

# 2017–2018 Minerals Yearbook

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## ROMANIA

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# THE MINERAL INDUSTRY OF ROMANIA

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**Note:** In this chapter, information for 2017 is followed by information for 2018.

Romania had identified mineral resources of ferrous and nonferrous metals, industrial minerals, and mineral fuels, including coal, natural gas, and crude petroleum. In 2017, Romania produced alumina, aluminum, cement, coal, copper, iron and steel, refined lead, natural gas, nitrogen, petroleum, and salt. Although Romania was not a significant mineral producer on a global scale, it was one of the leading vertically integrated aluminum producers in Europe that use imported bauxite (table 1; Alro S.A., 2019).

## Minerals in the National Economy

In 2017, Romania's real gross domestic product (GDP) increased by 6.9% from that of 2016, and the nominal GDP in 2017 was \$212 billion. The GDP in current prices for the industrial sector was \$53.2 billion, which was an increase of 13% compared with that of 2016. The GDP for the construction sector was \$12.9 billion, which was an increase of 8.3% compared with that of 2016. Based on industrial production indexes, coal mining increased by 11.8%, and extraction of crude petroleum and natural gas increased by 5.3%; however, mining of metallic minerals decreased by 14.1%. The mining and quarrying sector employed 51,447 people, which was a decrease of 4.8% compared with that of 2016, and the industrial sector—including mining and quarrying—employed 1.4 million people, which was an increase of 3.6% compared with that of 2016 (National Institute of Statistics, 2018, p. 57, 68; 2019, p. 24; International Monetary Fund, 2019).

In 2017, total exports from Romania were valued at \$70.6 billion compared with \$63.6 billion in 2016, which was an increase of 11%. Exports of mineral products, including mainly oil and other mineral fuels and articles of iron and steel, accounted for 3.9% of total exports and were valued at \$2.96 billion,<sup>1</sup> which was an increase of 14% compared with that of 2016. In 2017, the majority of exports from Romania went to other countries in Europe (86% of total exports), followed by countries in Asia (6.6%) and Africa (3.4%). Romania's main export trading partners were Germany (which received 23% of Romania's total exports), Italy (11%), France (7%), Hungary (5%), and the United Kingdom (4%) (National Institute of Statistics, 2018, p. 74, 75, 77).

In 2017, total imports into Romania were valued at \$85.3 billion, which was an increase of 14% compared with that of 2016. Imports of mineral products, including mainly oil and other mineral fuels and articles of iron and steel, accounted for 7.1% of the total imports and were valued at \$6.45 billion,

which was an increase of 30% compared with that of 2016. In 2017, the majority of imports into Romania were from other countries in Europe (87% of total imports received), followed by countries in Asia (10%) and the Americas (including North America, Central America and the Caribbean, and South America) (2.4%). Romania's main import trading partners were Germany (which supplied 20% of Romania's total imports), Italy (10%), Hungary (7.5%), Poland (5.4%), and France (5.3%) (National Institute of Statistics, 2018, p. 74, 75, 78).

## Production

In 2017, the production of manganese (ore, Mn content) increased by 200%; primary and secondary zinc, by 167%; feldspar, by 67%; secondary lead, by 38%; nitrogen (N content of ammonia), by 18%; copper (Cu content of concentrates), by 16%; salt (other), by 15%; and bentonite, lignite coal, and steel pipes and tubes, by 12% each. The production of unspecified construction sand and gravel decreased by 19%. The production of sulfuric acid increased approximately 100-fold as reported; the reason for the significant variation from 2014 to 2017 was unknown. Data on mineral production are in table 1.

## Structure of the Mineral Industry

In 2017, the Government owned and operated coal, copper, natural gas, petroleum, and uranium production plants throughout Romania. The Government held full or partial ownership in coal, natural gas, and petroleum operations through the Ministry of Economy, Trade, Industry and Business Environment and the Ministry of Energy. Table 2 is a list of major mineral industry facilities.

## Commodity Review

### Metals

**Copper and Zinc.**—In March 2017, Vast Resources plc of the United Kingdom completed the acquisition of the remaining 49.9% of Sinarom Mining Group SRL, which owned the Manaila polymetallic mine in Suceava County in northern Romania. Production at the mine commenced in August 2015 with an expected mine life of more than 11 years based on measured and indicated mineral resources at full production capacity of 360,000 metric tons per year (t/yr) of ore. Zinc production commenced with the installation of a new flotation line during the fiscal year ending on March 31, 2017. The total Joint Ore Reserves Committee-compliant mineral resources (indicated and inferred) at the open pit mine totaled 4.6 million metric tons (Mt) at a grade of 0.97% Cu, 0.68% Zn, 0.32% Pb, 25.8 grams per metric ton (g/t) Ag, and 9.23 g/t Au. The resources at the underground mine totaled 1.1 Mt at a grade of 1.58% Cu,

<sup>1</sup>Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US\$) at an annual average exchange rate of EUR0.84584=US\$1.00 for 2018 and EUR0.83482=US\$1.00 for 2017.

0.88% Zn, 0.82% Pb, 14.6 g/t Ag, and 0.15 g/t Au. The Manaila Mine historically produced copper concentrates with 13% Cu content and gold concentrates with 3 g/t Au content. Excessive zinc content resulted in economic penalties for smelters and low prices per metric ton of concentrate. In 2017, copper (Cu content) production increased by 12% to 3,100 t (estimated) from that of 2016 (Bernovici, 2017; Vast Resources plc, 2017a, p. 2; 2017b, p. 1; 2018, p. 1; 2019b).

**Gold.**—In 2015, the Romanian National Agency for Mineral Resources issued a mining license to Euro Sun Mining Inc. for its Rovina Valley Gold and Copper Project. Rovina Valley, which is located in the Tethyan Belt of Hunedoara County in Transylvania, hosted the second-largest gold deposit in Europe (after the Kittila gold mine in Finland), with measured and indicated resources of 224,000 kilograms (kg) of gold and 635,000 t of copper. A bankable feasibility study was initiated in September 2017. The project plan included two open pit mines at the Colnic and Rovina deposits as well as an underground mine at the Ciresata deposit. According to measured and indicated mineral resource estimates made in 2012, the Colnic deposit contained 135.7 Mt of resources at an average grade of 0.51 g/t Au, the Rovina deposit contained 105.3 Mt of resources at an average grade of 0.3 g/t Au, and the Ciresata deposit contained 164.8 Mt of resources at an average grade of 0.75 g/t Au (Euro Sun Mining Inc., 2017, p. 3, 12, 17).

### Mineral Fuels

**Natural Gas.**—In August 2017, Prospex Oil and Gas Plc (Prospex) of the United Kingdom acquired a 50% interest in the Suceava concession through its acquisition of PXOG Massey Ltd. of the United Kingdom. The Suceava concession consists of a 980-square-kilometer license located in the Carpathian hydrocarbon basin of northeastern Romania. Prospex announced in November that drilling and testing had begun at the Bainen-1 well. The prospective resources at the Bainen-1 well were estimated to be approximately 42.5 million cubic meters of recoverable natural gas, and production was planned to begin in 2018 (Banila, 2017; Financial Times, The, 2017).

### MINERAL INDUSTRY HIGHLIGHTS IN 2018

In 2018, Romania's real GDP increased by 4.0% from that of 2017, and the nominal GDP in 2018 was \$239 billion. The GDP at current prices for the industrial sector increased by 9.1%, and for the construction sector, by 7.1%. The value of mineral product exports increased by 17.1% to \$3.42 billion, and the value of mineral product imports increased by 24.2% to \$7.92 billion. In 2018, imports of bauxite associated with alumina production increased to 1.8 Mt compared with 986,348 t in 2016 and 1.3 Mt in 2017. The leading source of imports was Sierra Leone, followed by China. Based on industrial production indexes, coal mining decreased by 8.1%, extraction of crude petroleum and natural gas increased by 1.4%, and mining of metallic minerals increased by 0.5% (AlCircle Newsletter, 2019; International Monetary Fund, 2019; National Institute of Statistics, 2019, p. 57, 68).

In 2018, production of feldspar increased by 207%; bentonite, by 24%; and alumina, by 21%. Production of sulfuric acid

decreased by 61%; sand and gravel for construction, by 48%; manganese (Mn content), by 33%; manganese (gross weight), by 29%; copper (concentrate, Cu content), by 21%; and secondary refined lead, by 17% (table 1).

Cupru Min S.A. Abrud (CupruMin), which operated under the authority of the Ministry of Economy, Trade, Industry and Business Environment, held the extraction rights for approximately 60% of Romania's copper reserves. In 2018, CupruMin had 572 employees and produced 39,017 t of copper concentrate, most of which was exported to China (Cupru Min S.A. Abrud, 2019).

On October 10, Agenția Națională pentru Resurse Minerale [National Agency for Mineral Resources] granted an association license for the Baita Plai polymetallic mine to African Consolidated Resources srl (AFCR)—a subsidiary of Vast Resources, which owned an 80% interest in AFCR. The 1.8-Mt copper-silver-zinc-lead-gold-tungsten-molybdenum ore body has a 6% copper equivalent. The mine had been on care-and-maintenance status since 2013. AFCR and Baita SA (the holder of the head license) signed a contract on October 16 giving AFCR the right to mine at the Baita Plai skarn deposit in the Apuseni Mountains. Romania's largest gold-silver and uranium mines, including the Rosia Montana copper-gold mine and the Rosia Poieni copper mine, are located nearby (Vast Resources plc, 2019a).

In November, the Prime Minister of Romania approved the mining license for the Rovina Valley gold-copper project granted to Samax Romania SRL (100% owned by Euro Sun Mining Inc.). Three porphyry deposits contained measured and indicated mineral resources of 314,000 kg of Au equivalent (Euro Sun Mining Inc., 2019).

### Outlook

Romania's real GDP growth is forecasted to be 3.3% in 2019 and 3.1% in 2020. Both internal and external uncertainties could suppress economic growth, including uncertainties of global demand and the EU economy, increasing labor and energy costs, and the unpredictability of public policies and high inflation. A secure energy supply plan or further exploration and investment into polymetallic and gold deposits would be required for the sustainable economic growth of Romania's mineral industry (European Commission, 2019, p. 132–133; National Institute of Statistics, 2019, p. 75).

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TABLE 1  
ROMANIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

| Commodity <sup>2</sup>                     |                            | 2014                | 2015                | 2016                | 2017    | 2018            |
|--|----------------------------|---------------------|---------------------|---------------------|---------|-----------------|
| METALS                                     |                            |                     |                     |                     |         |                 |
| Aluminum:                                  |                            |                     |                     |                     |         |                 |
| Alumina, calcined                          |                            | 362,627             | 404,825             | 467,031             | 472,606 | 571,772         |
| Metal:                                     |                            |                     |                     |                     |         |                 |
| Primary                                    |                            | 263,098             | 271,356             | 272,507             | 282,074 | 282,810         |
| Secondary                                  |                            | 8,200               | 9,300 <sup>r</sup>  | 10,000 <sup>r</sup> | 10,000  | 9,200           |
| Copper, mine, concentrate, Cu content      |                            | 8,200               | 8,800               | 9,500               | 11,000  | 8,700           |
| Iron and steel:                            |                            |                     |                     |                     |         |                 |
| Pig iron                                   | thousand metric tons       | 1,631               | 1,983               | 1,972               | 1,900   | 2,000           |
| Steel:                                     |                            |                     |                     |                     |         |                 |
| Raw steel                                  | do.                        | 3,193               | 3,423               | 3,370 <sup>r</sup>  | 3,443   | 3,624           |
| Products:                                  |                            |                     |                     |                     |         |                 |
| Pipes and tubes                            | do.                        | 789                 | 689                 | 627                 | 700     | 730             |
| Rolled                                     | do.                        | 3,171               | 3,321               | 3,319 <sup>r</sup>  | 3,572   | 3,564           |
| Lead, refinery:                            |                            |                     |                     |                     |         |                 |
| Primary                                    |                            | 1,300               | 1,300               | 290 <sup>r</sup>    | --      | --              |
| Secondary                                  |                            | 12,000 <sup>e</sup> | 12,000 <sup>e</sup> | 13,000 <sup>r</sup> | 18,000  | 15,000          |
| Manganese, mine, ore:                      |                            |                     |                     |                     |         |                 |
| Gross weight                               | thousand metric tons       | 17 <sup>r</sup>     | 39 <sup>r</sup>     | 5 <sup>r</sup>      | 14      | 10              |
| Mn content                                 | do.                        | 4 <sup>r</sup>      | 9 <sup>r</sup>      | 1 <sup>r</sup>      | 3       | 2 <sup>e</sup>  |
| Zinc, smelter, primary and secondary       |                            | 90                  | 200                 | 300                 | 800     | --              |
| INDUSTRIAL MINERALS                        |                            |                     |                     |                     |         |                 |
| Cement, hydraulic                          | thousand metric tons       | 7,621               | 8,356               | 8,038               | 8,442   | 8,951           |
| Clay:                                      |                            |                     |                     |                     |         |                 |
| Bentonite                                  |                            | 19,171              | 15,612              | 24,996              | 28,005  | 34,809          |
| Kaolin                                     |                            | 30,638              | 30,000              | 30,000 <sup>e</sup> | --      | --              |
| Feldspar <sup>e</sup>                      |                            | 9,200               | 8,200               | 4,500               | 7,500   | 23,000          |
| Gypsum, mine                               | thousand metric tons       | 807                 | 840                 | 714                 | 765     | 750             |
| Lime                                       | do.                        | 1,723               | 1,907               | 1,951               | 2,126   | 2,213           |
| Nitrogen, ammonia, N content               | do.                        | 980 <sup>r</sup>    | 500 <sup>r</sup>    | 440 <sup>r</sup>    | 520     | -- <sup>e</sup> |
| Salt:                                      |                            |                     |                     |                     |         |                 |
| Rock salt                                  | do.                        | 47                  | 50                  | 52                  | 52      | 49              |
| Other                                      | do.                        | 2,000               | 2,100               | 2,000               | 2,300   | 2,300           |
| Sand and gravel, construction, unspecified | do.                        | 6,422               | 7,492               | 38,270 <sup>r</sup> | 30,820  | 16,030          |
| Sodium, compounds:                         |                            |                     |                     |                     |         |                 |
| Caustic soda                               | do.                        | 202                 | 209                 | 215                 | 234     | 233             |
| Soda ash, synthetic                        | do.                        | 420                 | 505                 | 516                 | 540     | 536             |
| Sulfur, compounds, sulfuric acid           |                            | 270                 | 20                  | 3 <sup>r</sup>      | 310     | 120             |
| MINERAL FUELS AND RELATED MATERIALS        |                            |                     |                     |                     |         |                 |
| Coal, lignite                              | thousand metric tons       | 23,485              | 25,483              | 22,980 <sup>r</sup> | 25,752  | 23,639          |
| Natural gas:                               |                            |                     |                     |                     |         |                 |
| Associated                                 | million cubic meters       | 1,196               | 1,228               | 1,226 <sup>r</sup>  | 1,248   | 1,194           |
| Nonassociated                              | do.                        | 9,858               | 9,862               | 8,584 <sup>r</sup>  | 9,334   | 9,064           |
| Petroleum:                                 |                            |                     |                     |                     |         |                 |
| Crude                                      | thousand 42-gallon barrels | 29,700              | 29,300              | 27,700              | 26,900  | 26,400          |
| Refinery, products                         | do.                        | 76,400              | 81,800              | 90,600              | 89,600  | 92,500          |
| Uranium, mine, ore, U content              |                            | 77                  | 77                  | 50 <sup>r</sup>     | --      | --              |

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through July 16, 2019. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

<sup>2</sup>In addition to the commodities listed, antimony, asbestos, bismuth, pyrite, 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 2018

(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   | 32                 |
| Do.                       | Neferal S.A. (member of Metanef Group)   | Bucharest  | 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              |
| Clay, bentonite           | Bentonita S.A.   | Mines located at Valea Chioarului, Maramures County and Orasu Nou, Satu Mare County  | NA                 |
| Coal:                     |  |  |                    |
| Anthracite and bituminous | Complexul Energetic Hunedoara S.A. (Government)  | 7 mines located near-Petrosani   | 3,500 <sup>e</sup> |
| 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 <sup>e</sup> |
| Do.                       | do.  | Rosia, Pesteana Nord, and Pesteana Sud-Udari opencast mines at Balteni   | 6,900 <sup>e</sup> |
| Do.                       | do.  | Udari underground mine at Udari  | 300 <sup>e</sup>   |
| Do.                       | do.  | Jilt Sud and Jilt Nord opencast mines at Matasari  | 7,000 <sup>e</sup> |
| Do.                       | do.  | Dragotesti underground mine at Matasari  | 600 <sup>e</sup>   |
| Do.                       | do.  | Lupoaia and Rosiuta opencast mines at Motru  | 5,000 <sup>e</sup> |
| Do.                       | do.  | Plostina, Horasti, and Lupoaia underground mines at Motru  | 1,600 <sup>e</sup> |
| Do.                       | do.  | Seciuri, Oltet, Berbesti-Vest, and Panga opencast mines near Berbesti  | 2,000 <sup>e</sup> |
| Do.                       | do.  | Albeni underground mine at Bolbocesti  | 555 <sup>e</sup>   |
| Do.                       | do.  | Husnicioara-Vest opencast mine near Drobeta Turnu Severin  | 2,500 <sup>e</sup> |
| Do.                       | do.  | Zegujani underground mine about 18 kilometers northeast of Drobeta Turnu Severin   | 600 <sup>e</sup>   |
| Do.                       | Societatea Nationala a Carbunelui Ploiesti (Ministry of Energy, 100%)  | 8 mines located near Campulung, Baraolt City, Sarmasag, Popesti Commune, Comanesti Commune, Filipestii de Padure Commune, Sotanga Commune, and Borsec City | 2,000              |
| Copper, ore               | Cupru Min S.A. (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                |
| Feldspar                  | NA   | Teregova Mine, Caras-Severin County  | NA                 |
| 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 of Slovakia, 100%)   | Vatra Dornei Mine, Suceava County  | 25                 |
| Natural gas               | million cubic meters 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 <sup>e</sup> |
| 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 <sup>e</sup> |
| Nitrogen, ammonia         | Amperopa Romania (Amperopa of Swiss, 100%)   | Azomures plant at Targu Mures  | NA                 |

See footnotes at end of table.

TABLE 2—Continued  
ROMANIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

| Commodity               |                            | Major operating companies and major equity owners  | Location of main facilities   | Annual capacity  |
|-------------------------|----------------------------|--|---|------------------|
| <b>Petroleum:</b>       |                            |  |   |                  |
| 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%] | Petrobrazii refinery, just south of Ploiesti  | 35,730           |
| Do.                     | do.                        | Petrotel-Lukoil S.A. (OAO Lukoil)  | Refinery just east of Ploiesti  | 21,438           |
| Do.                     | do.                        | Rompetrol Rafinare S.A. (KMG International NV, 54.63%, and Ministry of Energy, 44.69%)   | Petromidia refinery at Navodari (Constanza)   | 39,700           |
| Do.                     | do.                        | do.  | Vega refinery near Ploiesti   | 3,970            |
| <b>Steel:</b>           |                            |  |   |                  |
| Raw steel               |                            | TMK-Resita S.A. (OAO TMK, 100%)  | Resita in southwestern Romania  | 450              |
| Products                |                            | ArcelorMittal Galati S.A. (ArcelorMittal, 99.7%)   | Galati, north of Brail  | 6,000            |
| Do.                     |                            | ArcelorMittal Hunedoara (ArcelorMittal, 96.4%)   | Hunedoara, west-central Romania, near Calan   | 800              |
| Do.                     |                            | Cos Targoviste (Invest Nikarom SRL)  | Targoviste  | 575              |
| Do.                     |                            | Ductil Steel S.A. (Invest Nikarom SRL )  | Otelu Rosu, 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   | Petrobrazii refinery  | NA               |
| Uranium, ore, U content | metric tons                | Compania Nationala a Uraniului (Ministry of Energy, 100%)  | Suceava County  | 110 <sup>e</sup> |

<sup>e</sup>Estimated, Do. do. Ditto. NA Not available.