voronezh Region

The National Register of the Voronezh Region notes 12 deposits of chalk, 60 deposits of clay loams and clays, 26 deposits of masonry sands,

3 deposits of ragstone, 3 deposits of raw materials for expanded clay production, 1 deposit of sand and gravel sediments and 44 turf deposits.

The Orel Region

According to geological surveys, the Orel Region has different types of mineral resources, many of which are currently not commercially extracted.



The Kemerovo Region Border:

The Irkutsk Region

Regional geological work has determined a high diversity of mineral deposits in the Irkutsk Region. Deposits of carbofossils, rock and potassium salt, raw hydrocarbon deposits, coal clays, a wide range of raw materials for construction

materials production, iron ores, and hydromineral raw materials have been discovered and explored in Irkutsk's plain area.

The unique Lena gold field, Mama-Chuy talcose province, the Eastern Sayan province

known for rare metals, and a complex of ore mining and mining and chemical raw materials, are located in the fold areas of Irkutsk.

Kuzbass

Kuzbass is one of the biggest basins of Russia in terms of coal reserves and production volumes and is the main, and in some cases sole, supplier of process feedstock for Russian industry.

Standard coal reserves in the Kuzbass exceed the total world reserves of oil and natural gas more than seven times over (in terms of fuel equivalency), totalling 693 billion tons, of which 207 billion tons is coking coal.

In contrast, the coking coal reserves in the Donbass come to 25 billion tons. The Pechora coal basin holds 9 billion tons in

reserves alongside 13 billion tons in Karaganda.

Today, Kuzbass's coking coal reserves account for 73% of total reserves held in Russia's developed coal basins. Over 80% of the Russian coking coals are extracted in the Kuzbass.

These reserves have provided the raw materials for the Russian coking industry for over 1,200 years. Dead power generating coals make about 70% of the total coal reserves in the Kuzbass. The remaining mineral coals are unique as they are able to stick together. As such, they

can serve both as coke-chemical and energy feedstock, depending on the way of their composition.

By now over 90 deposits and 20 metal ores have been discovered in the Kuzbass, including gold, silver, iron, aluminium, manganese, zinc, lead, cuprum, titanium, chrome, tungsten, molybdenum, mercury, stibium, uranium, and thorium. They are mainly concentrated in the Gornaya Shoria and Kuznetskiy Alatau regions.

Today the mineral resource base of the gold mining is represented by 9 ore and 77 placer deposits.

Krasnoyarsk Krai

Krasnoyarsk Krai is one of the richest Russian regions in terms of mineral resources. The natural resources of Krasnoyarsk form the basis of its investment potential and further development. Over 6,000 different mineral resource deposits have been discovered there so far.

In terms of economic uses, Krasnoyarsk's deposits can be divided into the three groups:

fuel (energy), metallurgic and chemical. 70% of Russian coal reserves and basic reserves of platinum, copper and nickel ores and calcareous spar are located in the Krai.

Krasnoyarsk ranks highly in Russian gold mining activity. The second largest deposit in Russia by volume of the gold reserves – Olympiadinskoe – is located in the region. Large deposits of lead, apatites

and nephelites, molybdenum, cuprum, titanium and magnesian ores, magnetites, stibium, talcum, and graphite are located here too.

There are 25 developed oil and gas fields across Krasnoyarsk. A great advantage for the region is the fact that resources are usually embedded next to each other and can be produced concurrently.

The Novosibirsk Region

There are 523 deposits of different resources in the Novosibirsk Region. Reserves such as coal, high-melting clays, and turf have been

developed here. Oil and natural gas fields have been discovered in Northwest Novosibirsk and are responsible for bringing vast sums in investment into the area.

The Altai Republic

The resources of the Altai Republic are both diverse in the number of different minerals discovered there, and large in terms of explored reserves.

But today the mineral and raw materials potential of the region is practically unused. Deposits of gold ore, molybdenum and tungsten, and fields of trimstone

and construction materials are now developed in negligible quantities.

The Republic of Sakha (Yakutia)

The Republic of Sakha (Yakutia) is one of the most important mineral and mining regions of Russia and is a Russian leader in diamond, gold, stannum and

stibium mining. Coal is refined here on a massive scale for domestic and export purposes, whereas natural gas, oil, platinum, rough semi-precious

stones, construction materials, and other resources are extracted for domestic needs. Yakutia has the highest total mineral reserves in Russia.

The Tyva Republic

Over fifteen large and medium deposits have been discovered in the Tyva Republic with different level of detail. Some of them are of federal and regional importance – particularly, coal,

copper, molybdenum, lead and zinc, cobalt and nickel, aluminium, gold, lithium, rare metals, mercury, and non-metallic feed.

Khakassia

Khakassia is one of the more unique resource producing regions of the Russian Federation. It holds 25% of national molybdenum reserves, 27% of barites, 13% of face stones, 6.5% of pre-cast concrete

and 3% of coal (concentrated in explored deposits only).

Iron, gold, mineral and radon waters, barites, marble and granite are mined throughout Khaskia. Deposits of copper,

phosphate rocks, lead, zinc, asbestos, gypsum, nephrite, and jadeite have been explored as well. There are prospected oil and gas reserves here too.

The Tomsk Region

Various mineral resources are located in the Tomsk Region and form its resource potential: oil and gas, metallic and non-

metallic minerals, brown coals, turf and sapropeles, fresh potable, mineral, thermal. and industrial ground waters.

The Tyumen Region

Oil is the main resource produced in the Tyumen Region.



The Buryat Republic

There are very promising opportunities in the Buryat Republic, which is rich in minerals.

The list of strategic minerals found there includes:

- 7 tungsten deposits
- 13 uranium deposits
- 4 deposits of complex ores
- 2 molybdenum deposits
- 2 deposits of beryllium
- 1 deposit of stannum
- 1 aluminium deposit

Expansion of the gold, coal, and uranium mining industries is in progress in the Buryat Republic.

The Sverdlovsk Region

The Sverdlovsk Region is one of the largest regions of Russia, in terms of discovered reserves and forecasted resources. It is one of the oldest mining regions across Russia. The

current mineral and raw material base of Sverdlovsk accounts for a considerable part of vanadium, bauxites, chrysotile-asbestos, iron ores and coal clays extraction in Russia.

About 200 deposits are under development.



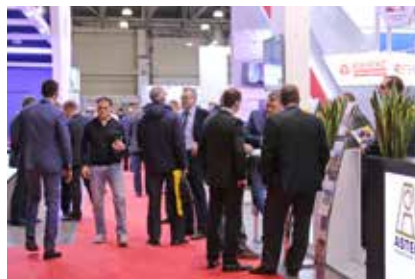
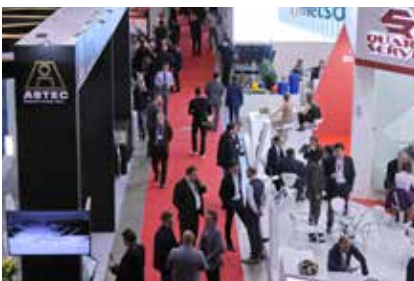
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