



2019 Minerals Yearbook

ROMANIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF ROMANIA

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Romania had significant identified mineral resources of ferrous and nonferrous metals, industrial minerals, and mineral fuels including coal, crude petroleum, and natural gas. In 2019, Romania produced alumina, aluminum, cement, coal, copper, iron and steel, natural gas, nitrogen, petroleum, refined lead, and salt. Although Romania was not a significant mineral producer on a global scale, the privately owned Alro S.A. was one of the leading vertically integrated aluminum producers in terms of production capacity in Europe using imported bauxite (table 1; Alro S.A., 2020).

Minerals in the National Economy

In 2019, Romania's real gross domestic product (GDP) increased by 4.1% compared with that in 2018. The nominal GDP was \$250 billion (RON1.06 trillion).¹ The portion of the GDP contributed by the industrial sector was \$54.5 billion, which was an increase of 6.4% compared with that in 2018. The portion of the GDP contributed by the construction sector was \$16.0 billion, which was an increase of 29% compared with that in 2018. Production indices of coal and lignite mining decreased by 8.6%; crude petroleum and natural gas extraction decreased by 2.4%; and metal mining increased by 4.8%. The mining and quarrying sector employed 57,000 people (less than 1% of the total labor force) in 2019, which was a 14% decrease compared with that in 2018. The industrial sector, which includes mining and quarrying, employed 1.90 million people (22% of the total labor force), which was a decrease of 1.9% compared with that in 2018 (National Institute of Statistics, 2020, p. 22, 56, 57, 68, 101).

The main law that regulates mining activity in Romania is law No. 85/2003 (Mining Law), which was adopted in 2003, including its implementing rule No. 1208/2003. The petroleum sector is regulated by law No. 238/2004 (the Petroleum Law), adopted in 2004, and its implementing rule No. 2075/2004. Production licenses are awarded only after the relevant environmental impact assessment (EIA) is conducted. The EIA procedure is regulated by law No. 292/2018 and its implementing rules, and it is mandatory for specific mining activities as outlined in Annex 1 to law No. 292/2018. Foreign individuals or companies that are awarded a mining license by the National Agency for Mineral Resources must incorporate a subsidiary in Romania within 90 days of its license entering into force, and the license must be maintained for the entire term of the concession (Lefter and Iovanesc, 2019; Pachiu and others, 2019; National Agency for Mineral Resources, 2020a, b).

In 2019, Romania's total exports were valued at \$77.3 billion, which was a decrease of 3.5% compared with that in 2018. Exports of mineral products [as defined in Harmonized Commodity Description and Coding System (HS)

codes 25 to 27] were \$3.08 billion; of this amount, mineral fuels and products accounted for \$2.92 billion, and ores and concentrates, \$80.5 million. Romania's top five export partners for mineral products were Moldova (which received 16% of Romania's exports of mineral products), Bulgaria (16%), Serbia (9.1%), Hungary (7.6%), and Georgia (6.3%). Total imports were valued at \$96.6 billion, which was a decrease of 1.3% compared with those of 2018. Imports of mineral products totaled \$7.99 billion; of this amount, mineral fuels and products accounted for \$7.41 billion, and ores and concentrates, \$403 million. In 2019, Romania's top five import partners for mineral products were Russia (which provided 35% of Romania's imports of mineral commodities), Kazakhstan (23%), Hungary (10%), Iraq (3.8%), and Poland (3.6%) (United Nations Statistics Division, 2020).

In 2019, Romania's exports of metals and articles thereof were valued at \$6.66 billion; of this amount, iron, steel, and articles thereof accounted for \$4.48 billion. Romania's top five export partners for metals and articles thereof were Germany (which received 16% of Romania's exports of metals and articles thereof), Italy (12%), Turkey (8.1%), Hungary (7.8%), and Bulgaria (6.5%). Romania's imports of metals and articles thereof were valued at \$9.77 billion; of this amount, iron, steel, and articles thereof accounted for \$6.19 billion. Romania's top five import partners were Germany (which provided 17% of Romania's imports of metals and articles thereof), Italy (15%), Turkey (10%), Poland (5.5%), and France (5.1%) (United Nations Statistics Division, 2020).

Production

In 2019, the production of manganese (mine output, Mn content) increased by an estimated 100%; bentonite, by 21%; and hydraulic cement, by 11%. The production of smelter zinc decreased by 67%; construction sand and gravel (unspecified), by 41%; caustic soda and synthetic soda ash, by 36% each; calcined alumina, by 19%; secondary aluminum, by 17%; salt (other than rock salt), by 15%; and lime, by 13%. Data on mineral production are in table 1.

Structure of the Mineral Industry

Mineral resources in Romania are exclusively publicly owned. The National Agency for Mineral Resources (NAMR) is the main institution that has supervisory and regulatory authority for the mining sector of Romania. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Copper and Zinc.—Vast Resources plc. of the United Kingdom owned 100% of the Manaila polymetallic mine

¹Where necessary, values have been converted from Romanian lei (RON) to U.S. dollars (US\$) at an annual average exchange rate of RON4.2379=US\$1.00 for 2019.

in Suceava County in northern Romania through its subsidiary Sinarom Mining Group SRL. At yearend 2018, the Manaila Mine was placed on care-and-maintenance status owing to winter weather conditions, and it was scheduled for reopening in March. This reopening was put on hold indefinitely until the completion of corporate restructuring, however, and was contingent upon a second round of funding at a later stage. Production at the mine commenced in 2015, and the mine had a projected life of more than 11 years and the capacity to produce 360,000 metric tons (t) per year of mined copper and zinc ore. The total indicated and inferred Joint Ore Reserves Committee (JORC)-compliant mineral resources at the Manaila Mine were reported to be 4.6 million metric tons (Mt) grading 0.97% copper, 0.68% zinc, 0.32% lead, 25.8 grams per metric ton (g/t) silver, and 0.23 g/t gold. The indicated and inferred resources at the underground mine were reported to be 1.1 Mt grading 1.58% copper, 0.88% zinc, 0.82% lead, 14.6 g/t silver, and 0.15 g/t gold (Banila, 2019; Vast Resources plc., 2020c).

Vast Resources also owned 80% of the Baita Plai Polymetallic Mine Project, which had been on care-and-maintenance status since 2013 because of a lack of capital investment and modernization. Equipment for the Manaila polymetallic mine was transferred to the Baita Plai polymetallic mine to put the latter into production. In December 2019, functional tests of the equipment (cold commissioning) and a drilling program were started at Baita Plai. The drilling program would be used to further determine the grades and resources and to support the process of confirming a JORC-compliant resource. Cold commissioned capacity was up to 7,000 metric tons per month (t/mo) and was to be progressively ramped up to 14,000 t/mo after the arrival of new equipment from China in January 2020. Production was expected to begin in the first half of 2020. Measured, indicated, and inferred mineral resources were reported to be 608,000 t at a grade of 2.58% copper equivalent (Vast Resources plc., 2019a, b; 2020a, b).

Cupru Min S.A. Abrud (CupruMin) was subordinated to the Ministry of Economy, Trade, Industry and Business Environment and had mining rights for approximately 60% of Romania's copper reserves. In 2017, the Government announced plans for building an integrated metallurgical plant at CupruMin that would process copper ore into copper products. In 2019, Sintek Group of Turkey sought partnership with CupruMin to build a copper smelter in Romania (Cupru Min S.A. Abrud, 2019; Romania-Insider.com, 2019).

Gold.—In 2015, the Romanian National Agency for Mineral Resources issued a mining license for the Rovina Valley gold-copper project project to Samax Romania SRL, which was a 100%-owned subsidiary of Euro Sun Mining Inc. of Canada. The project is located in the Carpathian fold belt of Hunedoara County in the region of Transylvania. A preliminary economic assessment of the Rovina Valley project (which includes the Ciresata, Colnic, and Rovina deposits) conducted in April 2019 resulted in measured and indicated resources of 219 t of contained gold and 631,000 t of contained copper. According to updated estimates of measured and indicated mineral resources in 2019, the Ciresata deposit contained 154.4 Mt of measured and indicated resources at an average grade of 0.72 g/t gold, the Colnic deposit contained 135.7 Mt of resources at an average

grade of 0.43 g/t gold, and the Rovina deposit contained 89.1 Mt of resources at an average grade of 0.26 g/t gold (Euro Sun Mining Inc., 2020a, p. 9, 10, 19; 2020b).

In 2015, Eldorado Gold Corp. of Canada completed a feasibility study for the Certej epithermal gold-silver project, which is located in the Apuseni Mountains of Transylvania and would be an open pit mine once developed. Total spending on the Certej project by Eldorado Gold was \$4.9 million in 2019; Eldorado Gold continued to do process optimization design work, which was focused on investigating flotation recoveries at lower mass pull, as well as minor construction work and environmental monitoring. As of September, total proven and probable mineral reserves at Certej were reported to be 44.3 Mt at grades of 1.69 g/t gold and 11 g/t silver. The company expected to produce 4,350 kilograms per year (kg/yr) of gold and 25,800 kg/yr of silver (Eldorado Gold Corp., 2020a; 2020b, p. 19).

Mineral Fuels

Petroleum and Natural Gas.—In 2019, Romania's production of crude petroleum was 26.2 million barrels (Mbbbl); and refined products, 96.9 Mbbbl. In 1976, a spike of 110 Mbbbl of crude petroleum production was reached, and production started to decline thereafter because most of the oilfields had matured (OMV Petrom, 2020).

The Ana and the Doina gasfields were discovered approximately 120 kilometers (km) off the coast of Romania in the Black Sea in 1995 and 2007, respectively. The gasfields had inferred resources amounting to 10 billion cubic meters in total. The Midia Gas Development (MGD) project was a joint venture among Black Sea Oil & Gas of Romania (65%), Petro Ventures Resources SRL of the United Kingdom (20%), and Gas Plus International B.V. of Italy (15%). The project, which would oversee the future extraction of these resources in the Ana and the Doina fields, comprised five production wells (one subsea well at the Doina field and four platform wells at the Ana field) and a subsea gas production system over the Doina well; the production system would be connected with a new unmanned production platform located at the Ana field through an 18-km pipeline. In February 2019, Black Sea Oil & Gas took the final investment decision in the MGD project, which was expected to cost approximately \$400 million. Infrastructure works were anticipated to be completed in the first quarter of 2021 (Ilie, 2019; Black Sea Oil & Gas, 2020).

In 2017, Prospex Oil and Gas plc. of the United Kingdom acquired a 50% interest in the Suceava concession. The concession was held through the company's wholly owned subsidiary PXOG Massey Ltd. of the United Kingdom. The Suceava concession was a 984-square-kilometer license area located in the Carpathian hydrocarbon basin of northeastern Romania. The Bainen-1 well was drilled in November 2017, and production started in September 2018; the average rate of production was 15,000 cubic meters per day. In March 2019, Prospex announced an enlargement of the exploration area for the Suceava concession. The new area would include a new gas prospect that is similar to the Bainen-1 well in terms of seismic attributes, and its production was expected to be in line with that of the Bainen-1 well (Prospex Oil and Gas plc., 2019).

Outlook

In 2020, the GDP is projected to decrease by 5% because of global disruptions, followed by an uptick of nearly 4% in 2021, which is not to pre-pandemic levels. Romania had strong investment performance and ongoing exploration and development projects in 2019, notably gold deposits in Transylvania and offshore natural gas fields in the Black Sea, but uncertainty is expected to hurt investment decisions and result in significant drops or delays in investment in 2020. Imports are expected to decrease more than exports because of economic contractions of Romania's trade partners and supply chain disruptions. Net exports are expected to contribute positively to GDP growth in the future, which may be largely driven by the mineral sector, given Romania's already negative trade balance in the mineral sector. This negative trade balance trend is expected to reverse starting in 2021, however. The commencement of production at the Baita Plai polymetallic mine (scheduled for 2020) will result in increased copper production in the near-term; further developments in the integrated metallurgical plant (including a copper smelter) in Romania by CupruMin will further enhance production in the long term (European Commission, 2020, p. 132–133; International Monetary Fund, 2020).

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TABLE 1
ROMANIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²		2015	2016	2017	2018	2019
METALS						
Aluminum:						
Alumina, calcined		404,825	467,031	472,606	571,772	460,911
Metal:						
Primary		271,356	272,507	282,074	282,810	280,326
Secondary		9,300	10,000	10,000	10,000 ^r	8,300
Copper, mine, concentrates, Cu content		8,800	9,500	11,000	8,700	9,200
Iron and steel:						
Pig iron	thousand metric tons	1,983	1,972	1,927 ^r	1,900 ^r	2,000
Steel:						
Raw steel	do.	3,423	3,370	3,443	3,529 ^r	3,432
Products:						
Pipe and tubes	do.	689	627	700	731 ^r	684
Rolled	do.	3,321	3,319	3,572	3,529 ^r	3,432
Lead, refinery:						
Primary		1,300	290	--	--	--
Secondary		12,000	13,000	18,000	15,000	16,000
Manganese, mine, ore:						
Gross weight		39,000	4,500 ^r	14,000	9,500 ^r	17,000 ^e
Mn content		9,300 ^r	1,100 ^r	3,400 ^r	1,000 ^r	2,000 ^e
Zinc, smelter, primary and secondary		200	300	800	600 ^r	200
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	8,356	8,038	8,442	8,951	9,932
Clay:						
Bentonite, marketable		15,612	24,996	28,005	34,809	41,964
Kaolin, marketable		30,000	30,000 ^e	--	--	--
Feldspar		8,200	4,500	7,500	23,000	22,000
Gypsum, mine	thousand metric tons	840	714	765	800 ^r	830
Lime	do.	1,907	1,951	2,126	2,249 ^r	1,958
Nitrogen, ammonia, N content	do.	500	440	520	660 ^r	660 ^e
Salt:						
Rock salt	do.	50	52	52	49	50
Other	do.	2,100	2,000	2,300	2,300	1,958
Sand and gravel, construction, unspecified	do.	7,492	38,270	30,820	35,530 ^r	20,970
Soda ash, synthetic	do.	505	516	540	536	343
Sodium, compounds, caustic soda	do.	209	215	234	356 ^r	228
Sulfur, compounds, sulfuric acid		20	3	310	120	120
MINERAL FUELS AND RELATED MATERIALS						
Coal, lignite	thousand metric tons	25,483	22,980	25,752	23,647 ^r	21,653
Natural gas:						
Associated	million cubic meters	1,228	1,226	1,248	1,200 ^r	1,254
Non-associated	do.	9,862	8,584	9,334	9,078 ^r	8,736
Petroleum:						
Crude	thousand 42-gallon barrels	29,300	27,700	26,900	26,500 ^r	26,200
Refinery	do.	81,800	90,600	89,600	92,100 ^r	96,900
Uranium, mine, ore, U content		77	50	--	--	--

^eEstimated. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through July 30, 2020. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, antimony, asbestos, bismuth, pyrites, and a variety of construction materials may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
ROMANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Alum S.A. (Alro S.A., 99.4%)	Refinery at Tulcea, Danube Delta	600
Aluminum:			
Primary	Alro S.A. (Vimetco N.V., 54.19%; Paval Holding, 23.21%; Fondul Proprietatea, 10.21%; others, 12.39%)	Slatina, 120 kilometers west of Bucharest	265
Secondary	do.	Eco Cast House, smelting facility at Slatina	35
Bentonite	Bentonita S.A.	Mines located at Valea Chioarului, Maramures County and Orasu Nou, Satu Mare county	NA
Cement	CRH Ciment (Romania) S.A. (CRH plc., 98.61%)	Plants at Hoghiz and Medgidia	4,900
Do.	HeidelbergCement Romania S.A. (HeidelbergCement AG, 100%)	Plant at Tasca, northeastern Romania	3,000
Do.	do.	Plant at Fieni, 90 kilometers northwest of Bucharest	2,500
Do.	do.	Chiscadaga plant near Deva, Western Romania	1,650
Do.	Holcim (Romania) S.A. (LafargeHolcim Ltd., 99.7%)	Plants at Alesd, Campulung, and Turda	6,000
Coal:			
Anthracite and bituminous	Complexul Energetic Hunedoara S.A. (Government)	7 mines located near Petrosani	3,500 ^{e,1}
Lignite	Complexul Energetic Oltenia (Ministry of Economy, Trade, Industry, and Business Environment 77.15%, and Fondul Proprietatea, 21.56%)	Tismana I-II, Garla-Rovinari Est, and Pinoasa opencast mines at Rovinari	8,000 ^e
Do.	do.	Rosia, Pesteana Nord, and Pesteana Sud-Udari opencast mines at Balteni	6,900 ^e
Do.	do.	Udari underground mine at Udari	300 ^e
Do.	do.	Jilt Sud and Jilt Nord opencast mines at Matasari	7,000 ^e
Do.	do.	Dragotesti underground mine at Matasari	600 ^e
Do.	do.	Lupoia and Rosiuta opencast mines at Motru	5,000 ^e
Do.	do.	Plostina, Horasti, and Lupoia underground mines at Motru	1,600 ^e
Do.	do.	Seciuri, Oltet, Berbesti-Vest, and Panga opencast mines near Berbesti	2,000 ^e
Do.	do.	Albeni underground mine at Bolbocesti	555 ^e
Do.	do.	Husnicioara-Vest opencast mine near Drobeta Turnu Severin	2,500 ^e
Do.	do.	Zegujani underground mine about 18 kilometers northeast of Drobeta Turnu Severin	600 ^e
Copper, ore	Cupru Min S.A. Abrud (CupruMin) (Ministry of Economy, Trade, Industry and Business Environment, 100%)	Rosia Poieni Mine, Lupsa Commune, Alba County	360
Copper-lead-zinc, ore	Sinarom Mining Group SRL (Vast Resources plc., 100%)	Manaila polymetallic mine, Suceava County	360 ²
Feldspar	NA	Teregova mine, Caraş-Severin County	NA
Ferroalloys, ferrochromium	S. Feral SRL	Complex at Tulcea	280 ³
Gold-silver, concentrate	metric tons Sinarom Mining Group SRL (Vast Resources plc., 100%)	Manaila polymetallic mine, Suceava County	360
Lead, metal	Neferal S.A. (Member of Metanef Group)	Bucharest	25
Manganese, ore	OFZ Bucovina (OFZ, 100%)	Vatra Dornei Mine, Suceava County	25
Natural gas	million cubic meters Joint venture (PXOG Massey Ltd., 50%, and Raffles Energy SRL, 50%)	Bainet field, Suceava County	5
Do.	do. OMV Petrom S.A. [OMV Aktiengesellschaft, 51%; Ministry of Energy, 20.6%; Fondul Proprietatea S.A. (Government), 10%; free float, 18.4%]	Approximately 230 commercial oil and gas fields located in southern and western Romania and offshore in the Black Sea	5,500 ^e
Do.	do. SNGN Romgaz S.A. (Ministry of Energy 70%, and free float, 30%)	Operated more than 150 reservoirs in Moldova, Muntenia, and Transylvania regions	5,500 ^e
Do.	do. Joint venture (PXOG Massey Ltd., 50%, and Raffles Energy SRL, 50%)	Bainet field, Suceava County	5
Nitrogen, ammonia	Ameropa Romania (Ameropa AG, 100%)	Azomures plant at Targu Mures	1,600

See footnotes at end of table.

TABLE 2—Continued
ROMANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum:				
Crude	thousand 42-gallon barrels	OMV Petrom S.A. [OMV Aktiengesellschaft, 51%; Ministry of Energy 20.6%; Fondul Proprietatea S.A. (Government), 10%; free float, 18.4%]	Approximately 230 commercial oil and gas fields located in southern and western Romania and offshore in the Black Sea	37,530
Refinery products	do.	Omnimpex Group Rafinaria Steaua Romana S.A.	Refinery at Campina, north of Bucharest	7,940
Do.	do.	OMV Petrom S.A. [OMV Aktiengesellschaft, 51%; Ministry of Energy, 20.6%; Fondul Proprietatea S.A. (Government), 10%; free float, 18.4%]	Petrobrazi refinery, just south of Ploiesti	35,730
Do.	do.	Petrotel-Lukoil S.A. (OAO Lukoil, 99.72%)	Refinery just east of Ploiesti	21,400
Do.	do.	Romp petrol Rafinare S.A. (KMG International N.V., 48.11%, and Ministry of Energy, 44.70%)	Petromidia refinery at Navodari (Constanza)	39,700
Do.	do.	do.	Vega refinery near Ploiesti	3,970
Steel:				
Raw steel		TMK-Resita S.A. (OAO TMK, 100%)	Resita in southwestern Romania	450
Products		ArcelorMittal Galati (ArcelorMittal, 99.7%)	Galati, north of Brail	6,000
Do.		ArcelorMittal Hunedoara (ArcelorMittal, 96.4%)	Hunedoara, west-central Romania, near Calan	800 ⁴
Do.		Cos Targoviste (Invest Nikarom SRL)	Targoviste	575
Do.		Ductil Steel S.A. (Invest Nikarom SRL)	Otelu Rosu in southwestern Romania	300
Do.		Mechel Campia Turzii S.A. (Invest Nikarom SRL)	Campia Turzii, northwestern Romania	385
Do.		Silcotub S.A. (Tenaris S.A., 100%)	Calarasi in southeastern Romania	470
Sulfur, sulfuric acid		OMV Petrom S.A. [OMV Aktiengesellschaft, 51%; Ministry of Energy 20.6%; Fondul Proprietatea S.A. (Government), 10%; free float, 18.4%]	Petrobrazi refinery, just south of Ploiesti	NA
Uranium, ore, U content	metric tons	Compania Nationala a Uraniului (Ministry of Energy, 100%)	Suceava County	110 ^{e,5}
Zinc		Sometra S.A. (Mytilineos, 92.79%)	Lead-zinc smelting plant, Copsa Mica	50 ⁶

^eEstimated. Do. do. Ditto. NA Not available.

¹Closed since 2013.

²On care-and-maintenance status since yearend 2013.

³Production stopped since September 2012.

⁴Production suspended since January 2009.

⁵Production suspended since 2017.

⁶Production suspended since January 2009. Production expected to resume in 2020.