General data

Deposit name(s): Ajducko Brdo
Identifier: YUG-00088

Commodities:
- Au: 0 t, Class: N/A
- PbZn: 0 t, Class: N/A
- Sb: 0 t, Class: N/A

Status: Deposit or prospect of unknown status

Company: Moravicki
Longitude: 20.337, Latitude: 43.539

Geology

Ore deposit type (gitology)
- Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
- Concordant to subconcordant stockwork (veinlets network) envelope

Mineralization

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stibnite</td>
<td>Quartz</td>
<td>Silicification</td>
</tr>
<tr>
<td>Marcasite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sphalerite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molybdenite</td>
<td></td>
<td></td>
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<tr>
<td>Goethite</td>
<td></td>
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<tr>
<td>Berthierite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td></td>
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</tr>
<tr>
<td>Galena</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senarmontite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Host rocks

<table>
<thead>
<tr>
<th>Host rock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senonian flysch</td>
<td>Conglomerate</td>
</tr>
<tr>
<td>Quartzlatite intrusion</td>
<td>Marl</td>
</tr>
</tbody>
</table>

Economy

Exploitation type
- Unworked

Au Gold (metal)
- Ore type: Ore of indeterminate nature
  - Past production: - t
  - Reserve: - t
  - Resource: - t
  - Average grade: -

Sb Antimony (metal)
- Ore type: Ore in which the element forms a distinct mineral phase
  - Past production: - t
  - Reserve: - t
  - Resource: - t
  - Average grade: -
Mineral deposits of Serbia - Ore deposits database

PbZn  Lead + Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment
Acid generation potential with respect to sulfides minerals.

Comments
Coordinates of the "Carte Métallogénique de l'Europe " 22.3333 - 42.55 ??

Geological references

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe  26-125
General data

Deposit name(s): Ajvalija
Identifier: YUG-00178

Commodities:
Pb 215 000 t Class B Status: Dormant deposit
Zn 358 000 t Class B
Ag 242 t Class D
Au 0 t Class N/A

Company: TREPCA Mining and Metallurgical Complex

Longitude: 21.201 Latitude: 42.622 District: Kosovo

Geology

Ore deposit type (gitology)
Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)

Ore deposit shape
Discordant mass or lens of massive to submassive ore
Discordant envelope of disseminated ore

Mineralization Age: Tertiary

Ore mineralogy
Sphalerite
Galena
Pyrite
Marcasite
Magnetite
Pyrhotite
Chalcopyrite
Arsenopyrite
Grey copper
Gold
Cubanite
Stannite
Bournonite

Host rock mineralogy
Quartz
Siderite
Rhodochrosite (Dialoqite)
Barite
Calcite

Host rocks Age:

Host rock lithology
Limestone
Quartz-sericite schist

Economy

Exploitation type
Underground mining

Ag Silver (metal)
Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem
Past production: 171 t Average grade: 65 g/t
Reserve: 71 t Average grade: 70 g/t
Resource: - Average grade: - g/t

Pb Lead (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: 130000 t Average grade: 5 %
Reserve: 85000 t Average grade: 8.4 %
Resource: - t Average grade: - %
**Environment**

High acid generation potential due to the sulfides and sulfosalts minerals contained in the ore. The Acid Rock Drainage may partly be reduced by acid-consuming minerals contained in the gangue mineralogy. As may be released into the environment with some expected concentrations in the stream sediments. The existence of an ore processing plant at Gracanica has generated large tailings disposals (15-18Mt) that can be a source of groundwater and surface water contamination.

**Comments**

The ore lenses contain 6-7% Zn, 4-5% Pb and 70-100 g/t Ag.

Massive ore bodies are estimated 7-8% Pb, 15% Zn, 100 g/t Ag, 0.8 g/t Au, 1-2% As and 0.2 % Cu (Schumacher F.- 1954)

ITT/UNMIK Mission (12/2000) : Past production (1952-1998) : 2,622,000 t @ 5.0% Pb, 7.3% Zn and 65 g/t Ag. Resources : 1,017,000 t @ 8.4% Pb, 16.4% Zn and 70 g/t Ag. The mine is flooded up to Level 8A (320 m).

**Geological references**


Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

**Economic references**

**Other references**
Aleksinac

General data

Deposit name(s): Aleksinac
Identifier: YUG-00138

Company: Rudarsko Industrijski Kombinat Aleksinacki Rudnik
District: Nisavski
Longitude: 21.683
Latitude: 43.577

Geology

Ore deposit type (gitology)
Coal deposits
Oil shales, bituminous sandstones and limestones: oil, (S)

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Miocene

Host rocks
Age: Miocene

Hostrock formation names
Aleksinac Tertiary Basin

Host rock lithology
Carbon-bearing rock s.l.
Medium- to fine-grained detrital sediment
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

Economy

Exploitation type
Room and pillar mining, room and pillar working (flat, inclined, step)

Coal
Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Bitum
Bituminous rocks (tons of oil)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: 2391000000 t

Average grade: - %
Average grade: - %
Average grade: 10 %

Environment

Potential acid rock drainage with respect of the sulfides content.
Suspended matter in mine water discharge.
Landform instability (collapses) created during and after mining operations.

Comments

Resources of oil shale: 2.391 Mt @ 10% oil, 332 Mt @ 14.5% oil up to 300 m of depth.

In 1981, the brown coal was mined by underground methods with an annual output of about 200,000 t/y.

The coal mined in the main seam contains up to 20% of moisture, about 10% of ash, 3% of sulphur. Its heating value is 16,000 kJ/kg.

Geological references

Economic references


Other references
General data

Deposit name(s): Alin Do
Identifier: YUG-00072

Company: Zajecarski
Longitude: 22.472
Latitude: 43.524
District: Zajecarski

Commodities:
- Ag: 0 t, Class: N/A, Status: Deposit or prospect of unknown status
- Au: 0 t, Class: N/A
- Bi: 0 t, Class: N/A
- Cu: 0 t, Class: N/A

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to basic-ultrabasic magmatic rocks
Alluvial-eluvial placers: Au, Pt, Sn, Ti, REE, diamond, gemstones, (Zr, etc.)

Ore deposit shape
Discordant lode or vein (thickness > 50 cm), in clusters or isolated

Mineralization

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wolframite</td>
<td>Siderite</td>
</tr>
<tr>
<td>Scheelite</td>
<td>Quartz</td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td>Calcite</td>
</tr>
<tr>
<td>Pyrrhotite</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td></td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td></td>
</tr>
<tr>
<td>Bismuthinite</td>
<td></td>
</tr>
<tr>
<td>Sphalerite</td>
<td></td>
</tr>
<tr>
<td>Galena</td>
<td></td>
</tr>
<tr>
<td>Stibnite</td>
<td></td>
</tr>
</tbody>
</table>

Host rocks

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrothermally altered gabbro</td>
<td>Gabbro</td>
</tr>
</tbody>
</table>

Economy

Exploitation type
Mining method unknown

Bi Bismuth (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>- t</td>
<td>- t</td>
</tr>
</tbody>
</table>

Average grade:
- t

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>- t</td>
<td>- t</td>
</tr>
</tbody>
</table>

Average grade:
- t
The massive ore contains 4% Bi, 4% Cu, 120 g/t Ag and 24 g/t Au, as well as 3.7% Pb, 2.8% Zn and 1.2% Sb (Jankovic - 1982).

Work on alluvials in the Knjazhevac region suggests a grade of at least 0.025 g/m3 Au.

**Environment**

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu...) that can affect drainage water, soils and stream sediments.

The potential acid mine drainage generated is partly buffered by the calcite of the guangue mineralogy which is an acid-consuming mineral.

Presence of As which is highly mobile in low and high pH environments and which can be accumulated in stream sediments nearby the ore deposit.

Existence of CN or Hg associated with the gold mineral processing?

**Comments**

The massive ore contains 4% Bi, 4% Cu, 120 g/t Ag and 24 g/t Au, as well as 3.7% Pb, 2.8% Zn and 1.2% Sb (Jankovic - 1982).

Work on alluvials in the Knjazhevac region suggests a grade of at least 0.025 g/m3 Au.

**Geological references**


**Economic references**

**Other references**

**Other data bases**

Carte Métallogénique de l’Europe 26-082
Avala

General data

Deposit name(s): Avala Crveni Breg
Identifier: YUG-00048
Commodities: Pb 9 000 t Class D Status: Old industrial mine, abandoned deposit
Zn 5 000 t Class D
Ag 22 t Class E
Cu 300 t Class E
Company: 
Longitude: 20.516 Latitude: 44.659 District: Beograd

Geology

Ore deposit type (gitology)
Low-sulphidation epi- to mesothermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)

Mineralization Age: Miocene

Ore mineralogy
<table>
<thead>
<tr>
<th>Galena</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sphalerite</td>
<td>Quartz</td>
<td>Silicification</td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td>Axinite</td>
<td>Skarn formation</td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td>Epidote</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Host rocks Age: Cretaceous

Hostrock formation names
| Lower Cretaceous sediments | Limestone |
| Andesite Intrusions of Miocene | Sandstone |
| | Andesite |
| | Rhyodacite |

Economy

Exploitation type
Underground mining

Cu Copper (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: 300 t Average grade: 0.3 %
Reserve: - t Average grade: - %
Resource: - t Average grade: - %

Ag Silver (metal)
Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem
Past production: 22 t Average grade: 220 g/t
Reserve: - t Average grade: - g/t
Resource: - t Average grade: - g/t

Pb Lead (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: 9000 t Average grade: 9 %
Reserve: - t Average grade: - %
Resource: - t Average grade: - %
Mineral deposits of Serbia - Ore deposits database

Zn  Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>5000 t</th>
<th>Average grade:</th>
<th>5 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>- t</td>
<td>Average grade:</td>
<td>- %</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
<td>Average grade:</td>
<td>- %</td>
</tr>
</tbody>
</table>

Environment
The oxidation of the primary ore mineralogy mainly composed of sulfides leads to the production of Acid Mine Drainage and highly soluble metal-sulfate-salt minerals that releases contaminants potentially affecting surface water, groundwater, soils and stream sediments.

The gangue mineralogy comprising some calcium carbonates may partly buffer the acid mine drainage production and thus control the mobility of metals.

Comments
Prior 1940, a German company mined about 100,000 t of ore with 9% Pb, 5% Zn, 2% As, 0.3% Cu and 220 g/t Ag (Schumacher - 1954)

Geological references
Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

Economic references

Other references
Other databases
Carte Métallogénique de l'Europe 26-048
General data

Deposit name(s): Ba
Commodities: Ni
Class: C
Company: 
Longitude: 20.204
Latitude: 44.163
District: Kolubarski

Geology

Ore deposit type (geology)
- Residually enriched ore deposits: Fe, Mn, Ni-Co, Au, Pt, P, U, corundum, etc.
- Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.

Ore deposit shape
- Secondary cavity- or fracture-filling orebody
- Stratabound envelope of disseminated ore

Mineralization Age:
Ore mineralogy Host rock mineralogy
Garnierite Calcite
Goethite Clay
Pyrite Silica
Nontronite

Host rocks Age:
Host rock lithology
- Limestone
- Serpentinite
- Peridotite

Economy

Exploitation type
Mining method unknown
Ni Nickel (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: - %
Resource: 38750 t Average grade: 1.55 %

Environment
Acid generation potential due to the presence of pyrite.
Possible contamination of drainage waters by high content of suspended matter (clay minerals), and by dissolved metals such as Ni, and Fe.

Comments
Sumadija Ore District (Boev and Jankovic - 1996) : 2 orebodies : Rujevack (0.5 Mt @ 1.75% Ni) and Rujevacki Potok (2 Mt @ 1.5% Ni)

Geological references

Economic references
Other references
Badovac

**General data**

**Deposit name(s):** Badovac

**Commodities:**
- Pb: 192 000 t
- Zn: 134 000 t
- Ag: 267 t

**Company:** TREPCA Mining and Metallurgical Complex

**Longitude:** 21.230  **Latitude:** 42.597

**District:** Kosovo

**Identifier:** YUG-00188

**Status:** Dormant deposit

**Commodities:**
- Lead (metal)
- Zinc (metal)
- Silver (metal)

**Exploitation type:**
- Underground mining

**Economy**

**Pb Lead (metal)**

**Ore type:** Ore in which the element forms a distinct mineral phase

- **Past production:** 49000 t
- **Average grade:** 3.4 %
- **Resource:** 143000 t
- **Average grade:** 5.4 %

**Zn Zinc (metal)**

**Ore type:** Ore in which the element forms a distinct mineral phase

- **Past production:** 38000 t
- **Average grade:** 2.6 %
- **Resource:** 96000 t
- **Average grade:** 3.6 %

**Ag Silver (metal)**

**Ore type:** Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

- **Past production:** 70 t
- **Average grade:** 47 g/t
- **Resource:** 197 t
- **Average grade:** 75 g/t

**Environment**

High acid generation potential due to the sulfides contained in the ore.

This Acid Rock Drainage may be reduced by the acid-consuming minerals of the host rocks (listwaenites e.g.).
Expected dissolved contents of Zn and Pb in drainage waters with some concentrations in stream sediments.

The existence of an ore processing plant at Gracanica has generated large tailings disposals (15-18Mt) that can be a source of groundwater and surface water contamination.

**Comments**

ITT/UNMIK Mission (12/2000) : Past production (1961-1998) : 1,468,000 t @ 3.4% Pb, 2.6% Zn and 47 g/t Ag.

Potential resources : 2,633,000 t @ 5.4% Pb, 3.6% Zn and 75 g/t Ag (categories B+C1)

**Geological references**


**Economic references**

**Other references**
Bancarevo

General data

Deposit name(s): Bancarevo, Donja Studena
Identifier: YUG-00079
Commodities: Cu 0 t  Class: N/A  Status: Deposit or prospect of unknown status
Company:
Longitude: 22.102  Latitude: 43.246  District: Pirotski

Geology

Ore deposit type (gitology)
Red Bed (sandstone) hosted base metal deposits: Cu, Pb-Zn-Ag, F-Ba
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Stratiform envelope of disseminated ore

Mineralization  Age:

Ore mineralogy
Chalcocite
Chalcopyrite
Azurite
Malachite
Bornite
Enargite

Host rocks  Age: Permain

Host rock lithology
Sandstone

Economy

Exploitation type
Unworked

Cu  Copper (metal)
Ore type: Ore of indeterminate nature

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment

Presence of sulfide minerals assemblage that can generate Acid Mine Drainage production.

Comments

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-098
**General data**

Deposit name(s): Bare Vrbica

Commodities: Kin 23 000 000 t  Class: B  Status: Deposit of unknown status

Company: 

Longitude: 20.500  Latitude: 44.325  District: Sumadijski

**Geology**

**Ore deposit type (gitology)**
Supergene industrial rock and mineral deposits: clays, kaolin, silica sand, etc.

**Ore deposit shape**
Tabular-shaped orebody of secondary origin

Mineralization Age: Paleogene (Lower/Early Tertiary)

**Ore mineralogy**
Kaolinite  
Halloysite  
Illite  
Vermiculite

**Host rock mineralogy**
Quartz  
Feldspar

**Host rock lithology**
Granite (s.l.)

**Host rock formation names**
Bukulja granite

**Host rock age**
Lower/Early Jurassic (Lias)

**Exploitation type**
Surface mining

**Kln Kaolin (substance)**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  **Average grade:** - %

**Reserve:** - t  **Average grade:** - %

**Resource:** 23 000 000 t  **Average grade:** 23 %

**Environment**
Potential contamination of drainage water by suspended matter and clay minerals.
Geomorphic modifications in the landscape.

**Comments**

**Geological references**

Simic V. and Jovic V. - (1997) - Genetic types of kaolin and kaolinite clay deposits in Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif", Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 197-201


**Economic references**

**Other references**
### General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Barosevac</th>
<th>Identifier:</th>
<th>YUG-00152</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities:</td>
<td>Dtm</td>
<td>Class: N/A</td>
<td>Status: Unexploited deposit</td>
</tr>
<tr>
<td>Company:</td>
<td>Rudnici lignita BASEN KOLUBARA - EPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitude:</td>
<td>20.377</td>
<td>Latitude: 44.405</td>
<td></td>
</tr>
<tr>
<td>District:</td>
<td>City of Beograd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Geology

**Ore deposit type (gitology)**
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

**Ore deposit shape**
Stratiform bed: single or multi-layered (syn-depositional with host rock)

**Mineralization**
- Age: Pontian

**Ore mineralogy**
- Silica

**Host rocks**
- Age: Pontian

**Hostrock formation names**
- Kolubara Coal Basin

**Host rock lithology**
- Medium- to fine-grained detrital sediment
- Diatomite

### Economy

**Exploitation type**
- Unworked

**Dtm**
- Diatomite (kieselguhr) (substance)

**Ore type:** Ore in which the element forms a distinct mineral phase

| Past production: | - t | Average grade: - |
| Reserve:         | - t | Average grade: - |
| Resource:        | - t | Average grade: - |

### Environment

No specific environmental signature.

### Comments

Kolubara Coal Basin, diatomite never recovered.

### Geological references


### Economic references
Bela Stena

General data

Deposit name(s): Bela Stena
Identifier: YUG-00073
Commodities: Mg 4 000 000 t
Class: C
Status: Old industrial mine, exhausted deposit
Company: Magnohrom - Fabrika Magnezijuma Bela Stena
Longitude: 20.624
Latitude: 43.374
District: Raski

Geology

Ore deposit type (gitology)
Lacustrine deposits (sebkha, salar, alkaline lake): Li, B, (Na, Mg, Ca, nitrates, sulphates, etc.)

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Miocene

Ore mineralogy
Magnesite (Giobertite)

Host rock mineralogy
Dolomite
Clay

Host rocks
Age: Miocene

Hostrock formation names
Jarando Miocene basin

Hostrock lithology
Varved lacustrine sediment
Carbonaceous rock: clay, sandstone, etc.

Economy

Exploitation type
Surface mining

Mg  Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: 4000000 t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment

Erosion of earthen materials exposed at the site may cause significant loadings of sediments to nearby waterbodies and the source of degradation of surface water quality.

Comments
Production of more than 4 Mt of high-grade magnesite. The ore lens was up to 95 m thick and 250 m long. The ore contain 44% MgO, 1.5% SiO2, 2.6% CaO and is enriched in boron.

Geological references
Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-087
Mineral deposits of Serbia - Ore deposits database

Belacevac

General data

Deposit name(s): **Belacevac**

Commodities: **Coal** 000 000 000 t

Company: Elektroprivreda Kosova

Longitude: 21.034

Latitude: 42.631

District: Kosovo

Identifier: **YUG-00035**

Status: Producing industrial mine

Geology

Ore deposit type (geology)
Lignite deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Pliocene

Host rocks
Age: Pliocene

Host rock formation names
Kosovo Coal Basin

Host rock lithology
Medium- to fine-grained detrital sediment
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

Economy

Exploitation type
Open cast (open pit) mining
Bucket wheel dredging

Coal Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 79500000 t

Reserve: - t

Resource: 5920500000 t

Average grade:

Environment

Acid rock drainage due to the presence of iron sulphur minerals.
Landforms instability created during mining operations and suspended matter in mine water discharge.
Trace metals content may exist (PGE, radionuclides ?).

Comments

In 1964, 2.2 Mt were mined. In 1970, Dobro Selo and Belacevac produced 3.9 Mt. In 1990, 6.2 Mt were mined from these 2 deposits of the North Kosovo Basin.

The Kosovo Basin (North and South) contains approximately 12 billion tons of Pliocene lignite. Kosovo coal is of the poorly consolidated lignite type. It has a 45% moisture content, of which 15% hydromoisture, an average of about 15% ash and 1% sulphur. Its heating value is about 8,000 kJ/kg.

Electric Power Industry of Serbia - Report 1998:
The Kosovo-Metohija coal basin covers an area of about 250 km². The average coal layer thickness is 41 m and may reach 100 m. It contains 12 billion tons of lignite, only 2.65% has been excavated.

Geological references


Economic references

Other references
Beli Kamen

General data

Deposit name(s): Beli Kamen
Identifier: YUG-00037
Company: Rudnik i Industrija Magnezita Strezovce - Kosovska
District: Kosovo
Longitude: 21.585  Latitude: 42.595

Geology

Ore deposit type (gitology)
Evaporite-related industrial rocks and minerals: attapulgite, gypsum, anhydrite, magnesite, sulphur
Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)
Mineralization Age: Miocene
Ore mineralogy
Magnesite (Giobertite)
Talc
Host rocks Age: Miocene

Host rock lithology
Marl
Dolomitic limestone

Economy

Exploitation type
Surface mining
Mg Magnesium, magnesite (MgCO3)
Ore type: Carbonates, phosphates, sulphates and insoluble primary halides (fluorite, barite, etc.)
Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Tlc Talc (substance)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment

Emission of particulate matters in the form of fugitive dust.

Comments
In 1982, current output was 300,000 t of raw run of mine magnesite.
Several lenses, contains 30,000 to 1Mt of magnesite
The ore contains 45% MgO, 0.5-2.0% SiO2 and 0.5-2.5% CaO (Jankovic - 1982)
Other name : Strezovce

Geological references


**Economic references**


**Other references**
Beljanica

General data

Deposit name(s): Beljanica
Commodities: Fe

Company: Pomoravski
Longitude: 21.783

Latitude: 44.050

Status: Deposit or prospect of unknown status

YUG-00062

Geology

Ore deposit type (gitology)
Fe and Mn sedimentary deposits: Fe, Mn
Unspecified volcano-sedimentary and sedimentary-exhalative deposits

Ore deposit shape
Stratabound bed (single or multi-layered)

Mineralization Age:

Ore mineralogy
Hematite
Magnetite
Siderite
Fe-Chlorite

Host rocks Age:

Economy

Exploitation type
Unworked

Fe Iron (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment

Particulate and colloidal iron and manganese compounds in discharge water.

Comments

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-062
Belo Brdo

General data

Deposit name(s): Belo Brdo
Identifier: YUG-00075
Company: TREPCA Mining and Metallurgical Complex
Longitude: 20.843
Latitude: 43.230
District: Kosovo

Commodities:
- Pb: 254 000 t
- Zn: 208 000 t
- Ag: 387 t
- Au: 0 t

Class:
- Pb: B
- Zn: B
- Ag: D
- Au: N/A

Status: Dormant deposit

Geology

Ore deposit type (gitology):
Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)

Ore deposit shape:
Breccia-pipe, funnel, chimney, column, brecciated dyke

Mineralization Age:
Neogene (Miocene to Pliocene)

Ore mineralogy:
- Galena
- Sphalerite
- Pyrite
- Arsenopyrite
- Chalcopyrite
- Pyrrhotite
- Grey copper
- Pyrargyrite
- Bismuth
- Gold

Host rock mineralogy:
- Garnet
- Epidote
- Hedenbergite
- Wollastonite
- Scapolite
- Actinolite

Hydrothermal alteration:
Skarn formation

Host rocks Age:
Cretaceous

Hostrock formation names:
Contact limestone - quartz-latite

Host rock lithology:
Limestone
Latite
Skarn

Economy

Exploitation type:
Underground mining

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: 292 t
Average grade: 76 g/t
Reserve: 95 t
Average grade: 75 g/t
Resource: - t
Average grade: - g/t

Au Gold (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -
Mineral deposits of Serbia - Ore deposits database

### Pb Lead (metal)

**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th><strong>Past production:</strong></th>
<th>203000 t</th>
<th><strong>Average grade:</strong></th>
<th>5.3 %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve:</strong></td>
<td>51000 t</td>
<td><strong>Average grade:</strong></td>
<td>4 %</td>
</tr>
<tr>
<td><strong>Resource:</strong></td>
<td>- t</td>
<td><strong>Average grade:</strong></td>
<td>- %</td>
</tr>
</tbody>
</table>

### Zn Zinc (metal)

**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th><strong>Past production:</strong></th>
<th>152000 t</th>
<th><strong>Average grade:</strong></th>
<th>3.9 %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve:</strong></td>
<td>56000 t</td>
<td><strong>Average grade:</strong></td>
<td>4.4 %</td>
</tr>
<tr>
<td><strong>Resource:</strong></td>
<td>- t</td>
<td><strong>Average grade:</strong></td>
<td>- %</td>
</tr>
</tbody>
</table>

### Environment

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu,...) that can affect drainage water, soils and stream sediments.

Presence of As which is highly mobile in low and high pH environments and which can be accumulated in stream sediments nearby the ore deposit.

The ore processing plant located in Lepocavic has generated large amounts of tailings (8 Mt).

### Comments

In 1981, the annual output was 100,000 t of ore containing 8 % PbZn. The mine started before the 2nd WW, so far, over 2.2 Mt of ore containing 12% PbZn have been mined.

Mining Magazine 04/1981: a new PbZn mine is expected to begin production in the Mt Kopaonik. It will also produce Au, Ag and Cd. Expected production is 5,625 t/y Zn, 2,269 t/y Pb, 3 t/y Ag, 82.5 kg/y Au and 31 t/y Cd: Belo Brdo ???

High grade PbZn ore contains up to 1 g/t Au, 10-50 g/t Ag, 6-12% Zn and 3-5% Pb. Skarn mineralization contains 2.7 g/t Au, 16 g/t Ag and 0.5% Pb. Pyrite concentrate contains up to 30 g/t Au.

Mission ITT/UNMIK (12/2000): Past production (1937-2000): 3,848,000 t @ 5.3% Pb, 3.9% Zn and 76 g/t Ag. Resources: 1,265,000 t @ 4.0% Pb, 4.4% Zn and 75 g/t Ag.

### Geological references


Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metalogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo-Macedonian metallogenic province - Geoloshki Anali Balkanskoga Poluostrva, 42, p. 507-525.

Jankovic T and Grujicic V. - (1976) - Morfoloske karakteristike rudnih tela u lezistu Belo Brdo, Kopaonik Translated Title: Morphological characteristics of ore bodies in the Belo Brdo Deposit, Kopaonik. - Jugoslovenski Geoloski Kongres, 8, (5), p. 87-96.


Schumacher F. - (1954) - The ore deposits of Yugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

### Economic references


### Other references

**Other data bases**

Carte Métallogénique de l'Europe 26-092
**General data**

**Deposit name(s):** Beocin  
**Identifier:** YUG-00222  
**Company:** Beocinska fabrika cementa a.d.  
**Longitude:** 19.725  
**Latitude:** 45.187  
**District:** Juzno-backi

**Geology**

**Ore deposit type** (gitology)  
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

**Ore deposit shape**  
Stratiform bed: single or multi-layered (syn-depositional with host rock)

**Mineralization**  
**Age:** Miocene

**Host rocks**  
**Age:** Miocene  
**Host rock lithology**  
Marl  
Limestone

**Economy**

**Exploitation type**  
Surface mining

**LstC**  
**Cement limestone (substance)**  
**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  
**Average grade:** -

**Reserve:** - t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

**Environment**

Dust production and fallout.  
Geomorphic modifications in the landscape (quarry).

**Comments**

Production 1990 : 1,206 kt

**Geological references**


**Economic references**

**Other references**
**General data**

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Blagodat</th>
<th>Identifier:</th>
<th>YUG-00094</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commodities:</strong></td>
<td></td>
<td><strong>Status:</strong></td>
<td>Producing industrial mine</td>
</tr>
<tr>
<td>Pb</td>
<td>138 000 t</td>
<td>Class B</td>
<td></td>
</tr>
<tr>
<td>Zn</td>
<td>118 000 t</td>
<td>Class C</td>
<td></td>
</tr>
<tr>
<td>Cu</td>
<td>8 800 t</td>
<td>Class E</td>
<td></td>
</tr>
<tr>
<td><strong>Company:</strong></td>
<td>Rudnik i Flotacija Olova i Cinka Blagodat</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Longitude:</strong></td>
<td>22.252</td>
<td><strong>Latitude:</strong></td>
<td>42.524</td>
</tr>
<tr>
<td><strong>District:</strong></td>
<td>Pcinjski</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Geology**

**Ore deposit type (gitology)**
- Atypical volcano-sedimentary and sedimentary-exhalative ore deposits: metamorphosed VMS or Sedex deposits, etc.
- Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)

**Ore deposit shape**
- Subconcordant or stratabound mass or lens of massive to submassive ore
- Stratabound envelope of disseminated ore
- Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sphalerite</td>
<td>Diopside</td>
<td>Skarn formation</td>
</tr>
<tr>
<td>Galena</td>
<td>Hedenbergite</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td>Epidote</td>
<td></td>
</tr>
<tr>
<td>Pyrrhotite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubanite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey copper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loellingite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnetite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Host rocks**

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surdulica granitic massif</td>
<td>Gneiss (s.l.)</td>
</tr>
<tr>
<td></td>
<td>Chlorit schist, chlorite schist of sedimentary origin</td>
</tr>
<tr>
<td></td>
<td>Dacite</td>
</tr>
<tr>
<td></td>
<td>Andesite</td>
</tr>
<tr>
<td></td>
<td>Granodiorite</td>
</tr>
<tr>
<td></td>
<td>Marble, cipolin (crystalline limestone)</td>
</tr>
</tbody>
</table>

**Economy**

**Exploitation type**
- Room and pillar mining, room and pillar working (flat, inclined, step)
- Sublevel caving

**Pb (Lead)**

**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>138 000 t</th>
<th>Average grade:</th>
<th>2.35 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>- t</td>
<td>Average grade:</td>
<td>4.34 %</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
<td>Average grade:</td>
<td>- %</td>
</tr>
</tbody>
</table>
Mineral deposits of Serbia - Ore deposits database

Zn  Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 118000 t  Average grade: 2 %
Reserve: - t  Average grade: 4.45 %
Resource: - t  Average grade: - %

Cu  Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 8800 t  Average grade: 0.15 %
Reserve: - t  Average grade: 0.15 %
Resource: - t  Average grade: - %

Environment
The ore content in sulfides (Pb, Zn and Iron) generate acid and dissolved metals during oxidation. Mine waters draining such deposit are acidic and metal-rich due to the lack of acid-neutralizing capacity of the altered igneous host rock and the lack of reactivity of the calc-silicate minerals of the gangue.
Acid generation and drainage can affect both surface and groundwater.

Presence of As that can be released into the environment by arsenopyrite when oxidized.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Comments
The mine was started up in 10/1974
Annual ore output was about 300,000 t/y and processing yields about 9,600 t of Pb concentrate and 12,670 t of Zn concentrate, that meaning a ore-grade of about 2.35% Pb and 2.00 % Zn.
The ore is also with Ag and Cd.
The massive ore contains 3-7% Pb and 6-13% Zn.
Grade of the reserves : 4.34% Pb, 4.45% Zn and 0.15% Cu (Simic - 1997)
Between 1988-1991, the annual output was 235,000 t of ore

Geological references
Simic M. - (1997) - Geological-structural features of the Besna Kobila Zone in SE Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif", Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 185-195

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-136
Blagojev Kamen

General data

Deposit name(s): Blagojev Kamen        Identifier: YUG-00056
Neresnica

Commodities: 
Ag  0 t  Class N/A  Status: Deposit of unknown status
Au  0 t  Class N/A
W  0 t  Class N/A

Company:

Longitude: 21.818    Latitude: 44.457    District: Branicevski

Geology

Ore deposit type (gitology)
Granitic and peri-granitic veins and stockworks (greisen): Sn-W, (Cu, Bi, Sb, base metals)

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)

Mineralization    Age: Precambrian
Ore mineralogy    Host rock mineralogy    Hydrothermal alteration
Gold             Quartz     Pyritization
Scheelite        Ankerite
Pyrite
Galena
Sphalerite       Chalcopyrite
Pyrrhotite
Grey copper
Pyrrhotine

Host rocks    Age: Precambrian
Hostrock formation names
Mafic volcano-sedimentary sequence
Precambrian Greenstone Series

Host rock lithology
Chlorite schist and chloritic schist of igneous origin
Metavolcaniclastic (meta-volcano-sedimentary) rock s.l

Economy

Exploitation type
Underground mining

Au    Gold (metal)

Ore type: Ore of indeterminate nature
Past production: 0 t
Reserve: 0 t
Resource: 0 t
Average grade: -

W    Wolfram (WO3)

Ore type: Ore of indeterminate nature
Past production: 0 t
Reserve: 0 t
Resource: 0 t
Average grade: -

Ag    Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)
Past production: 0 t
Reserve: 0 t
Resource: 0 t
Average grade: -
**Environment**

The oxidation of the primary ore mineralogy mainly composed of sulfides, generates Acid Mine Drainage and readily soluble sulfate minerals which can affect both surface and groundwater, as well as stream sediments. Existence of CN or Hg associated with the gold mineral processing?

**Comments**

Quartz veins are the source of gold alluvial placers along Pek river. In the veins, gold values range from traces to 30 g/t (average 10 g/t), WO₃ contents are variable, mostly 0.2-2.0%.

Blagojev Kamen was in operation up to 1963, producing gold and scheelite. The veins are usually 0.2-1.1 m thick and up to 100-200 m long (Jankovic - 1982).

Deposits names: Brodica, Badalan, etc.

**Geological references**


Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

**Economic references**

**Other references**

**Other data bases**

Carte Métallogénique de l'Europe 26-056
General data

Deposit name(s): Bobija
Identifier: YUG-00151
Commodities: PbZn 200 000 t Class B
Br 300 000 t Class C
Company:
Longitude: 19.533 Latitude: 44.192 District: Macvanski

Geology

Ore deposit type (gitology)
Carbonate-hosted stratabound and vein Ba or F deposits (MVT): Ba, F, (Pb, Zn)
Sedimentary-exhalative to volcano-sedimentary Mn or Ba: Mn, Ba

Ore deposit shape
Concordant to subconcordant mass, lens or pod of massive to submassive ore

Mineralization
Age: Middle Triassic (Muschelkalk)

Ore mineralogy
Pyrite
Galena
Sphalerite

Host rock mineralogy
Barite
Siderite

Host rocks
Age: Middle Triassic (Muschelkalk)

Economy

Exploitation type
Unworked

Brt Barite (BaSO4)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: - %
Resource: 300000 t Average grade: 67.5 %

PbZn Lead + Zinc (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: 200000 t Average grade: 10 %
Resource: - t Average grade: - %

Environment
May have acid generation potential due to the sulfidic content of the ore.
This Acid Rock Drainage can be buffered by the geological context and the presence of carbonates.

Comments

Geological references
Popovic R. - (1991) - Pojava sulfidne mineralizacije u Dolovima (dolina reke Ljubovide, zapadna Srbija) Translated Title: Occurrence of sulfide mineralization in Dolovi, the Ljubovida River valley, western Serbia. - Glasnik Prirodnjackog Muzeja u Beogradu, Serija A: Mineralogija, Geologija, Paleontologija, 46, p. 143-149.

Economic references
Other references
General data

Deposit name(s): Bogovina
Identifier: YUG-00227
Commodities: Coal
Class: N/A
Status: Producing small-scale mine
Company: Rudnik mrkog uglja BOGOVINA - EPS
Longitude: 21.956
Latitude: 43.892
District: Zajecarski

Geology

Ore deposit type (geology)
Coal deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Oligocene (Middle Tertiary)

Host rocks
Age: Oligocene (Middle Tertiary)

Host rock lithology
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.
Coarse-grained detrital rock s.s. Medium- to fine-grained detrital sediment

Economy

Exploitation type
Underground mining

Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment

Potential Acid Rock Drainage generation due to the presence of possible sulfides minerals.
Suspended matter in mine discharge.
Colliery spoil heaps erosion, instability and combustion.

Comments

2 coal seams separated by about 10 m.

Bogovina coal contains up to 20% of moisture, up to 10% of ash and up to 2% of sulphur. Its heating value is about 17,000 kJ/kg.

Geological references


Economic references


Other references
Mineral deposits of Serbia - Ore deposits database

Bor

General data

Deposit name(s): Bor

Identifier: YUG-00061

Commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Class</th>
<th>Amount (t)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au</td>
<td>B</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>Cu</td>
<td>B</td>
<td>3,000,000</td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>C</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>Pt</td>
<td>N/A</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Company: Rudarsko Topionicarski Basen BOR

Longitude: 22.094

Latitude: 44.095

District: Borski

Geology

Ore deposit type (giritology)

High-sulphidation epithermal massive-enargite (gold) sulphide deposits: Cu, (As, Au)

Porphyry Cu-Mo and Mo deposits: Cu, Mo, (W, U, Re)

Ore deposit shape

Subconcordant or stratabound mass or lens of massive to submassive ore

Concordant to subconcordant stockwork (veinlets network) envelope

Stratabound envelope of disseminated ore

Mineralization

Age: Upper/Late Cretaceous

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enargite</td>
<td>Quartz</td>
<td>Silicification</td>
</tr>
<tr>
<td>Pyrite</td>
<td>Barite</td>
<td>Advanced argillic alteration</td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td>Pyrophyllite</td>
<td>Sericitization</td>
</tr>
<tr>
<td>Bornite</td>
<td>Diaspore</td>
<td>Chlorationization</td>
</tr>
<tr>
<td>Chalcocite</td>
<td>Alunite</td>
<td>Carbonatization</td>
</tr>
<tr>
<td>Covellite</td>
<td>Anhydrite</td>
<td></td>
</tr>
<tr>
<td>Molybdenite</td>
<td>Sulphur</td>
<td></td>
</tr>
</tbody>
</table>

Host rocks

Age: Upper/Late Cretaceous

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timok andesite complex</td>
<td>Andesite</td>
</tr>
</tbody>
</table>

Volcaniclastic rocks: pyroclastic rocks, volcaniclastic (volcano-detrital, volcano-sedimentary) rocks

Economy

Exploitation type

Surface mining

Underground mining

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>Average grade:</th>
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<tbody>
<tr>
<td>3,000,000 t</td>
<td>1.5 %</td>
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</table>

<table>
<thead>
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<th>Reserve:</th>
<th>Average grade:</th>
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</thead>
<tbody>
<tr>
<td>t</td>
<td>- %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resource:</th>
<th>Average grade:</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>- %</td>
</tr>
</tbody>
</table>
Mineral deposits of Serbia - Ore deposits database

YUG-00061

Au  Gold (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: 160 t  Average grade: 3.2 g/t
Reserve: - t  Average grade: - g/t
Resource: - t  Average grade: - g/t

Ag  Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: 600 t  Average grade: 10.3 g/t
Reserve: - t  Average grade: - g/t
Resource: - t  Average grade: - g/t

Pltd  Platinoids, group (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment

Extreme Acid Mine Drainage production due to the sulfides and sulfosalts assemblages. This AMD is enhanced by the types of hydrothermal alteration (argillic, sericitic...) that greatly increase acid-generating capacity.

Presence of As released by enargite. This element tends to be accumulated in the stream sediments of the water drainage downstream the ore deposit and may cause acute environmental and health problems.

Potential damages may arise from both extraction/beneficiation operations and smelting facilities. Most of the releases occurring from those operations involve inadequate containment of tailings, waste rocks, metallurgical slags, process water, waste water, acid mine drainage and storm water.

Comments

The ore contained 1-2 % Cu, up to 5 g/t Au, up to 10 g/t Ag and significant amounts of Ge, Se, Ni and minor amounts of Pt.

The deposit contains 13 known orebodies: Tilva Ros, Coka Dulkan, Tilva Mika, Kamenjar, Tilva Ronton, Sistek, etc.

At the top of the system, Tilva Ros orebody contained gold in a highly silicified cap (1.8 to 18.9 g/t, average at 2.3 g/t Au, 10.55 g/t Ag and 0.04% Cu for reserves as 8.2 Mt)

The massive copper ore zone contains 2.6 - 3.75 g/t Au, 9.8 to 10.9 g/t Ag and 5.6-7.4 % Cu. Past production and current reserves indicate that the massive copper ore contained 160 t of Au, 600 t of Ag and 3 Mt of Cu.

Data in Laznicka P. (1985) p 974 2.75 Mt Cu (1%), 190 t Au and 1,000 t Ag

In 1981, Bor was still operating at a rate of 4 Mt/y of ore (35,000 t/y Cu).

Geological references


Economic references


Lewis A. (1983) - Yugoslavia’s “RTB Bor” copper combine; Europe’s largest copper producer eliminates concentrate imports as the new Veliki Krivelj complex reaches capacity. - E&M J., 184, (10), p. 70-74.


Other references

Other data bases
Carte Métallogénique de l’Europe 26-061
Boranja

General data

Deposit name(s): Boranja
Commodities: Fe
Status: Deposit of unknown status
Company: Macvanski
Longitude: 19.201
Latitude: 44.390
District: Macvanski

Geology

Ore deposit type (girtyology)
Fe (magnetite) skarns: Fe, (Co)

Ore deposit shape
Discordant mass or lens of massive to submassive ore

Mineralization
Age: Cenozoic

Ore mineralogy
Magnetite
Pyrrhotite
Molybdenite
Scheelite
Bismuthinite

Host rocks
Age:

Hostrock formation names
Boranja granodiorite Massif

Host rock lithology
Granodiorite
Skarn
Marble, cipolin (crystalline limestone)

Economy

Exploitation type
Mining method unknown

Fe Iron (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production:
- t

Reserve:
- t

Resource:
- t

Average grade:
-

Environment

Moderate acid generation potential due to the presence of Pyrrhotite.

Comments

Name of several deposits around Boranja granodiorite and including several ore deposits and occurrences: Majdan, Duge Njive, etc.

Geological references

Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I. Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.
Economic references

Other references

Other data bases
The Iron Ore Deposits of Europe - 1978   YU02
Borska Reka

General data

Deposit name(s): Borska Reka
Identifier: YUG-00134
Commodities: Au 139 t Class B Status: Dormant deposit
Cu 3 665 000 t Class B
Ag 1 136 t Class C
Company: Rudarsko Topionicarski Basen BOR
Longitude: 22.088 Latitude: 44.082 District: Borski

Geology

Ore deposit type (gitology)
Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)

Ore deposit shape
Stratabound envelope of disseminated ore
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization Age: Upper/Late Cretaceous

Ore mineralogy
Chalcopyrite
Pyrite
Magnetite
Telluride
Molybdenite
Chalcocite
Covellite
Bornite

Hydrothermal alteration
Potassic alteration
Sericitization
Silicification
Chloritization

Host rocks Age: Upper/Late Cretaceous

Hostrock formation names
Timok andesite complex

Host rock lithology
Andesite

Economy

Exploitation type
Underground mining

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: - %
Resource: 3 665 000 t Average grade: 0.62 %

Au Gold (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - g/t
Reserve: - t Average grade: - g/t
Resource: 139 t Average grade: 0.24 g/t

Ag Silver (metal)

Ore type: Ore of indeterminate nature
Past production: - t Average grade: - g/t
Reserve: - t Average grade: - g/t
Resource: 11 361 t Average grade: 1.92 g/t

Environment

Extreme Acid Mine Drainage production due to the sulfides assemblages and the large alteration halos.
This AMD is enhanced by the types of hydrothermal alteration (argillic, sericitic..) that greatly increase acid-generating
Comments
Down dip extension of Bor deposit

Geological references

Jancovic S., Milovanovic D., Jelenkovic R. and Hrkovic K. - (1992) - Gold Deposits and Occurences in Serbia: Types, Metallogenic Units and Outlook. - Chair of Economic geology, Faculty of Mining and Geology, University of Belgrade, Belgrade. 285 p.


Economic references

Lewis A. - (1983) - Yugoslavia’s "RTB Bor" copper combine; Europe’s largest copper producer eliminates concentrate imports as the new Veliki Krivelj complex reaches capacity. - E&M J., 184, (10), p. 70-74.

Other references
Braneshci

General data

Deposit name(s): Braneshci
Branesko Polje

Commodities: Mg 0 t
Class: N/A
Status: Deposit or prospect of unknown status

Company:
Longitude: 19.707
Latitude: 43.779
District: Zlatiborski

Geology

Ore deposit type (gitology)
Lacustrine deposits (sebkha, salar, alkaline lake): Li, B, (Na, Mg, Ca, nitrates, sulphates, etc.)

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Cenozoic

Ore mineralogy
Magnesite (Giobertite)
Dolomite

Host rocks
Age:

Hostrock formation names
Tertiary lacustrine sediments

Host rock lithology
Varved lacustrine sediment
Biochemical deposit s.l.

Economy

Exploitation type
Unworked

Mg Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: -

Reserve: - t
Average grade: -

Resource: - t
Average grade: -

Environment
Potential contamination of drainage waters by suspended matter.

Comments

Geological references

Economic references

Other references
Brasina

General data

Deposit name(s): Brasina
Commodities: Sb
Company:
Longitude: 19.195
Latitude: 44.491
District: Macvanski

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Vein and disseminated Sb deposits: Sb, Hg, As, (Au, Tl)

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization Age: Cenozoic

Ore mineralogy
Stibnite
Pyrite
Chalcopyrite
Galena

Host rock mineralogy
Quartz
Chalcedony
Calcite

Hydrothermal alteration
Silicification

Environment
Acid generation potential due to the sulfides minerals contained in the ore.
Expected dissolved content of Cu and Sb in drainage waters.

Economy

Exploitation type
Mining method unknown

Sb Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Comments

Geological references

Economic references

Other references
Brdjani

General data

Deposit name(s): Brdjani
Bela Kamen
Beli Kamen (Brdjani)

Identifier: YUG-00054

Commodities: Mg 0 t
Class N/A
Status: Deposit of unknown status

Company: Rudnici Magnezita Sumadija - Cacak

Longitude: 20.225
Latitude: 44.000
District: Moravicki

Geology

Ore deposit type (gitology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization Age: Miocene

Ore mineralogy
Magnesite (Giobertite)
Dolomite

Host rock mineralogy
Quartz
Silica
Chalcedony

Host rocks Age:
Maljen and Suvobor Ultramafic Massif

Hostrock formation names
Basic to ultrabasic rock s.l.
Serpentinite

Economy

Exploitation type
Surface mining

Mg Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: -

Reserve: - t
Average grade: -

Resource: - t
Average grade: -

Environment

Erosion of earthen materials exposed at the site may cause significant loadings of sediments to nearby waterbodies and the source of degradation of surface water quality.

Comments

Geological references


Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-054
Brezak

**General data**

- **Deposit name(s):** Brezak
- **Identifier:** YUG-00046
- **Commodities:** Mg
- **Class:** N/A
- **Status:** Deposit of unknown status
- **Company:** Rudnici Magnezita Sumadija Cacak
- **Longitude:** 20.100
- **Latitude:** 44.140
- **District:** Kolubarski

**Geology**

- **Ore deposit type (gitology):** Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks
- **Ore deposit shape:** Discordant lode or vein (thickness > 50 cm), in clusters or isolated
- **Mineralization Age:**
- **Ore mineralogy:** Magnesite (Giobertite)
- **Host rocks Age:**
- **Host rock formation names:** Maljen and Suvobor Ultrabasic Massifs
- **Host rock lithology:** Basic to ultrabasic rock s.l.

**Economy**

- **Exploitation type:** Underground mining
- **Mg Magnesium, magnesite (MgCO3)**
  - **Ore type:** Ore in which the element forms a distinct mineral phase
  - **Past production:** - t
  - **Reserve:** - t
  - **Resource:** - t
  - **Average grade:** -

**Environment**

- No specific environmental signature is known with this type of ore deposit.

**Comments**

- Magnesite mining has been carried out since 1927.
- The length of ore veins ranges from 100 to 1,500 m, thickness between 1 and 10 m.
- Average annual output is 120,000 t of high grade magnesite concentrate.

**Geological references**


**Economic references**


**Other references**

**Other data bases**

- Carte Métallogénique de l'Europe

Report BRGM/RC-51448-FR
Mineral deposits of Serbia - Ore deposits database

Brezna

General data

Deposit name(s): Brezna
Identifier: YUG-00069
Commodities: Cr 0 t Class N/A Status: Group of mineral occurrences
Company: Zlatiborski Longitude: 19.583 Latitude: 43.583 District: Zlatiborski

Geology

Ore deposit type (gitology)
Ophiolite-hosted ore deposits: Cr, (PGE)
Ore deposit shape
Pod, pod-shaped body
Mineralization Age:
Ore mineralogy
Chromite
Host rocks Age:
Hostrock formation names
Zlatibor Peridotites Massif
Host rock lithology
Dunite

Economy

Exploitation type
Mining method unknown
Cr Chrome (Cr2O3)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
No specific environmental signature.

Comments
2 Brezna : 20.6832/43.5643 or 20.2571/44.0564 ???
Zlatibor district : more than 80 occurrences of chromite, of massive type-ore, several hundred tons of reserve

Geological references

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-079
Mineral deposits of Serbia - Ore deposits database

General data

Deposit name(s): Brezovica
Ostrovica

Identifier: YUG-00090

Commodities: Cr
Class: D

Status: Deposit or prospect of unknown status

Company:

Longitude: 21.012
Latitude: 42.244
District: Kosovo

Geology

Ore deposit type (gitology)
Ophiolite-hosted ore deposits: Cr, (PGE)

Ore deposit shape
Concordant to subconcordant mass, lens or pod of massive to submassive ore

Mineralization
Age:

Host rocks

Host rock lithology
Peridotite
Dunite

Economy

Exploitation type
Mining method unknown

Cr Chrome (Cr2O3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 350000 t
Average grade: 43 %

Reserve: - t
Average grade: - %

Resource: - t
Average grade: - %

Environment

No specific environmental signature according to the data available.

Comments

Extracted: 350.000 t at 43% Cr2O3

Geological references


Economic references

Other references

Other data bases
Carte Métallogénique de l’Europe 26-132
Bujanovac

General data

Deposit name(s): Bujanovac  
Ogoska Reka  
Trnovac

Identifier: YUG-00092

Commodities: 
- Kin 5 625 000 t  
- Sb 0 t

Status: Deposit of unknown status

Company: Pcinjski

Longitude: 21.744  
Latitude: 42.477

District: Pcinjski

Geology

Ore deposit type (gitology)
Vein and disseminated Sb deposits: Sb, Hg, As, (Au, Ti)
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Field of discordant lodes (n*km², n*ha)
Discordant envelope of disseminated ore

Mineralization  
Age: Cenozoic

Ore mineralogy
- Stibnite
- Pyrite
- Marcasite
- Galena
- Sphalerite
- Bravoiite
- Realgar
- Orpiment
- Cinnabar

Host rock mineralogy
- Quartz
- Calcite
- Chalcedony
- Opal
- Barite
- Montmorillonite
- Illite
- Kaolinite

Hydrothermal alteration
- Kaolinization
- Silicification

Host rock formation names
- Bujanovac granite massif

Host rock lithology
- Granite (s.l.)
- Schist/shale

Economy

Exploitation type
Mining method unknown

Sb  Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade:

Kin  Kaolin (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: 5625000 t

Average grade:

Environment

Acid generation potential due to the sulfides minerals and the ore composition. 
Due to the presence of cinabar and realgar/orpiment in the ore, Arsenic and Mercury , two toxic elements for human health can be present in drainage water at a high content.
Comments
Other name: Gornji Vrtogos (Simic and al - 1997).
The thickness of kaolinite zones varies from 0.5 to 25 m, with the lens of over 1500 m and their vertical stretch of over 200 m;

Geological references
Simic V. and Jovic V. - (1997) - Genetic types of kaolin and kaolinite clay deposits in Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif". Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 197-201

Economic references

Other references
Other data bases
Carte Métallogénique de l’Europe 26-134
**Bukulja**

### General data

**Deposit name(s):** Bukulja

**Commodities:** U

**Class:** N/A

**Company:**

**Longitude:** 20.535  
**Latitude:** 44.298  
**District:** Kolubarski

**Identifier:** YUG-00050

**Status:** Dormant deposit

### Geology

**Ore deposit type (gitology)**

- Sedimentary uranium deposits: U, (V, Mo, Ni, Cu, Zn, Pb, As)
- Shear-zone related mesothermal uranium deposits: U, (Fe, Cu, Pb, Zn, Se)

**Ore deposit shape**

- Stratiform envelope of disseminated ore
- Discordant lode or vein (thickness > 50 cm), in clusters or isolated

**Mineralization**

**Age:** Cenozoic

**Ore mineralogy**

- Autunite
- Uraninite
- Hematite
- Galena
- Sphalerite
- Pyrrhotite
- Pyrite

**Hydrothermal alteration**

- Kaolinitization
- Sericitization
- Pyritization
- Chloritization
- Silicification

**Host rocks**

**Age:** Cenozoic

**Hostrock formation names**

- Tertiary sediments
- Granite (s.l.)
- Detrital rock s.l.

### Economy

**Exploitation type**

- Unworked

**U**  
**Uranium (metal)**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  
**Average grade:** -

**Reserve:** - t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

### Environment

Potential production of Acid Rock Drainage and associated metals (Fe, Zn, Pb..).

The hydrothermal alteration tends to increase acid-generating capacity.

Presence of radioactive elements leads to the emission of Radon and Gamma radiations.

### Comments

The uranium content ranges from 0.03 to 0.08% U3O8.

### Geological references


Antonovic A. - (1992) - Uporedna analiza određivanja sadržaja urana raznim radiometrijskim metodama u lezistu Cigankulja (Bukulja) Translated Title: Comparative study of uranium analyses by various radiometric methods in the Cigankulja (Bukulja) ore deposit. - Radovi Geoinstitut, 27, p. 235-250.

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-050
### General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Car Sedlar</th>
<th>Identifier:</th>
<th>YUG-00086</th>
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<tbody>
<tr>
<td>Commodities:</td>
<td>Fe</td>
<td>Class:</td>
<td>E</td>
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<tr>
<td></td>
<td>190,000 t</td>
<td>Status:</td>
<td>Deposit of unknown status</td>
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<tr>
<td>Company:</td>
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<tr>
<td>Longitude:</td>
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<td>42.604</td>
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<tr>
<td>District:</td>
<td>Pcinjski</td>
<td></td>
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</tr>
</tbody>
</table>

### Geology

**Ore deposit type (gitology)**
- Banded iron formations (BIF "Superior Fe"): Fe
- Atypical volcano-sedimentary and sedimentary-exhalative ore deposits: metamorphosed VMS or Sedex deposits, etc.

**Ore deposit shape**
- Subcordant or stratabound mass or lens of massive to submassive ore

**Mineralization**
- Age: Precambrian

**Ore mineralogy**
- Magnetite
- Hematite
- Pyrrhotite
- Pyrite
- Chalcopyrite
- Galena

**Host rocks**
- Amphibolite (s.l.)
- Ferriferous quartzite, Banded Iron Formations (BIF), itabirite

### Economy

**Exploitation type**
- Mining method unknown

**Fe**
- Iron (metal)
  - Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>10,000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>180,000 t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
</tbody>
</table>

**Average grade:**
- %
- 50 %
- %

### Environment

Sulfide facies ores may pose a potential source of acid rock drainage.

### Comments

Crude ore contains 45-55% Fe, 10% SiO2, 4% CaO, 0.3% Mn, 0.5% P and 2-3% S (Jankovic - 1982)

### Geological references

- Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas: explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.
Economic references

Other references

Other data bases

Carte Métallogénique de l'Europe 26-121
The Iron Ore Deposits of Europe - 1978 YU03
Cerovo

General data

Deposit name(s): Cerovo
Identifier: YUG-00124
Commodities: Cu 1 010 000 t Class B Au 32 t Class C
Company: Rudarsko Topionicarski Basen BOR
Longitude: 22.038 Latitude: 44.178
District: Borski

Geology

Ore deposit type (gitology)
Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)
Ore deposit shape
Discordant envelope of disseminated ore
Mineralization Age:
Ore mineralogy
Pyrite
Chalcocite
Chalcopyrite

Hydrothermal alteration
Silicification
Propylitization

Host rocks Age: Upper/Late Cretaceous

Host rock lithology
Andesite
Pyroclastic rocks s.l.
Diorite
Quartz diorite

Economy

Exploitation type
Surface mining
Cu Copper (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: - %
Resource: 1010000 t Average grade: 0.32 %

Au Gold (metal)
Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)
Past production: - t Average grade: - g/t
Reserve: - t Average grade: - g/t
Resource: 32 t Average grade: 0.1 g/t

Environment
Extreme Acid Rock Drainage production due to the sulfdic composition of the primary ore, the widespread alteration halos and its mineral assemblage.
Potential release of Cu and others metals into the drainage water.

Comments
Cerovo, Drenovo and Cementacija deposits

Geological references
Economic references


Other references
Cigankulja

General data

Deposit name(s): Cigankulja
Commodities: Sn 0 t
Class: N/A
Company: Kolubarski
Longitude: 20.414
Latitude: 44.299
District: Kolubarski

Geology

Ore deposit type (gitology)
Alluvial-eluvial placers: Au, Pt, Sn, Ti, REE, diamond, gemstones, (Zr, etc.)

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization
Age: Quaternary

Ore mineralogy
Cassiterite
Ilmenite
Magnetite
Zircon
Rutile

Host rocks
Age: Quaternary

Host rock lithology
Alluvium s.l.

Economy

Exploitation type
Unworked

Sn Tin (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
Potential contamination of surface water by suspended matter (high turbidity) that can affect water ecosystems.
Geomorphic modifications of water bodies.

Comments

Geological references

Economic references

Other references
General data

Deposit name(s): Cikatovo
Identifier: YUG-00027
Commodities: Ni 287 800 t Class B Status: Dormant deposit
Co 0 t Class N/A
Company: Ferronikeli
Longitude: 20.903 Latitude: 42.656 District: Kosovo

Geology

Ore deposit type (gitology)
Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.

Ore deposit shape
Cap, blanket, crust

Mineralization Age:

Ore mineralogy Host rock mineralogy
Saponite Opal
Nontronite Serpentinite
Garnierite Dolomite
Goethite Quartz
Goethite Chalcedony
Wad
Psilomelane

Host rocks Age:

Hostrock formation names Host rock lithology
Dobrosevac harzburgite Basic to ultrabasic rock s.l.
Harzburgite

Economy

Exploitation type
Surface mining

Ni Nickel (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: 170300 t Average grade: 1.31 %
Reserve: 117500 t Average grade: 1.175 %
Resource: - t Average grade: - %

Co Cobalt (metal)
Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)
Past production: - t Average grade: - %
Reserve: - t Average grade: 0.07 %
Resource: - t Average grade: - %

Environment

The main potential environmental problems are related to:
- the clay minerals assemblage existing in a lateritic context. Trough erosion of exposed mining areas, those assemblages generate high suspended solids content in surface water that can produce many impacts associated with surface waters, groundwater and terrestrial ecosystems;
- the dissolved metals (Ni, Co and Fe, Mn) that migrate from old mining operations to local ground and surface water.

Comments

In 1982, Glavica and Cikatovo started in production for the Glogovac smelting plant
The combined reserves were estimated in 1978 to be 26.7 Mt averaging 1.2 - 1.5% Ni
The combined annual output was planned to be 983,000 t of dry ore containing 1.32% Ni and 0.07% Co.
Located in the Dobrosevac Ore Field (Boev and Jankovic - 1996):
Discovered in 1967. 2 orebodies: Suka and Duskaja
At the beginning of exploitation, the probable and possible reserves amounted to 13 Mt @ 1.31% Ni and 0.07% Co. Most of the ore reserves are mined out but new ones have been discovered. In 1988, the ore reserves amounted to 10 Mt @ 1.15-1.20% Ni.

Geological references
Mitrovic M and Misirlic M. - (1978) - Prilog utvrđivanju mineralnog sastava niklonosne rude iz Golesa i Cikatova, SAP Kosovo Translated Title: The determination of nickel-bearing ore mineral composition from Goles and Cikatovo; SAP Kosovo - Rudarski Glasnik, 1, p. 31-46.

Economic references

Other references
Coka Kuruga

General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Coka Kuruga</th>
<th>Identifier:</th>
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<td>Au 2 t</td>
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<td>Cu 13 000 t</td>
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</table>

Geology

- **Deposit of unknown status**
- **High-sulphidation epithermal massive-enargite (gold) sulphide deposits**: Cu, (As, Au)
- **Atypical, unspecified or ill-defined form**
- **Age**: Upper/Late Cretaceous

- **Host rocks**
  - **Age**: Upper/Late Cretaceous
  - **Hostrock formation names**
    - Bor magmatic Complex

Economy

- **Exploitation type**
  - Mining method unknown

- **Cu Copper (metal)**
  - Ore type: Ore of indeterminate nature
  - Past production: - t
  - Reserve: - t
  - Resource: 13000 t
  - Average grade: - %

- **Au Gold (metal)**
  - Ore type: Ore of indeterminate nature
  - Past production: - t
  - Reserve: - t
  - Resource: 1.5 t
  - Average grade: 1 g/t

Environment

No data available.

Comments

Geological references


Economic references

Other references
**General data**

**Deposit name(s):** Coka Marin  
**Identifier:** YUG-00135  
**Commodities:**
- Au 10 t  
- PbZn 33 000 t  
- Cu 25 000 t  
- Ag 96 t  
**Status:** Dormant deposit  
**Company:** Rudarsko Topionicarski Basen BOR  
**Longitude:** 22.013  
**Latitude:** 44.284  
**District:** Borski

**Geology**

**Ore deposit type (gitoIogy):**
- Volcanogenic massive sulphides (VMS) deposits: Cu, Pb, Zn +/- Au-Ag, (Sn, S, As, Cd, Bi, etc.)  
- High-sulphidation epithermal massive-enargite (gold) sulphide deposits: Cu, (As, Au)

**Ore deposit shape:**
- Stratatbound envelope of disseminated ore  
- Subconcordant or stratabound mass or lens of massive to submassive ore  
- Concordant to subconcordant stockwork (veinlets network) envelope

**Mineralization Age:** Upper/Late Cretaceous

**Ore mineralogy:**
- Pyrite  
- Pyrrhotite  
- Marcasite  
- Enargite  
- Luzonite  
- Chalcocpyrite  
- Bornite  
- Sphalerite  
- Galena  
- Grey copper  
- Gold  
- Stannite  
- Cassiterite  
- Bravoite

**Host rock mineralogy:**
- Quartz  
- Barite  
- Anhydrite  
- Siderite  
- Calcite  
- Fluorite

**Hydrothermal alteration:**
- Pyritization  
- Advanced argillic alteration  
- Chloritization  
- Silicification

**Host rocks Age:** Upper/Late Cretaceous

**Hostrock formation names:**
- Upper Cretaceous Andesite-dacite  
- Volcaniclastic rocks s.l. (volcano-sedimentary, volcano-detrital, containing volcanogenic constituents: lithic fragments, lapilli, groundmass or cement)  
- Undifferentiated volcanic breccia

**Economy**

**Exploitation type:** Mining method unknown  
**Cu Copper (metal):**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  
**Reserve:** - t  
**Resource:** 25000 t  
**Average grade:** - %  
**Average grade:** - %  
**Average grade:** 1.04 %
### Mineral deposits of Serbia - Ore deposits database

#### Comments

- Massive ore contains 1-3% Cu, 5-8% Zn and up to 1% Pb. The gold content ranges between 5 and 10 g/t, locally over 20 g/t.
- The Cu concentrate contains 7.7 g/t Au, 352 g/t Ag, 23 g/t Pt, 252 g/t Te, 186 g/t Ge, 78 g/t Ga, 50 g/t Mo, 203 g/t Sn and 1,000 g/t Se.
- Resources Copper ore: 2.1 Mt @ 0.9% Cu, 2.9 g/t Au and 19 g/t Ag
- Resources PbZn ore: 0.3 Mt @ 2.1% Cu, 3.2% Pb, 8.5% Zn, 15.8 g/t Au and 200 g/t Ag

#### Environment

- High acid generation potential due to the sulfides minerals content and the hydrothermal alteration halos (pyritization and advanced argillic alteration).
- Potential dissolved contents of Fe, Mn, Zn et Cu in drainage and groundwater with possible concentration of released As into stream sediments.

### Economic references

- Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridañj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458

### Other references
Crna Trava

General data

Deposit name(s): Crna Trava Vlasina
Identifier: YUG-00107

Commodities: Fe 20 125 000 t  Class: C  Status: Deposit of unknown status
Company: 
Longitude: 22.328  Latitude: 42.740  District: Pcinjski

Geology

Ore deposit type (gitology)
Unspecified volcano-sedimentary and sedimentary-exhalative deposits
Fe and Mn sedimentary deposits: Fe, Mn

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization  Age: Precambrian

Ore mineralogy
Magnetite
Hematite

Host rocks  Age: Precambrian

Host rock formation names
Greenschists of Crna Trava

Host rock lithology
Greenschist (s.l.)

Economy

Exploitation type
Mining method unknown

Fe  Iron (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: 125000 t  Average grade: 55.87 %
Reserve: t  Average grade: - %
Resource: 20000000 t  Average grade: - %

Environment
Particulate and colloidal iron compounds in discharge water.

Comments

Geological references

Economic references

Other references

Other data bases
The Iron Ore Deposits of Europe - 1978  YU27

Report BRGM/RC-51448-FR
Crnac

General data

Deposit name(s): Crnac
Plakaonica

Commodities:
- Pb 204,000 t
- Zn 89,000 t
- Ag 279 t

Status: Dormant deposit

Company: TREPCA Mining and Metallurgical Complex

Longitude: 20.693
Latitude: 43.083

District: Kosovo

Geology

Ore deposit type (gitology)
Low-sulphidation epithermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)

Ore deposit shape
Field of discordant lodes (n’km2, n’ha)
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization Age: Neogene (Miocene to Pliocene)

Ore mineralogy
- Galena
- Sphalerite
- Pyrite
- Arsenopyrite
- Chalcopyrite
- Grey copper
- Pyrrhotite

Host rock mineralogy
- Quartz
- Calcite
- Rhodochrosite (Dialoqite)

Hydrothermal alteration
- Silicification
- Kaolinization

Host rocks Age:

Hostrock formation names
- Amphibolite-quartzlatite contact
- Gabbro-amphibolite contact

Host rock lithology
- Amphibolite (s.l.)
- Gabbro
- Serpentinite
- Latite

Economy

Exploitation type
Sublevel stoping

Pb Lead (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 89,000 t
Reserve: 115,000 t
Resource: - t

Average grade: 4.3 %

Zn Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 44,000 t
Reserve: 45,000 t
Resource: - t

Average grade: 2.2 %

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: 109 t
Reserve: 170 t
Resource: - t

Average grade: 53 g/t
Environment
High acid generation potential due to the sulfidic composition of the primary ore (highly reactive sulfides) and the hydrothermal alteration type that increases the acid generation capacity of the orebody.
Release of dissolved base metals (Pb, Zn,...) into the environment as well as As that can accumulate in the stream sediments.

The ore processing plant located in Lepocavic has generated large amounts of tailings (8 Mt).

Comments
In 1981, the Crnac mine produced 60,000 t @ 7% Pb and 2% Zn, by sub-level open stoping. Output should reach 150,000 t/y by 1983.

ITT/UNMIK Mission (12/2000) : Past production (1967-2000) : 2,060,000 t @ 4.3% Pb, 2.2% Zn and 53 g/t Ag. Resources : 1,415,000 t @ 8.1% Pb, 3.2% Zn and 120 g/t Ag.

Geological references
Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metallogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo-Macedonian metallogenic province - Geoloshki Anali Balkanskoga Poluostrva, 42, p. 507-525.

Economic references

Other references
Crni Vrh

**General data**

<table>
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<tr>
<th>Deposit name(s)</th>
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</table>

**Geology**

- **Ore deposit type (gitology):**
  - Vein and disseminated Sb deposits: Sb, Hg, As, (Au, Tl)
- **Ore deposit shape:**
  - Concordant to subconcordant stockwork (veinlets network) envelope
- **Mineralization Age:**
  - Cenozoic
- **Ore mineralogy:**
  - Stibnite
- **Host rock mineralogy:**
  - Quartz
- **Hydrothermal alteration:**
  - Silicification
- **Host rocks Age:**
  - Silicified marble
  - Crystalline schists
- **Host rock lithology:**
  - Undifferentiated metamorphic rock
  - Marble, cipolin (crystalline limestone)

**Economy**

- **Exploitation type:**
  - Mining method unknown
- **Sb Antimony (metal):**
  - **Ore type:** Ore in which the element forms a distinct mineral phase
  - **Past production:** - t
  - **Reserve:** - t
  - **Resource:** - t
  - **Average grade:** -

**Environment**

**Comments**

**Geological references**


**Economic references**

**Other references**

**Other data bases**

| Carte Métallogénique de l’Europe | 26-071 |
**Deli Jovan**

**General data**

Deposit name(s): Deli Jovan  
Rusman  

Commodities: Au  
0 t  
Class: N/A  
Status: Old mine workings  

Company:  
Longitude: 22.281  
Latitude: 44.124  
District: Zajecarski

**Geology**

Ore deposit type (gitology)  
Fault-related syn- to late-orogenic ore deposits: Au, Zn, As, Sb, Cu, Ni, Co  

Ore deposit shape  
Field of discordant lodes (n*km², n*ha)  
Mineralization Age: Paleozoic (Primary)  

Ore mineralogy  
Pyrite  
Gold  
Galena  
Chalcopyrite  

Host rocks Age:  

Host rock lithology  
Undifferentiated metamorphic rock  
Foíd-bearing gabbro, foid gabbro

**Economy**

Exploitation type  
Underground mining  

Au Gold (metal)  

Ore type: Ore in which the element forms a distinct mineral phase  

Past production: - t  
Average grade: -  

Reserve: - t  
Average grade: -  

Resource: - t  
Average grade: -

**Environment**

Potential Acid Rock Drainage due to the sulfides minerals.  
Expected dissolved metals in the drainage water.  
No information regarding the gold processing and the reagents used (CN, Hg ?).

**Comments**

Quartz veins are 0.1 to 2-33 m wide, length up to 200 m, vertical extent does not exceed 150 m.  
Gindusa deposit: 50-80 g/t Au, St Ana at Rusman: 15 g/t Au

**Geological references**


**Economic references**

**Other references**
Deva

**General data**

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<td>Class</td>
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</table>

**Geology**

- **Ore deposit type (gitology):** Chromite deposits in layered basic-ultrabasic complexes: Cr
- **Ore deposit shape:** Stratabound envelope of disseminated ore

**Mineralization**

- **Age:**
- **Ore mineralogy:** Chromite

**Host rocks**

- **Age:**
- **Hostrock formation names:** Djakovo serpentine massif
- **Host rock lithology:**
  - Serpentinite
  - Harzburgite
  - Dunite

**Economy**

- **Exploitation type:** Mining method unknown
- **Cr Chrome (Cr2O3):**
  - **Ore type:** Primary oxide ore (ilmenite, wolframite, pitchblende, chromite, pyrochlore, etc.)
  - **Past production:** 132000 t
  - **Average grade:** 44 %
  - **Reserve:** - t
  - **Average grade:** - %
  - **Resource:** - t
  - **Average grade:** - %

**Environment**

No specific environmental signature is known with this type of ore deposit.

**Comments**

In 1982, mining has currently been suspended due to the low grade of the deposit. In 1978, its reserves were estimated at 300,000 t @ 44% Cr2O3.

**Geological references**


**Economic references**


**Other references**

**Other data bases**

<table>
<thead>
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<tbody>
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<td>Carte Métallogénique de l’Europe</td>
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</table>
Djavolja Varos

General data

Deposit name(s): Djavolja Varos
Identifier: YUG-00118
Commodities:
- Au: 0 t, Class: N/A, Status: Deposit or prospect of unknown status
- Cu: 0 t, Class: N/A, Status: Deposit or prospect of unknown status
- PbZn: 0 t, Class: N/A

Company: Topolicki
Longitude: 21.425, Latitude: 43.034
District: Topolicki

Geology

Ore deposit type (girology)
Low-sulphidation (adularia - sericite) epithermal deposits: Au, Ag, Pb, Zn, Cu, Sb, (Hg, As, Mn, Tl)
Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization

Age: Neogene (Miocene to Pliocene)

Ore mineralogy
- Pyrite
- Galena
- Sphalerite
- Chalcopyrite
- Tetrahedrite
- Cerussite
- Azurite
- Malachite
- Covellite
- Goethite

Host rock mineralogy
- Quartz

Hydrothermal alteration
- Silicification
- Pyritization
- Argillic alteration

Host rock lithology
- Andesite
- Pyroclastic rocks s.l.

Economy

Exploitation type
- Unworked

Au Gold (metal)
Ore type: Ore of indeterminate nature
Past production: 0 t, Average grade: -
Reserve: 0 t, Average grade: -
Resource: 0 t, Average grade: -

Cu Copper (metal)
Ore type: Ore of indeterminate nature
Past production: 0 t, Average grade: -
Reserve: 0 t, Average grade: -
Resource: 0 t, Average grade: -

PbZn Lead + Zinc (metal)
Ore type: Ore of indeterminate nature
Past production: 0 t, Average grade: -
Reserve: 0 t, Average grade: -
Resource: 0 t, Average grade: -
Environment

High acid generation potential due to the sulfidic composition of the primary ore.
The hydrothermal alteration types (silica, argillic and pyritisation) tends to increase the acid-generating capacity of the host-rocks.
Moreover, the presence of sulfosalts (like tetrahedrite) tends to release, when oxydized, elements like As into the environment.

Comments

Geological references


Economic references

Other references
Dobro Selo

General data

Deposit name(s): Dobro Selo  
Identifier: YUG-00034

Commodities: Coal  
Class: B  
Status: Producing industrial mine

Company: Elektroprivreda Kosova

Longitude: 21.061  
Latitude: 42.676  
District: Kosovo

Geology

Ore deposit type (geology)
Lignite deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Pliocene

Host rocks
Age: Pliocene

Hostrock formation names
Kosovo Coal Basin

Host rock lithology
Medium- to fine-grained detrital sediment
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

Economy

Exploitation type
Open cast (open pit) mining
Bucket wheel dredging

Coal
Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 79500000 t  
Average grade: -

Reserve: - t  
Average grade: -

Resource: 5920500000 t  
Average grade: -

Environment

Acid rock drainage due to the presence of iron sulphur minerals.
Landforms instability created during mining operations and suspended matter in mine water discharge.
Trace metals content may exist (PGE, radionuclides ?).

Comments

In 1964, 2.2 Mt were mined. In 1970, Dobro Selo and Belacevac produced 3.9 Mt. In 1990, 6.2 Mt were mined from these 2 deposits of the North Kosovo Basin.

The Kosovo Basin (North and South) contains approximately 12 billion tons of Pliocene lignite. Kosovo coal is of the poorly consolidated lignite type. It has a 45% moisture content, of which 15% hydromoisture, an average of about 15% ash and 1% sulphur. Its heating value is about 8,000 kJ/kg.

Electric Power Industry of Serbia - Report 1998:
The Kosovo-Metohija coal basin covers an area of about 250 km². The average coal layer thickness is 41 m and may reach 100 m. It contains 12 billion tons of lignite, only 2.65% has been excavated.

Geological references


**Economic references**


**Other references**
Donja Ljubata

General data

Deposit name(s): Donja Ljubata
Commodities: Gr
Class: C
Company: 
Longitude: 22.409
Latitude: 42.465
District: Pcinjski
Identifier: YUG-00196
Status: Deposit of unknown status

Economic references

Mineral deposits of Serbia - Ore deposits database

Geology

Ore deposit type (gitology)
Industrial rocks and minerals related to metamorphic rocks: andalusite group, wollastonite, graphite, etc.

Ore deposit shape
Concordant to subconcordant envelope of disseminated ore

Mineralization
Age:

Ore mineralogy
Graphite

Host rocks
Age: Paleozoic (Primary)

Host rock lithology
Schist (s.l.), phyllite

Economy

Exploitation type
Unworked

Gr
Graphite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: 200000 t
Average grade: -
Average grade: -
Average grade: -

Environment

Possible contamination of surface waters by suspended matter.

Comments

The graphite lenses contain 3-40% C, they are irregularly scattered within a zone 3 km long and 0.5 km wide (Jankovic - 1982)

Geological references


Economic references

Other references

Report BRGM/RC-51448-FR
### General data

**Deposit name(s):** Donje Karacevo  
**Commodities:** Bnt  
**Class:** C  
**Commodity:** Bentonite  
**Status:** Deposit of unknown status

**Company:**  
**Longitude:** 21.717  
**Latitude:** 42.567  
**District:** Kosovo

### Geology

**Ore deposit type (gnotology):**  
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

**Ore deposit shape:**  
Stratiform bed: single or multi-layered (syn-depositional with host rock)

**Mineralization:**  
Age: Neogene (Miocene to Pliocene)

**Ore mineralogy:**  
Bentonite

**Host rocks:**  
Age: Neogene (Miocene to Pliocene)

**Host rock lithology:**  
Clay, claystone  
Volcaniclastic tuff s.l. (tuffaceous sandstone)

### Economy

**Exploitation type:**  
Mining method unknown

**Bnt Bentonite (substance):**  

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 180000 t  
**Average grade:** -

**Reserve:** 1200000 t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

### Environment

Contribution of surface water degradation with a high content in suspended solids (clay minerals).

### Comments

The bentonite contains 60.3% SiO2 and 17.7% Al2O3.  
The mine has been in operation since 1958 with an output between 5,000 and 10,000 t/y.  
In 1982, the reserves of bentonite were 1.2 Mt

### Geological references


### Economic references

### Other references
Donje Nevlje

General data

Deposit name(s): Donje Nevlje
Borovo

Commodities: Cu 0 t
Class N/A

Status: Deposit or prospect of unknown status

Company:

Longitude: 22.752
Latitude: 42.957

District: Pirotski

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization Age: Upper/Late Cretaceous

Ore mineralogy
Pyrite
Chalcopyrite
Magnetite
Sphalerite

Host rock mineralogy
Garnet
Vesuvianite
Epidote
Chlorite

Host rocks Age: Upper/Late Cretaceous

Host rock lithology
Andesite
Pyroclastic rocks s.l.
Limestone

Economy

Exploitation type
Unworked

Cu Copper (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment

Acid generation potential with respect to sulfides minerals.

Comments

Content of Cu less than 0.15%

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l’Europe 26-109
Draglica

General data

Deposit name(s): Draglica  Identifer: YUG-00170
Company:
Commodities: Mg  0 t  Class: N/A
Longitude: 19.721  Latitude: 43.585
District: Zlatiborski
Status: Old industrial mine, exhausted deposit

Geology

Ore deposit type (geology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks
Supergene ore deposits

Ore deposit shape
Discordant lode or vein (thickness > 50 cm), in clusters or isolated

Mineralization  Age:

Ore mineralogy
Magnesite (Giobertite)

Host rocks  Age:

Host rock formation names
Zlatibor Ultramafic Massif

Host rock lithology
Serpentinite
Basic to ultrabasic rock s.l.

Economy

Exploitation type
Unworked

Mg  Magnesium, magnesite (MgCO3)
Ore type: Ore in which the element forms a distinct mineral phase

Past production:  - t  Average grade: -
Reserve:  - t  Average grade: -
Resource:  - t  Average grade: -

Environment

Potential contamination of drainage waters by suspended matter.

Comments

Geological references


Economic references

Other references
## General data

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<tr>
<td></td>
<td>Zn</td>
<td>Class</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Ag</td>
<td>Class</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Au</td>
<td>Class</td>
<td>N/A</td>
</tr>
<tr>
<td>Company:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitude:</td>
<td>21.317</td>
<td>Latitude:</td>
<td>42.845</td>
</tr>
<tr>
<td>District:</td>
<td>Kosovo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Geology

**Ore deposit type (gitology)**
- Low-sulphidation epithermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)
- Unspecified ore deposits related to volcanic systems and shallow intrusives

**Ore deposit shape**
- Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrite</td>
<td>Carbonates</td>
<td>Silicification</td>
</tr>
<tr>
<td>Galena</td>
<td>Rhodochrosite (Dialogite)</td>
<td>Carbonization</td>
</tr>
<tr>
<td>Sphalerite</td>
<td>Silica</td>
<td></td>
</tr>
<tr>
<td>Psilomelane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyrolusite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron Oxydes(unspecified)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Host rocks**

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veles Series</td>
<td>Marble, cipolin (crystalline limestone)</td>
</tr>
<tr>
<td></td>
<td>Serpentinite</td>
</tr>
<tr>
<td></td>
<td>Flysch and fine- to medium-grained volcaniclastic (volcano-sedimentary)</td>
</tr>
<tr>
<td></td>
<td>Turbidite</td>
</tr>
<tr>
<td></td>
<td>Andesite</td>
</tr>
<tr>
<td></td>
<td>Listwaenite</td>
</tr>
</tbody>
</table>

### Economy

**Exploitation type**
- Unworked

**Pb Lead (metal)**

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production:</td>
</tr>
<tr>
<td>Reserve:</td>
</tr>
<tr>
<td>Resource:</td>
</tr>
</tbody>
</table>

**Zn Zinc (metal)**

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production:</td>
</tr>
<tr>
<td>Reserve:</td>
</tr>
<tr>
<td>Resource:</td>
</tr>
</tbody>
</table>
Mineral deposits of Serbia - Ore deposits database

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: - t
Reserve: 213 t
Resource: - t

Average grade: 45 g/t

Au Gold (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment

Acid generation potential due to the sulfides minerals.
This Acid Rock Drainage may be reduced by acid-consuming minerals contained in the gangue as well as in the host rocks.
Expected dissolved contents of Pb, Zn and Mn in the drainage waters.

Comments

2 orebodies:
Orebodies: vein-lenticular, 125 m long and 15 m thick of massive ore with Mn-Fe carbonates grading around 7% PbZn.
Orebodies: with irregular horseshoe shape, indicated reserves are 4,743,027 t @ 2.44% Pb, 4.29% Zn, 45 g/t Ag and with a low gold content, max 0.14 g/t.

Geological references


Economic references

Other references
Drenovac

**General data**

Deposit name(s): Drenovac  
Commodities: Gran  
Class: N/A  
Status: Deposit of unknown status  
Company:  
Longitude: 20.659  
Latitude: 42.438  
District: Kosovo  

**Geology**

Ore deposit type (gitology)  
Slates, marble and ornamental-stone deposits  

Ore deposit shape  
Concordant to subconcordant mass, lens or pod of massive to submassive ore  
Mineralization  
Age:  
Host rocks  
Age:  
Host rock formation names: Orahovac Ultrabasic Massif  
Host rock lithology: Spinel-, garnet-, or plagioclase-bearing lherzolite  

**Economy**

Exploitation type: Unworked  
Gran  
Granite, syenite, etc., ornamental (substance)  
Ore type: Ore in which the element forms a distinct mineral phase  
Past production: - t  
Reserve: - t  
Resource: - t  
Average grade: -

**Environment**

No specific environmental signature is known with this type of ore deposit.

**Comments**

Ornamental stone deposit (Lherzolite), explored by boring, shallow pits and trenches. Deposit of very high-quality.

**Geological references**

Ilic M. - (1975) - Leziste ukrasnog kamena kraj sela Drenovca (Orahovacki ultrabazitski masiv) Translated Title: Ornamental stone deposit near Drenovca village; Orahovac ultrabasic massif. - Zbornik Radova Rudarsko Geoloskog Fakulteta, Universitet u Beogradu, 18, p. 103-112.


**Economic references**

**Other references**
Mineral deposits of Serbia - Ore deposits database

Dubovac

General data

Deposit name(s): Dubovac
Commodities: Mg
Company:
Longitude: 20.883
Latitude: 42.786
District: Kosovo

Geology

Deposit of unknown status

Ore deposit type (gitology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape
Field of discordant lodes (n'km2, n'ha)
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization

Ore mineralogy
Magnesite (Giobertite)

Host rock mineralogy
Dolomite
Quartz
Chalcedony
Calcite

Host rocks
Serpentinite massif of Dubovac

Host rock lithology
Serpentine

Economy

Exploitation type
Unworked

Mg Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production:
Reserve:
Resource:
Average grade:

- t
- t
- t
-
-
-

Environment

Comments
Average grade : 45.02% MgO, 2.12% SiO2, 1.30% CaO

Geological references

Economic references

Other references
Other data bases
Carte Métallogénique de l’Europe 26-118
**General data**

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Dumitru Potok</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valja Potok</td>
<td></td>
</tr>
</tbody>
</table>

**Commodities:** Cu 1 580 000 t  
**Class:** B  
**Status:** Dormant deposit  
**Company:** Rudarsko Topionicarski Basen BOR  
**Longitude:** 21.931  
**Latitude:** 44.201  
**District:** Branicevski

**Geology**

**Ore deposit type (gitology):**  
Porphyry copper deposits: Cu, (Mo, Se, Au, Ag)  

**Ore deposit shape:**  
Discordant envelope of disseminated ore  

**Mineralization:** Age: Upper/Late Cretaceous  

**Ore mineralogy:**  
- Chalcopyrite  
- Pyrite  
- Magnetite  
- Molybdenite  
- Galena  
- Sphalerite  

**Hydrothermal alteration:**  
- Silicification  
- Argillic alteration  
- Biotitization  

**Host rocks:** Age: Upper/Late Cretaceous  

**Hostrock formation names:**  
- Senonian andesite  
- Intrusive Complex  

**Host rock lithology:**  
- Andesite  
- Quartz diorite  
- Pyroclastic rocks s.l.  
- Monzodiorite

**Economy**

**Exploitation type:** Unworked  
**Cu** Copper (metal)  

**Ore type:** Ore in which the element forms a distinct mineral phase  

<table>
<thead>
<tr>
<th>Past production:</th>
<th>- t</th>
<th>Average grade:</th>
<th>- %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>- t</td>
<td>Average grade:</td>
<td>- %</td>
</tr>
<tr>
<td>Resource:</td>
<td>1580000 t</td>
<td>Average grade:</td>
<td>0.2 %</td>
</tr>
</tbody>
</table>

**Environment**

Extreme Acid Rock Drainage production due to the sulfidic composition of the primary ore, the widespread alteration halos and its mineral assemblage. Release of Cu and others metals into the drainage water.

**Comments**

Low grade porphyry copper: 0.2 to 0.3% Cu  
Resources Dumitri Potok: 291 Mt @ 0.2% Cu and Valja Srtz: 485 Mt @ 0.2% Cu

**Geological references**

Economic references

Other references

General data

Deposit name(s): Elemir
Identifier: YUG-00233
Commodities: Petrol
Class: N/A
Status: Producing deposit
Company:
Longitude: 20.279
Latitude: 45.422
District:

Geology

Ore deposit type (gitology)
Oil deposits: oil, (S)

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization
Age:

Host rocks
Age:

Economy

Exploitation type
Mining method unkown

Petr Petroleum (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - m3
Reserve: - m3
Resource: - m3

Average grade: -

Environment
Potential contamination of surface waters, soils and sediments by hydrocarbons and oil products.

Comments

Geological references

Economic references

Other references
Fruska Gora

General data

Deposit name(s): Fruska Gora
Commodities: PbZn
Company: 
Longitude: 19.783
Latitude: 45.200
District: Vojvodina

Geology

Ore deposit type (geology)
Unspecified ore deposit type

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization Age:

Host rocks Age:

Economy

Exploitation type
Mining method unknown

PbZn Lead + Zinc (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment

No specific environmental signature is known with this type of ore deposit.

Comments

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l’Europe 26-017
Gamzigrad

**General data**

- **Deposit name(s):** Gamzigrad, Metovnica, Zajecar
- **Identifier:** YUG-00108
- **Commodities:** Fe
- **Class:** D
- **Status:** Deposit of unknown status
- **Company:**
- **Longitude:** 22.167
- **Latitude:** 43.900
- **District:** Zajecarski

**Geology**

- **Ore deposit type (gitology):** Oolitic iron ore deposits (Clinton, Minette): Fe
- **Ore deposit shape:** Stratabound bed (single or multi-layered)
- **Mineralization Age:** Cenomanian
- **Ore mineralogy:**
  - Goethite
  - Iron Oxydes (unspecified)
- **Host rocks Age:** Cenomanian
  - Hostrock formation names: Cenomanian

**Economy**

- **Exploitation type:** Mining method unkown
- **Fe Iron (metal):**
  - Ore type: Ore in which the element forms a distinct mineral phase
  - Past production: - t
  - Average grade: -%
  - Reserve: - t
  - Average grade: -%
  - Resource: 2000000 t
  - Average grade: 33.5%

**Environment**

- Drainage water with suspended solids content enriched in Fe/Mn.

**Comments**

- Several million tons of limonitic ore with 26-41% Fe, 0.75% P, 0.03% S, 15-24% SiO2, 6-9.5% Al2O3 and 15-17% CaO (Jankovic - 1982).

**Geological references**


**Economic references**

**Other references**

- **Other data bases:**
  - The Iron Ore Deposits of Europe - 1978 YU29
Glama

General data

Deposit name(s): Glama
Identifier: YUG-00213
Commodities: Ag 0 t Class N/A Status: Primary occurrence of unknown status
Au 0 t Class N/A
PbZn 0 t Class N/A
Company: 
Longitude: 21.457 Latitude: 42.490 District: Kosovo

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Ore deposit shape
Discordant mass or lens of massive to submassive ore
Mineralization Age:
Ore mineralogy
Iron Oxydes(unspecified)
Host rocks Age: Jurassic
Host rock lithology
Limestone
Ultrabasic rock

Economy

Exploitation type
Unworked
PbZn Lead + Zinc (metal)
Ore type: Ore of indeterminate nature
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -
Ag Silver (metal)
Ore type: Ore of indeterminate nature
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -
Au Gold (metal)
Ore type: Ore of indeterminate nature
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
Few data available.

Comments
Old workings, 6 chip-samples with gold content between 3.6 and 23.8 g/t.

Geological references
Economic references

Other references
**General data**

**Deposit name(s):** Glavica, Goles Ni

**Commodities:**
- Ni: 99,750 t
- Co: 0 t

**Class:**
- Ni: C
- Co: N/A

**Status:** Old industrial mine, exhausted deposit

**Company:** Ferronikeli

**Longitude:** 20.982

**Latitude:** 42.556

**District:** Kosovo

---

**Geology**

**Ore deposit type (gitology):** Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.

**Ore deposit shape:** Cap, blanket, crust

**Mineralization Age:**

**Ore mineralogy**
- Saponite
- Nontronite
- Garnierite
- Goethite
- Psilomelane
- Wad

**Host rock mineralogy**
- Opal
- Quartz

**Host rocks Age:**

**Host rock formation names**
- Golesh Ultramafic Mass
- Goles peridotite complex

**Host rock lithology**
- Basic to ultrabasic rock s.l.
- Peridotite
- Harzburgite
- Serpentinite

---

**Economy**

**Exploitation type:** Surface mining

**Ni - Nickel (metal):** Ore in which the element forms a distinct mineral phase

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 99,750 t

**Average grade:** 1.33 %

**Reserve:** - t

**Average grade:** - %

**Resource:** - t

**Average grade:** - %

---

**Co - Cobalt (metal):** Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

**Past production:** - t

**Average grade:** - %

**Reserve:** - t

**Average grade:** 0.07 %

**Resource:** - t

**Average grade:** - %

---

**Environment**

The main potential environmental problems are related to:
- the clay minerals assemblage existing in a lateritic context. Through erosion of exposed mining areas, those assemblages generate high suspended solids content in surface water that can produce many impacts associated with surface waters, groundwater and terrestrial ecosystems;
- the dissolved metals (Ni, Co and Fe, Mn) that migrate from old mining operations to local ground and surface water.
Comments
In 1982, Glavica and Cikatovo started in production for the Glogovac smelting plant. The combined reserves were estimated in 1978 to be 26.7 Mt averaging 1.2-1.5% Ni. The combined annual output was planned to be 983,000 t of dry ore containing 1.32% Ni and 0.07% Co.

Located in the Drenica Ore Field (Boev and Jankovic - 1996):
Ore reserves of probable and possible categories amounted to 7.5 Mt @ 1.33% Ni. Today ore reserves are depleted. Other occurrences are known in the Goles peridotite complex but they are not explored in detail (Medvetce, Mirjacici and Stankovac).

Geological references
Mitrovic M and Misirlic M. - (1978) - Prilog utvrivanju mineralnog sastava niklonosne rude iz Golesa i Cikatova, SAP Kosovo. Translated Title: The determination of nickel-bearing ore mineral composition from Goles and Cikatovo; SAP Kosovo. - Rudarski Glasnik, 1, p. 31-46.

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-116
Golija

General data

Deposit name(s): Golija, Jurija
Identifier: YUG-00179
Commodities: W
Class: N/A
Status: Group of mineral occurrences
Company:
Longitude: 20.322
Latitude: 43.290
District: Moravicki

Geology

Ore deposit type (gitology)
Unspecified syn- to late orogenic ore deposits
W (scheelite) - Mo skarns: W, (Mo)

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrrhotite</td>
<td>Quartz</td>
</tr>
<tr>
<td>Scheelite</td>
<td></td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td></td>
</tr>
<tr>
<td>Sphalerite</td>
<td></td>
</tr>
<tr>
<td>Galena</td>
<td></td>
</tr>
</tbody>
</table>

Host rocks
Age:

Economy

Exploitation type
Unworked
W Wolfram (WO3)
Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>- t</td>
<td>- t</td>
</tr>
</tbody>
</table>

Average grade: 0.4 %

Environment
High acid generation potential due to the sulfides minerals contained in the ore.
Dissolved base metals and As may be released into the environment with some expected concentrations in the stream sediments.

Comments

Geological references

Economic references

Other references
General data

Deposit name(s): Gorance

Commodities: Cr

Class: N/A

Status: Deposit of unknown status

Company:

Longitude: 21.239

Latitude: 42.120

District: Kosovo

Geology

Ore deposit type (gitology)
Podiform chromite deposits: Cr

Ore deposit shape
Pod, pod-shaped body
Stratabound envelope of disseminated ore

Mineralization

Age:

Ore mineralogy
Chromite

Host rocks

Age:

Host rock formation names
Lyuboten ultramafic Massif

Host rock lithology
Basic to ultrabasic rock s.l.
Dunite
Harzburgite

Economy

Exploitation type
Mining method unknown

Cr Chrome (Cr2O3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t

Reserve: - t

Average grade: -

Resource: - t

Average grade: -

Environment

No specific environmental signature.

Comments

Border Macedonia and Serbia, must be in Macedonia. Check the coordinates

Geological references


Economic references

Other references
**General data**

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Goveda Glava</th>
<th>Identifier:</th>
<th>YUG-00131</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities:</td>
<td>Cu</td>
<td>Class</td>
<td>N/A</td>
</tr>
<tr>
<td>Status:</td>
<td>Deposit or prospect of unknown status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company:</td>
<td></td>
<td>Longitude:</td>
<td>19.771</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latitude:</td>
<td>44.126</td>
</tr>
</tbody>
</table>

**Geology**

- **Ore deposit type (gitology):** Unspecified ore deposits related to basic-ultrabasic magmatic rocks
- **Volcanogenic massive and disseminated Cu-Au sulphide deposits:** Cu, Au, (Zn, Co, Mo, Bi)

- **Ore deposit shape:** Atypical, unspecified or ill-defined form

**Mineralization**

- **Age:**

**Host rocks**

- **Age:**

**Economy**

- **Exploitation type:** Mining method unknown

<table>
<thead>
<tr>
<th>Cu</th>
<th>Copper (metal)</th>
</tr>
</thead>
</table>

- **Ore type:** Ore of indeterminate nature

| Past production: | - t | Average grade: | - |
| Reserve:         | - t | Average grade: | - |
| Resource:        | - t | Average grade: | - |

**Environment**

Too few data available.

**Comments**

**Geological references**


**Economic references**

**Other references**
General data

Deposit name(s): Grebnik
Commodities: Al
2 000 000 t
Class: D
Status: Old industrial mine, exhausted deposit
Company: Ro Rudnik Boksita Kosovo - Klina
Longitude: 20.601
Latitude: 42.557
District: Kosovo

Geology

Deposit name(s): Grebnik

Ore deposit type (gitology)
Bauxite and Al-rich rocks deposits (karst, laterite and Tikhvinsk types): Al, (Fe, Ga)

Ore deposit shape
Subconcordant or stratabound mass or lens of massive to submassive ore

Mineralization
Age: Upper/Late Cretaceous

Ore mineralogy
Diaspore

Host rocks
Age: Upper/Late Cretaceous

Host rock lithology
Limestone

Economy

Exploitation type
Surface mining

Aluminium (Bauxite ore)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 2000000 t
Average grade: 47 %
Reserve: - t
Average grade: - %
Resource: - t
Average grade: - %

Environment

Existence of a clay minerals assemblage belonging to a lateritic profile.
Through erosion of exposed mining areas, those assemblages generate high suspended solids content in surface water that can produce many impacts associated with surface waters, groundwater and terrestrial ecosystems.

Comments
Mined since 1966, reached a maximum production level of 200,000 t/y. In 1982, depleted reserves and falling grades reduced this level to about 80,000 t/y.
Other name Klina.

Geological references

Economic references

Other references

Other data bases
Carte Métalllogénique de l’Europe 26-120
Guberevac

**General data**

**Deposit name(s):** Guberevac  
**Commodities:** Fe  
**Class:** E  
**Status:** Deposit or prospect of unknown status  
**Longitude:** 20.766  
**Latitude:** 43.835  
**District:** Sumadijski

**Geology**

**Ore deposit type (gitology):**  
Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.  
Oolitic iron ore deposits (Clinton, Minette): Fe

**Ore deposit shape:**  
Cap, blanket, crust  
Stratabound envelope of disseminated ore

**Mineralization Age:** Lower/Early Cretaceous

**Ore mineralogy:**  
Chamosite  
Hematite  
Goethite

**Host rocks Age:** Lower/Early Cretaceous

**Host rock formation names:**  
Gault sediments  
Conglomerate  
Sandstone

**Economy**

**Exploitation type:** Mining method unknown

**Fe Iron (metal):**

**Past production:** - t  
**Average grade:** - %

**Reserve:** - t  
**Average grade:** - %

**Resource:** 250000 t  
**Average grade:** 36.5 %

**Environment**

Potential particulate and colloidal iron compounds in drainage water.

**Comments**

The ore contains 35-37% Fe, 1.3-2% Cr, 0.5-1.5% Ni, 15-25% SiO2, 1.5% Mn.

**Geological references**


Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.


**Economic references**

**Other references**

Other data bases  
The Iron Ore Deposits of Europe - 1978 YU05
Ibarski Rudnici

General data

**Deposit name(s):** Ibarski Rudnici  
**Identifier:** YUG-00139  
**Jarando**  
**Commodities:** Coal  
**Class:** N/A  
**Status:** Producing small-scale mine  
**Company:** Rudnik kamenog uglja IBARSKI RUDNICI - EPS  
**Longitude:** 20.635  
**Latitude:** 43.396  
**District:** Raski

Geology

**Ore deposit type (gitology):** Coal deposits  
**Ore deposit shape:** Stratiform bed: single or multi-layered (syn-depositional with host rock)  
**Mineralization Age:** Miocene  
**Host rocks Age:** Miocene

**Hostrock formation names**  
Ibar Tertiary coal basin  
**Host rock lithology**  
Coal (anthracite, graphite)  
Detrital rock s.l.

Economy

**Exploitation type**  
Underground mining  
**Coal Coal, lignite (substance)**  
**Ore type:** Ore in which the element forms a distinct mineral phase

| Past production | - t | Average grade | - |
| Reserve: | - t | Average grade | - |
| Resource: | - t | Average grade | - |

Environment

Potential acid rock drainage with respect of the sulfides content.  
Suspended matter in mine water discharge.  
Landform instability (collapses) created during and after mining operations.

Comments

In 1981, output of 250,000 t/y.  
Coal mined in the Ibar basin is considerably metamorphosed by contact-thermal changes of andesite effusions.  
The average sulphur content is 5 to 6% and the heating value is about 26,000 kJ/kg.

Geological references


Economic references


Other references
General data

Deposit name(s): Iverak

Identifer: YUG-00043

Commodities: 

- Sn t Class N/A Status: Deposit of unknown status
- U 0 t Class N/A

Company:

Longitude: 19.456 Latitude: 44.586 District: Macvanski

Geology

Ore deposit type (gitology)
Alluvial-eluvial placers: Au, Pt, Sn,Ti, REE, diamond, gemstones, (Zr, etc.)
Sedimentary uranium deposits: U, (V, Mo, Ni, Cu, Zn, Pb, As)

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization Age:

Ore mineralogy
Cassiterite
Columbo-tantalite

Host rocks Age: Cenozoic

Hostrock formation names Host rock lithology
Tertiary clastic sediments Detrital rock s.l.
Alluvium s.l.

Economy

Exploitation type
Unworked

U Uranium (metal)

Ore type: Ore of indeterminate nature

Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Sn Tin (metal)

Environment

Modification of waterbeds by alluvial extraction.
Degradation of the surface water quality by suspended matters and high turbidity.

Comments

Deposit of Sn but also U deposit in some reports.

Geological references


Economic references

Other references

Other data bases

Carte Métallogénique de l’Europe 26-041

Report BRGM/RC-51448-FR
Mineral deposits of Serbia - Ore deposits database

YUG-00156

Jaram

General data

Deposit name(s): Jaram
District: Rasinski

Commodities: Wol 0 t  Class N/A  Status: Dormant deposit

Company: YUG-00156
Longitude: 20.830  Latitude: 43.282  District: Rasinski

Geology

Ore deposit type (gitology)
Industrial rocks and minerals related to metamorphic rocks: andalusite group, wollastonite, graphite, etc.

Ore deposit shape
Discordant mass or lens of massive to submassive ore

Mineralization Age:

Ore mineralogy Host rock mineralogy Hydrothermal alteration
Wollastonite Vesuvianite Skarn formation
Quartz
Calcite
Epidote
Garnet
Diopside
Magnetite

Host rocks Age:

Hostrock formation names Host rock lithology
Kopaonik granodioritic massif Undifferentiated metamorphic rock
Granodiorite

Economy

Exploitation type Unworked
Wol Wollastonite (substance)
Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: - %
Reserve: - t  Average grade: 67.5 %
Resource: - t  Average grade: - %

Environment

No specific environmental signature.

Comments
The ore contains 60-75% of wollastonite, 2-16% of carbonates and 4-12% of quartz.
Technological tests have produced satisfactory market-grade wollastonite concentrations.
The ore contains 48-52% SiO2, 0.5-0.7% Fe2O3, 39.5-43.4% CaO and 0.9-2.8% CO2

Geological references
Economic references

Other references

Jastrebac

General data

Deposit name(s): Jastrebac
Commodities: Au 0 t Class N/A Status: Primary occurrence of unknown status
Company: Topolicki
Longitude: 21.433 Latitude: 43.400 District: Topolicki

Geology

Ore deposit type (gitology)
Unspecified syn- to late orogenic ore deposits

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)

Mineralization Age:

Host rocks Age:

Host rock lithology
Undifferentiated metamorphic rock

Economy

Exploitation type
Unworked

Au Gold (metal)

Ore type: Ore of indeterminate nature

Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
No data available.

Comments

Geological references


Economic references

Other references
Jovac 1

General data

Deposit name(s): Jovac 1  
Identifier: YUG-00065  
Commodities: Mica  
Status: Deposit or prospect of unknown status  
Company:  
Longitude: 21.311  
Latitude: 43.892  
District: Pomoravski

Geology

Ore deposit type (gitology)  
Industrial rocks and minerals related to sedimentary or metamorphic rocks  
Ore deposit shape  
Atypical, unspecified or ill-defined form  
Mineralization  
Age:  
Host rocks  
Age:  

Economy

Exploitation type  
Mining method unknown  
Mica  
Mica, sheet (substance)  
Ore type: Ore in which the element forms a distinct mineral phase  
Past production: - t  
Average grade: -  
Reserve: - t  
Average grade: -  
Resource: - t  
Average grade: -

Environment

The exposed waste rocks to water runoff may be the source of environmental problems due to the high content of suspended matter in surface water.

Comments

Geological references

Economic references

Other references

Other data bases  
Carte Métallogénique de l’Europe 26-072
Jovac 2

General data

Deposit name(s): Jovac 2
Commodities: Cu 0 t
Class: N/A
Status: Deposit or prospect of unknown status
Company:
Longitude: 21.683
Latitude: 43.750
District:

Geology

Ore deposit type (geology)
Unspecified ore deposit type
Ore deposit shape
Atypical, unspecified or ill-defined form
Mineralization Age:
Host rocks Age:

Economy

Exploitation type
Mining method unknown
Cu Copper (metal)
Ore type: Ore of indeterminate nature
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment

Comments

Geological references

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-073
Kalna

**General data**

**Deposit name(s):** Kalna  
**Identifier:** YUG-00096  
**Commodities:** U 0 t  
**Class:** N/A  
**Status:** Deposit of unknown status  
**Company:**  
**Longitude:** 22.526  
**Latitude:** 43.424  
**District:** Zajecarski

**Geology**

**Ore deposit type (gitology)**  
Shear-zone related mesothermal uranium deposits: U, (Fe, Cu, Pb, Zn, Se)

**Ore deposit shape**  
Field of discordant lodes (n*km², n*ha)

**Mineralization**  
**Age:**

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uraninitite</td>
<td>Niter</td>
<td>Sericitization</td>
</tr>
<tr>
<td>Pyrite</td>
<td>Quartz</td>
<td>Chloritization</td>
</tr>
<tr>
<td>Galena</td>
<td>Chalcedony</td>
<td>Argillic alteration</td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td>Barite</td>
<td></td>
</tr>
<tr>
<td>Pyrrhotite</td>
<td>Strontianite</td>
<td></td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Host rocks**  
**Age:**

<table>
<thead>
<tr>
<th>Host rock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janja granite</td>
<td>Granite (s.l.)</td>
</tr>
</tbody>
</table>

**Economy**

**Exploitation type**

Underground mining

**U** Uranium (metal)

<table>
<thead>
<tr>
<th>Ore type:</th>
<th>Ore of indeterminate nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production:</td>
<td>- t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>-</td>
</tr>
</tbody>
</table>

**Environment**

Acid generating potential due to the sulfide minerals composition of the ore.  
Radioactive elements (U, Th..) in drainage waters and potential emission of Radon and gamma radiations.  
Presence of arsenopyrite that can release As into the environment and in particular into the stream sediments.

**Comments**

First Uranium mine of Yugoslavia, in experimental operation until 1961

**Geological references**


**Economic references**

**Other references**

**Other data bases**

Carte Métallogénique de l'Europe 26-164

Report BRGM/RC-51448-FR
### General data

**Deposit name(s):** Kaltrina, Plavica  
**Identifier:** YUG-00185  
**Company:** TREPCA Mining and Metallurgical Complex  
**Longitude:** 21.442  
**Latitude:** 42.608  
**District:** Kosovo

### Geology

**Ore deposit type (geology)**  
Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe  
**Ore deposit shape**  
Stratiform envelope of disseminated ore  
**Mineralization**  
Age: Tertiary  
**Ore mineralogy**  
- Galena  
- Sphalerite  
- Pyrite  
**Host rocks**  
Age:  
**Host rock lithology**  
- Marble, cipolin (crystalline limestone)  
- Schist (s.l.), phyllite

### Economy

**Exploitation type**  
Unworked  
**Pb Lead (metal)**  
**Ore type:** Ore in which the element forms a distinct mineral phase  
**Past production:** - t  
**Reserve:** 57376 t  
**Resource:** - t  
**Average grade:** 4.4 %  
**Zn Zinc (metal)**  
**Ore type:** Ore in which the element forms a distinct mineral phase  
**Past production:** - t  
**Reserve:** 63000 t  
**Resource:** - t  
**Average grade:** 4.5 %  
**Ag Silver (metal)**  
**Ore type:** Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)  
**Past production:** - t  
**Reserve:** 181 t  
**Resource:** - t  
**Average grade:** 129 g/t

### Environment

High acid generation potential due to the sulfides minerals contained in the ore. The Acid Rock Drainage may partly be reduced by acid-consuming minerals contained in the gangue mineralogy or in the host rocks, but in general calc-silicate skarn minerals show low neutralizing reactivity with acid waters.
Comments
Reserves supported by 4 drill-holes and underground workings: 1,304,000 t @ 4.4% Pb, 4.5% Zn and 129 g/t Ag.

Geological references

Economic references

Other references
Kaludjer

**General data**

**Deposit name(s):** Kaludjer  
**Identifier:** YUG-00189  
**Commodities:**  
- **Pb**: 5760 t  
  - **Class**: D  
  - **Status**: Deposit of unknown status  
- **Zn**: 11200 t  
  - **Class**: D  

**Company:** TREPCA Mining and Metallurgical Complex  
**Longitude:** 20.699  
**Latitude:** 43.090  
**District:** Kosovo

**Geology**

**Ore deposit type (gitology)**  
Unspecified ore deposits related to volcanic systems and shallow intrusives

**Ore deposit shape**  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**  
- **Age:** Tertiary

**Host rocks**  
- **Age:**  

**Hostrock formation names**  
Thrust contact between amphibolite/serpentinite

**Host rock lithology**  
- Amphibolite (s.l.)  
- Serpentinite

**Economy**

**Exploitation type**  
Surface mining

**Pb Lead (metal)**

**Ore type:** Ore of indeterminate nature

- **Past production:** - t  
- **Reserve:** - t  
- **Resource:** 5760 t  
- **Average grade:** 1.8 %

**Zn Zinc (metal)**

**Ore type:** Ore of indeterminate nature

- **Past production:** - t  
- **Reserve:** - t  
- **Resource:** 11200 t  
- **Average grade:** 3.5 %

**Environment**  
No data available.

**Comments**

**Geological references**


**Economic references**

**Other references**
**General data**

**Deposit name(s):** Karacevo  
**Identifier:** YUG-00036  
**Commodities:** Kln  
3 450 000 t  
**Class:** C  
**Status:** Deposit of unknown status  
**Company:** Rudnik Kaolina Karacevo  
**Longitude:** 21.732  
**Latitude:** 42.565  
**District:** Kosovo

**Geology**

*Ore deposit type (geology)*  
Supergene industrial rock and mineral deposits: clays, kaolin, silica sand, etc.  

*Ore deposit shape*  
Tabular-shaped mass or lens  

*Mineralization Age:* Cenozoic  

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaolinite</td>
<td>Feldspar</td>
</tr>
<tr>
<td>Illite</td>
<td>Quartz</td>
</tr>
<tr>
<td>Halloysite</td>
<td></td>
</tr>
<tr>
<td>Montmorillonite</td>
<td></td>
</tr>
</tbody>
</table>

*Host rocks Age:* Paleozoic (Primary)  

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Hercynian granodiorite</td>
<td>Granodiorite</td>
</tr>
</tbody>
</table>

**Economy**

**Exploitation type**  
Surface mining  

Kln **Kaolin (substance)**  

**Ore type:** Ore in which the element forms a distinct mineral phase  

<table>
<thead>
<tr>
<th>Past production</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>250000 t</td>
<td>-</td>
</tr>
<tr>
<td>Reserve</td>
<td>3200000 t</td>
</tr>
<tr>
<td>Resource</td>
<td>- t</td>
</tr>
</tbody>
</table>

**Environment**  
High turbidity and suspended matter in surface water.  
Landforms instability created during mining operations.

**Comments**  
Has been worked since 1965 with an output of 23,000 - 28,000 t/y of kaolin.  
In 1982, the mine output will reach 200,000 t/y of raw material.  
In 1975, the reserves were estimated at 3.2 Mt.

**Geological references**

Simic V. and Jovic V. - (1997) - Genetic types of kaolin and kaolinite clay deposits in Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogenesis of the Vardar Zone and Serbo-Macedonian Massif". Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Slip, pp. 197-201

**Economic references**

**General data**

**Deposit name(s):** Karadak  
**Identifier:** YUG-00215  
**Commodities:** PbZn  
**Class:** N/A  
**Status:** Deposit of unknown status  
**Company:**  
**Longitude:** 20.691  
**Latitude:** 43.248  
**District:** Raski

**Geology**

- **Deposit of unknown status**
- **Unspecified ore deposits related to volcanic systems and shallow intrusives**

**Ore deposit shape**
- Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata
- Stratabound envelope of disseminated ore

**Mineralization**

- **Age:** Cenozoic
- **Ore mineralogy**
  - Pyrite
  - Marcasite
  - Sphalerite
  - Galena
  - Arsenopyrite
  - Chalcopyrite
  - Bournonite
  - Tetrahedrite
  - Enargite
  - Boulangerite
  - Antimonite
  - Iron Oxydes (unspecified)
  - Cerussite
  - Covellite

- **Host rock mineralogy**
  - Quartz
  - Carbonates
  - Clay

- **Ore in which the element forms a distinct mineral phase**

**Hydrothermal alteration**

- Kaolinization

**Host rock lithology**

- Andesite
- Pyroclastic rocks s.l.

**Economy**

**Exploitation type**

- Unworked

**PbZn Lead + Zinc (metal)**

- **Past production:** - t
- **Reserve:** - t
- **Resource:** - t

**Average grade:**

- -
- -
- -

**Environment**

- Potential Acid Rock Drainage production due to the sulfides and sulfosalts minerals present in the ore.
- Expected dissolved and particulate contents of base metals and As in the drainage waters.
- Presence of acid-consuming minerals in the gangue that could reduce the Acid Rock Drainage production.
- Possible contamination of surface water by suspended matter.

**Comments**

**Geological references**

Radulovic B. - (1992) - Leziste cinka i olova karadak Translated Title: The Karadak zinc and lead deposit. - Radovi Geoinstitut, 27,

Economic references

Other references
General data

Deposit name(s): Karamanica
Identifier: YUG-00202
Commodities: 
Pb 42 900 t
Zn 57 350 t
Class C
Status: Deposit of unknown status

Company:
Longitude: 22.348
Latitude: 42.377
District: Pcinjski

Geology

Ore deposit type (gîtology)
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization Age: Oligocene (Middle Tertiary)

Host rocks Age: Oligocene (Middle Tertiary)

Host rock lithology
Undifferentiated metamorphic rock
Granite (s.l.)
Gneiss (s.l.)

Economy

Exploitation type
Unworked

Pb  Lead (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: 42 900 t
Average grade: 1.16 %
Resource: - t
Average grade: - %

Zn  Zinc (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: 57 350 t
Average grade: 1.55 %
Resource: - t
Average grade: - %

Environment
No data available on ore and gangue mineralogy as well as on wall rock alteration.

Comments
The Podvirovi mineralization is the richest one: 2.62% Pb, 2.72% Zn, 21 g/t Ag and 193 g/t Cd (Simic - 1997).
Reserves: 3.7 Mt @ 1.16% Pb, 1.55% Zn.

Geological references
Simic M. - (1997) - Geological-structural features of the Besna Kobila Zone in SE Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif". Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 185-195

Economic references
### General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Katalenac</th>
<th>Identifier:</th>
<th>YUG-00226</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company:</td>
<td></td>
<td>Class: N/A</td>
<td></td>
</tr>
<tr>
<td>Longitude:</td>
<td>22.009</td>
<td>Latitude:</td>
<td>42.562</td>
</tr>
<tr>
<td>District:</td>
<td>Pcinjski</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Geology

**Deposit type (geology)**
Volcanic-hosted industrial rock and mineral deposits: bentonite, diatomite, kaolinite, pumice, opal, chalcedony, zeolite, vermiculite, perlite, etc.

**Deposit shape**
Atypical, unspecified or ill-defined form

**Age**
Neogene (Miocene to Pliocene)

**Mineralization**
Zeolite

**Host rocks**
Neogene (Miocene to Pliocene)

**Host rock lithology**
Vitric tuff

### Economy

**Exploitation type**
Surface mining

**Silica, silica sand (substance)**

<table>
<thead>
<tr>
<th>Ore type:</th>
<th>Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
</table>

- Past production: - t | Average grade: - |
- Reserve: - t | Average grade: - |
- Resource: - t | Average grade: - |

### Environment

Dust production and fallout (Si).
Geomorphic modifications in the landscape (quarry).

### Comments

### Geological references


### Economic references

### Other references
**General data**

**Deposit name(s):** Kiseli Potok  
**Identifier:** YUG-00186  
**Commodities:**  
- **Pb** 60 000 t  
- **Zn** 50 000 t  
- **Ag** 160 t  
**Company:** TREPCA Mining and Metallurgical Complex  
**Longitude:** 21.427  
**Latitude:** 42.608  
**District:** Kosovo  
**Status:** Unexploited deposit

**Geology**

**Ore deposit type (gitology):** Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe

**Ore deposit shape:** Atypical, unspecified or ill-defined form

**Mineralization:**

**Host rocks:**

**Economy**

**Exploitation type:** Unworked

**Pb Lead (metal):**

- **Ore type:** Ore of indeterminate nature
- **Past production:** - t
- **Reserve:** - t
- **Resource:** 60 000 t

**Zn Zinc (metal):**

- **Ore type:** Ore of indeterminate nature
- **Past production:** - t
- **Reserve:** - t
- **Resource:** 50 000 t

**Ag Silver (metal):**

- **Ore type:** Ore of indeterminate nature
- **Past production:** - t
- **Reserve:** - t
- **Resource:** 160 t

**Environment**

No data available.

**Comments**

Resources of 2 Mt @ 3.0% Pb, 2.5% Zn, 80 g/t Ag and 40% Fe2S.

**Geological references**


**Economic references**
Other references
Kisnica

**General data**

**Deposit name(s):** Kisnica  
**Identifier:** YUG-00025  
**Commodities:**  
- **Pb:** 396,000 t, Class B  
- **Ag:** 532 t, Class C  
- **Zn:** 122,000 t, Class C  
- **Au:** 0 t, Class N/A  
**Company:** TREPCA Mining and Metallurgical Complex  
**Longitude:** 21.237°  
**Latitude:** 42.598°  
**District:** Kosovo  
**Status:** Dormant deposit

**Geology**

**Ore deposit type (gitology):**  
Low-sulphidation epithermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)

**Ore deposit shape:**  
Subconcordant or stratabound mass or lens of massive to submassive ore  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata  
Field of discordant lodes (n*km², n*ha)

**Mineralization**  
**Age:** Miocene

**Ore mineralogy**  
Sphalerite  
Galena  
Pyrite  
Pyrrhotite  
Magnetite  
Chalcopyrite  
Cubanite  
Valleriite  
Stannite  
Arsenopyrite  
Grey copper  
Gold  
Bournonite  
Loellingite  
Stibnite  
Pyrrargyrite  
Boulangerite  
Covellite  
Marcasite

**Host rock mineralogy**  
Siderite  
Quartz  
Rhodochrosite (Dialoqite)  
Barite  
Chalcedony

**Host rocks**  
**Age:**  
Contact serpentinite-Cretaceous flysh

**Host rock formation names**  
Serpentinite  
Andesite  
Schist/shale

**Economy**

**Exploitation type**  
Surface mining  
Underground mining

**Pb Lead (metal)**  
**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th><strong>Past production:</strong></th>
<th>270,000 t</th>
<th><strong>Average grade:</strong></th>
<th>2.63 %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve:</strong></td>
<td>126,000 t</td>
<td><strong>Average grade:</strong></td>
<td>4.9 %</td>
</tr>
<tr>
<td><strong>Resource:</strong></td>
<td>- t</td>
<td><strong>Average grade:</strong></td>
<td>- %</td>
</tr>
</tbody>
</table>
Mineral deposits of Serbia - Ore deposits database

Au  Gold (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore of indeterminate nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t Average grade: -</td>
</tr>
<tr>
<td>Reserve: - t Average grade: -</td>
</tr>
<tr>
<td>Resource: - t Average grade: -</td>
</tr>
</tbody>
</table>

Ag  Silver (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore of indeterminate nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: 390 t Average grade: 38 g/t</td>
</tr>
<tr>
<td>Reserve: 142 t Average grade: 55 g/t</td>
</tr>
<tr>
<td>Resource: - t Average grade: - g/t</td>
</tr>
</tbody>
</table>

Zn  Zinc (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: 90000 t Average grade: 0.88 %</td>
</tr>
<tr>
<td>Reserve: 32000 t Average grade: 1.2 %</td>
</tr>
<tr>
<td>Resource: - t Average grade: - %</td>
</tr>
</tbody>
</table>

Environment

The primary ore mineralogy is mainly composed of sulfides (lead and zinc + iron sulfides) that may generate acid and dissolved metals during oxidation leading to the potential contamination of drainage water and stream sediments (Acid Mine Drainage).

Presence of arsenopyrite and Loellingite that can liberate As into the environment and lead to its accumulation in stream sediments downstream of the ore-deposits.

The existence of an ore processing plant at Gracanica has generated large tailings disposals (15-18Mt) that can be a source of groundwater and surface water contamination.

Comments

The lenses average 5% Pb and 1.5% Zn, the stockwork 2.4% Pb and 1.2% Zn.

ITT/UNMIK Mission (12/2000) : Past production (1962-1998) by underground mine : 3,562,000 t @ 4.08% Pb, 1.02% Zn, 53 g/t Ag.

Past Production (1969-1992) by open pit : 6,721,000 t @ 1.85% Pb, 0.81% Zn and 30 g/t Ag.

Reserves of the underground mine : 2,581,000 t @ 4.9% Pb, 1.2% Zn and 55 g/t Ag.

Geological references


Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

Economic references


Other references

Other data bases

Carte Métallogénique de l’Europe 26-112
Kizevak

General data

Deposit name(s): Kizevak
Company: Raski
Longitude: 20.701
Latitude: 43.291
District: Raski

Commodities:
Pb 48000 t Class C
Zn 106800 t Class C

Status: Producing industrial mine

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization Age:
Cenozoic

Ore mineralogy
Pyrite
Arsenopyrite
Sphalerite
Galena
Boulangerite
Antimonite
Chalcopyrite
Marcasite

Hydrothermal alteration
Kaolinization
Propylitization

Host rock lithology
Andesite
Pyroclastic rocks s.l.

Economy

Exploitation type
Surface mining

Pb Lead (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: 48000 t Average grade: 2.14 %
Resource: - t Average grade: - %

Zn Zinc (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: 106800 t Average grade: 4.76 %
Resource: - t Average grade: - %

Environment

Acid generation potential due to the sulfides and sulfosalts minerals contained in the ore.
Expected high dissolved and particulate contents of Fe, Cu and As in drainage waters with possible concentrations in stream sediments.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Comments

Reserves: 2244 kt @ 2.14% Pb and 4.76% Zn
**Geological references**


**Economic references**

**Other references**
**General data**

**Deposit name(s):** Kolubara

**Identifier:** YUG-00141

**Commodities:** Coal 815 947 000 t  
**Class:** B  
**Status:** Producing industrial mine

**Company:** Rudnici lignita BASEN KOLUBARA - EPS

**Longitude:** 20.303  
**Latitude:** 44.461  
**District:** City of Beograd

**Geology**

**Ore deposit type (gitology):** Lignite deposits

**Ore deposit shape:** Stratiform bed: single or multi-layered (syn-depositional with host rock)

**Mineralization:** Age: Pontian

**Host rocks:** Age: Pontian

**Host rock formation names:** Kolubara Coal Basin

**Host rock lithology:** Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

**Medium- to fine-grained detrital sediment**

**Economy**

**Exploitation type:** Open cast (open pit) mining

**Coal, lignite (substance):**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 615947000 t  
**Average grade:** -

**Reserve:** 2200000000 t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

**Environment**

Potential acid rock drainage with respect of the sulfides content.

Suspended matter in mine water discharge.

Large geomorphic modifications of the landscape (pits, gullies, spoil heaps...) has taken place in this area since 1945.

Landform instability (collapses) created during and after mining operations.

**Comments**

Opencast mining started in 1950. In 1981, current output was about 20,000,000 t/y from 3 openpits: Field B, Field D and Tamnava. In 1983, the resources were estimated at about 3,568 Mt.

Kolubara coal is of the lignite type. It contains about 47% of moisture and 12% of ash. The heating value is about 7,500 kJ/kg.

Electric Power Industry of Serbia - Report 1998:

Kolubara cover an area of 600 km² and comprises 4 open-pits: Field B, Field D, Tamnava-East and Tamnava-West. The mining equipment installed at these 4 mines is capable of producing 27.5 Mt of coal and removing 49.5 Mm³ of overburden a year.

Electric Power Industry of Serbia - Report 1999:

In 1999, open-pit mines "Kolubara" produced the amount of 22,683,000 t of coal.

The total production between 1945-2000 was 615.9 Mt of coal and 1,283 Mm³ of overburden (striping ratio of 2.08). The remaining lignite reserves amount 2,200 Mt.

**Geological references**


Economic references
Dimitrijevicj D. - (1983) - Kolubarski ugljeni basen i njegovi resursi u pogledu dobijanja produkata vece toplotne vrednosti Translated Title: Kolubara coal basin and its resources from the aspect of increasing the thermal efficiency. - Geoloshki Analii Balkanskoga Poluostrva, 46, p. 333-351.
Mitrovic M. - (1981) - Mogucnosti cисcenja lignita kolubara pre sagorevanja u termoelektrani Translated Title: Possibilities of purifying the Kolubara lignite before combustion in energy-producing stations. - Rudanski Glasnik, 2, p. 34-44.

Other references
General data

Deposit name(s): Koporic
Identifier: YUG-00077

Commodities: 
Pb 50 000 t Class C
Zn 19 000 t Class D
Ag 58 t Class E

Company: TREPCA Mining and Metallurgical Complex
Longitude: 20.858
Latitude: 43.144
District: Kosovo

Geology

Ore deposit type (geology)
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization
Age: Neogene (Miocene to Pliocene)

Ore mineralogy
Galena
Sphalerite

Hydrothermal alteration
Silicification

Host rocks
Age: Neogene (Miocene to Pliocene)

Hostrock formation names
Serpentinite - Upper cretaceous flysch

Host rock lithology
Dacite
Andesite
Serpentinite

Economy

Exploitation type
Surface mining

Pb Lead (metal)
Ore type: Ore in which the element forms a distinct mineral phase

Past production:
50000 t
Average grade: 2.2 %

Reserve:
-t
Average grade: - %

Resource:
-t
Average grade: - %

Zn Zinc (metal)
Ore type: Ore in which the element forms a distinct mineral phase

Past production:
19000 t
Average grade: 0.8 %

Reserve:
-t
Average grade: - %

Resource:
-t
Average grade: - %

Ag Silver (metal)
Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem

Past production:
58 t
Average grade: 26 g/t

Reserve:
-t
Average grade: - g/t

Environmental

Moderate production of Acid mine drainage with associated dissolved base metals in surface waters.
The ore processing plant located in Lepocavic has generated large amounts of tailings (8 Mt).

Comments

In 1982, the Koporic openpit was the largest mine of Kapaonik Mining Company, with a current output of 160,000 t/y. The ore has always been low-grade, with 2% Pb and 1% Zn. The mineralized zone is a silica mass, presence of gold ?
ITT/UNMIK Mission (12/2000) : Past production (1972-1998) : 2,269,000 t @ 2.2% Pb, 0.8% Zn and 26 g/t Ag.

**Geological references**

Jankovic N and Jankovic T. - (1976) - Strukturno-litoloske karakteristike lezista Koporic i njihov uticaj na proces orudnjenja Translated Title: The structural- lithologic characteristics of the Koperic Deposit and their influence on ore mineralization. - Jugoslovenski Geološki Kongres, 8, (5), p. 79-86.

Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metalogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo- Macedonian metallogenic province - Geolohski Analii Balkanskoga Poluostrva, 42, p. 507-525.


**Economic references**


**Other references**

*Other data bases*
Carte Métallogénique de l’Europe 26-095
Korlace

**General data**

**Deposit name(s):** Korlace  **Identifier:** YUG-00116  
**Commodities:** Asb  0 t  **Class:** N/A  **Status:** Producing industrial mine  
**Company:** Jugoazbest Korlace  
**Longitude:** 20.694  **Latitude:** 43.365  **District:** Raski

**Geology**

**Ore deposit type (gitology):** 
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

**Ore deposit shape:** 
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization Age:**

**Ore mineralogy:**
Chrysotile (Clino-, Ortho-, Par)

**Hydrothermal alteration:**
Carbonatization
Silicification

**Host rocks Age:**

**Host rock formation names:**
Kopaonik ultramafite mass

**Host rock lithology:**
Serpentinite
Spinel-, garnet-, or plagioclase-bearing
Iherzolite
Harzburgite

**Economy**

**Exploitation type:** Surface mining  
**Asb Asbestos (substance)**

**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>- t</th>
<th>Average grade:</th>
<th>- %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>- t</td>
<td>Average grade:</td>
<td>2.78 %</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
<td>Average grade:</td>
<td>- %</td>
</tr>
</tbody>
</table>

**Environment**

Emission of particulate matters in the form of fugitive dust.
The dust mainly composed of fibrous minerals can be inhaled by people and thus may induce illinesses.

**Comments**

By 1981, approximate output was 12,000 t/y of asbestos fibre.

**Geological references**


**Economic references**


Tanasijevic D. - (1981) - Dorpinos izboru obima proizvodnje u rudniku azbesta korlace Translated Title: The choice of the rate of production for the Korlace asbestos mine. - Rudarski Glasnik, 2. p. 11-17.
**General data**

**Deposit name(s):** Kosjeric  
**Commodities:** LstC  
**Company:** D.P. Fabrika Cementa KOSJERIC  
**Longitude:** 19.938  
**Latitude:** 43.991  
**District:** Zlatiborski  

**identifier:** YUG-00224  
**Status:** Producing industrial mine

**Geology**

**Ore deposit type (gitology):** Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

**Ore deposit shape:** Stratiform bed: single or multi-layered (syn-depositional with host rock)

**Mineralization:** Age:

**Host rocks:** Age: Upper/Late Cretaceous

**Host rock lithology:**  
Limestone  
Marl

**Economy**

**Exploitation type:** Surface mining

**LstC** Cement limestone (substance)

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  
**Reserve:** - t  
**Resource:** - t  

**Average grade:** -

**Environment**

Dust production and fallout.  
Geomorphologic modifications in the landscape (quarry).

**Comments**

Production 1990: 456 kt  
Annual production: 442 kt (1999)

**Geological references**


**Economic references**

**Other references**
Kosmaj Babe

General data

Deposit name(s): Kosmaj Babe
Identifier: YUG-00049

Commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb</td>
<td>269 618 t</td>
<td></td>
<td>266 500 t</td>
</tr>
<tr>
<td>Zn</td>
<td>136 500 t</td>
<td></td>
<td>136 500 t</td>
</tr>
<tr>
<td>Cu</td>
<td>19 500 t</td>
<td></td>
<td>19 500 t</td>
</tr>
</tbody>
</table>

Class:

- Pb: Class B
- Zn: Class C
- Cu: Class D

Status:

Dormant deposit

Company:

District: Beograd

Longitude: 20.576
Latitude: 44.469

Geology

Ore deposit type (gitology)
Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag (Au)

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization
Age:

Host rocks
Age:

Economy

Exploitation type
Unworked

Pb  Lead (metal)

Ore type: Ore of indeterminate nature

Past production: 3118 t
Average grade: - %

Resource: 266 500 t
Average grade: 4.1 %

Zn  Zinc (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Average grade: - %

Resource: 136 500 t
Average grade: 2.1 %

Cu  Copper (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Average grade: - %

Resource: 19 500 t
Average grade: 0.3 %

Environment

Comments
Old slags which produced 3118 t Pb.
Resources of 6.5 Mt @ 4.1% Pb, 2.1% Zn, 0.3% Cu with Ag, Cd and Bi.

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-049
Kostolac

**General data**

**Deposit name(s):** Kostolac  
**Commodities:** Coal 809 091 000 t  
**Class:** C  
**Company:** Rudnici lignita BASEN KOSTOLAC - EPS  
**Longitude:** 21.203  
**Latitude:** 44.721  
**District:** Branicevski

**Geology**

- **Ore deposit type (gitology):** Lignite deposits
- **Ore deposit shape:** Stratiform bed: single or multi-layered (syn-depositional with host rock)
- **Mineralization Age:** Pliocene
- **Host rocks Age:** Pliocene

**Hostrock formation names:** Kostolac Coal Basin

**Host rock lithology:** Medium- to fine-grained detrital sediment  
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

**Economy**

- **Exploitation type:** Open cast (open pit) mining  
Bucket wheel dredging

**Coal Coal, lignite (substance):** Ore in which the element forms a distinct mineral phase

| Past production | 109091000 t | Average grade: | - |
| Reserve | 700000000 t | Average grade: | - |
| Resource | - t | Average grade: | - |

**Environment**

- Potential acid rock drainage with respect of the sulfides content.
- Suspended matter in mine water discharge.
- Large geomorphic modifications of the landscape (pits, gullies, spoil heaps...) has been created since the beginning of the mining period.
- Landform instability (collapses) created during and after mining operations may exist.

**Comments**

Coal reserves were explored and proved in the areas of Kostolac, Drmno, Klenovnik, Cirikovac and Poljana (100 km²)

Grade properties of the main coal seam are:
moisture 40 to 43%, ash 6.57 to 16.16%, sulphur 1.73 to 2.52%, combustibility 43 to 53, Gross heating value 11,600 to 14,000 kJ, Net heating value 10,000 to 12,300 kJ.

In 1981, output was about 3,200,000 t/y.
Opening of new operations was planned for a total output of 6,600,000 t/y

Electric Power Industry of Serbia - Report 1998:
Kostolac comprises 3 open-pits: Klenovnik, Cirikovac and Drmno. The mining equipment installed at these 3 mines is capable of producing 9.2 Mt of coal and removing 30 Mm³ of overburden a year.

Electric Power Industry of Serbia - Report 1999:
In 1999, open-pit mines "Kostolac" produced the amount of 5,734,032 t of coal.

The total production between 1945-2000 was 109.1 Mt of coal and 365 Mm³ of overburden (striping ratio of 3.35). The remaining lignite reserves amount 700 Mt.
Geological references


Economic references


Other references
General data

Deposit name(s): Kotlenic
Commodities: PbZn
Company: 
Longitude: 20.773
Latitude: 43.783
District: Raski

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Discordant lode or vein (thickness > 50 cm), in clusters or isolated

Mineralization
Age:

Host rocks
Age:

Economy

Exploitation type
Mining method unknown

PbZn Lead + Zinc (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Reserve: - t
Resource: - t
Average grade: -
Average grade: -
Average grade: -

Environment
No data available.

Comments

Geological references

Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metalogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo-Macedonian metallogenic province - Geoloshki Analii Balkanskog Poluostrva, 42, p. 507-525.


Economic references

Other references
Kozje Brdo

General data
Deposit name(s): Kozje Brdo
Commodities: Agt 0 t
Company: 
Longitude: 19.752 Latitude: 45.149
District: Sremski

Geology
Ore deposit type (geology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks
Ore deposit shape
Field of discordant lodes (n^km2, n^ha)
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata
Mineralization Age:
Ore mineralogy Host rock mineralogy
Chalcedony Magnesite (Giobertite)
Agate Dolomite
Ankerite Calcite
Silica

Host rocks Age:
Hostrock formation names Host rock lithology
Fruska Gora ultrabasite massif Ultrabasic rock

Economy
Exploitation type
Unworked
Agt Agata, chalcedony, jasper (substance)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: t Average grade: -
Reserve: t Average grade: -
Resource: t Average grade: -

Environment
Possible contamination of surface water by suspended matter.

Comments

Geological references

Economic references

Other references
Kram

General data

Deposit name(s): Kram
Identifier: YUG-00173

Commodities: 
- Au: 0 t
- Cu: 0 t

Company:
Longitude: 19.302
Latitude: 44.311
District: Macvanski

Geology

Ore deposit type (gxtology)
Cu skarns: Cu, (Au)

Ore deposit shape
Discordant mass or lens of massive to submassive ore

Mineralization Age: Neogene (Miocene to Pliocene)

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalcopyrite</td>
<td>Grossular</td>
<td>Skarn formation</td>
</tr>
<tr>
<td>Pyrrhotite</td>
<td>Andradite</td>
<td></td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td>Pyroxene</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td>Epidote</td>
<td></td>
</tr>
<tr>
<td>Galena</td>
<td>Wollastonite</td>
<td></td>
</tr>
<tr>
<td>Scheelite</td>
<td>Chlorite</td>
<td></td>
</tr>
<tr>
<td>Bismuthinite</td>
<td>Quartz</td>
<td></td>
</tr>
<tr>
<td>Tellurobismuthite</td>
<td>Calcite</td>
<td></td>
</tr>
<tr>
<td>Sphalerite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey copper</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Host rocks Age: Triassic

Host rock formation names
Neogene granodiorite - Triassic limestone

Host rock lithology
Granodiorite
Limestone
Skarn

Economy

Exploitation type
Mining method unknown

Cu Copper (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Au Gold (metal)
Ore type: Ore in which the native element forms inclusions (sulphides, etc.)
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment

High acid generation potential due to the sulfides minerals contained in the primary ore.
The Acid Rock Drainage produced may be partly buffered by the limestone and the skarn formation of the host lithology.
Expected dissolved contents of Cu, Zn and Pb as well as As in the drainage waters with possible concentrations of those metals in the stream sediments.
Comments
Small size deposit, with gold content up to 3 g/t
Other name: Duge Njive?

Geological references

Economic references

Other references
Kremna

General data

Deposit name(s): Kremna
Commodities: Mg
Class: N/A
Status: Deposit or prospect of unknown status

Company:
Longitude: 19.578
Latitude: 43.840
District: Zlatiborski

Geology

Ore deposit type (geology)
Lacustrine deposits (sebkha, salar, alkaline lake): Li, B, (Na, Mg, Ca, nitrates, sulphates, etc.)

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization

Ore mineralogy
Magnesite (Giobertite)
Dolomite
Clay

Host rocks

Age:
Tertiary lacustrine sediments

Hostrock formation names

Host rock lithology
Biochemical deposit s.l.
Varved lacustrine sediment

Economy

Exploitation type
Unworked

Mg Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: -

Reserve: - t
Average grade: -

Resource: - t
Average grade: -

Environment

Potential contamination of drainage waters by suspended matter.

Comments

Geological references

Economic references

Other references
Krupanj

**General data**

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Krupanj</th>
<th>Identifier: YUG-00153</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities:</td>
<td>F</td>
<td>66,250 t</td>
</tr>
<tr>
<td></td>
<td>Sb</td>
<td>0 t</td>
</tr>
<tr>
<td>Company:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitude:</td>
<td>19.377</td>
<td>Latitude: 44.373</td>
</tr>
</tbody>
</table>

**Geology**

*Ore deposit type (gittology)*

Unspecified ore deposits related to volcanic systems and shallow intrusives

*Ore deposit shape*

Field of discordant lodes (n*km², n*ha)

Subconcordant or stratabound mass or lens of massive to submassive ore

**Mineralization**

*Age:* Cenozoic

**Ore mineralogy**

- Fluorite
- Stibnite
- Galena
- Sphalerite
- Tetrahedrite
- Chalcopyrite
- Pyrite

**Host rock mineralogy**

- Quartz
- Calcite

**Host rocks**

*Age:* Cenozoic

**Host rock lithology**

Limestone

**Economy**

*Exploitation type*

Underground mining

**Sb Antimony (metal)**

*Ore type:* Ore in which the element forms a distinct mineral phase

- Past production: - t
- Reserve: - t
- Resource: - t

**Fl Fluorite (CaF₂)**

*Ore type:* Ore in which the element forms a distinct mineral phase

- Past production: - t
- Reserve: 66,250 t
- Resource: - t

**Environment**

Acid generation potential with respect to sulfides minerals.

This Acid Rock Drainage can partly be buffered by the calcite contained within the gangue mineralogy.

**Comments**

Deposits of Tolisavac and Ravnaja, partly exploited since 1959.

Ravnaja: 195 kt @ 31.7% CaF₂ and 2.2% Pb.

Kuciste: 15.6 kt @ 28.4% CaF₂ and 0.5% Pb.

Output of 50,000 t/y of CaF₂ ore.
Geological references


Economic references


Other references
Kucajna

General data

Deposit name(s): Kucajna

Identifier: YUG-00057

Commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Amount</th>
<th>Class</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag</td>
<td>0 t</td>
<td>N/A</td>
<td>Deposit of unknown status</td>
</tr>
<tr>
<td>Au</td>
<td>0 t</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>PbZn</td>
<td>0 t</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Company: Branicevski

Longitude: 21.667
Latitude: 44.436

Geology

Ore deposit type (gitology)
- Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)

Ore deposit shape
- Discordant mass or lens of massive to submassive ore
- Discordant envelope of disseminated ore

Mineralization

Age: Upper/Late Cretaceous

Ore mineralogy
- Galena
- Sphalerite
- Silver
- Argentite
- Pyrrhotite
- Polybasite
- Pyrite
- Grey copper
- Bournonite
- Boulangerite
- Jamesonite
- Chalcopyrite
- Arsenopyrite
- Bornite
- Dyscrasite
- Berthierite
- Chalcostibite
- Gold

Host rock mineralogy
- Quartz
- Calcite

Host rocks

Age: Upper/Late Cretaceous

Hostrock formation names
- Jurassic-Cretaceous limestone
- Laramian dacite-andesitic volcanics

Host rock lithology
- Limestone
- Dacite
- Andesite

Economy

Exploitation type
- Mining method unknown

PbZn Lead + Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade: -
### Mineral Deposits of Serbia - Ore Deposits Database

**Au - Gold (metal)**

**Ore type:** Primary sulphide ore (complex-sulphides, arsenides, sulphosalts, etc.)

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>- t</td>
<td>- t</td>
<td>-</td>
</tr>
</tbody>
</table>

**Ag - Silver (metal)**

**Ore type:** Primary sulphide ore (complex-sulphides, arsenides, sulphosalts, etc.)

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>- t</td>
<td>- t</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Environment

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu...) that can affect drainage water, soils and stream sediments. The potential acid mine drainage generated is buffered by the gangue mineralogy (carbonates) which are acid-consuming minerals. The host rock assemblage (limestone) which alters to calc-silicates decrease acid-buffering capacity. Presence of arsenopyrite whose oxidation may release As into the natural environment with in particular accumulation in the stream sediments.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

#### Comments

Massive ore contains up to 50% Pb-Zn, 0.2% Ag and 15-20 g/t Au (Jankovic - 1982)

#### Geological references

- Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458

#### Economic references

#### Other references

**Other data bases**

- Carte Métallogénique de l'Europe
  
  26-057
General data

Deposit name(s): Kutlovo
Identifier: YUG-00100

Commodities: Fe 0 t  Class N/A  Status: Deposit of unknown status
Mn 0 t  Class N/A

Company: 
Longitude: 20.752  Latitude: 44.045  District: Sumadijski

Geology

Ore deposit type (gittology)
Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.
Fe and Mn sedimentary deposits: Fe, Mn

Ore deposit shape
Cap, blanket, crust
Stratabound envelope of disseminated ore

Mineralization  Age: Lower/Early Cretaceous

Ore mineralogy
Chamosite
Hematite
Goethite

Host rocks  Age: Lower/Early Cretaceous

Host rock lithology
Conglomerate
Sandstone

Economy

Exploitation type
Mining method unknown

Fe  Iron (metal)
Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Mn  Manganese (metal)
Ore type: Ore of indeterminate nature

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment
Potential particulate and colloidal iron compounds in drainage water.

Comments

Geological references
Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.
Economic references

Other references

Other data bases
The Iron Ore Deposits of Europe - 1978  YU07
**Lajkovaca**

### General data

**Deposit name(s):** Lajkovaca  
**Identifier:** YUG-00127

**Commodities:**  
- Cu: 24600 t, Class D  
- Au: 0 t, Class N/A

**Company:**  
**Longitude:** 19.849  
**Latitude:** 44.135  
**District:** Kolubarski

### Geology

**Ore deposit type (gitology):** Volcanogenic massive and disseminated Cu-Au sulphide deposits: Cu, Au, (Zn, Co, Mo, Bi)

**Ore deposit shape:**  
- Discordant lode or vein (thickness > 50 cm), in clusters or isolated  
- Stratabound envelope of disseminated ore

**Mineralization Age:** Jurassic

**Ore mineralogy:**  
- Pyrite  
- Chalcopyrite  
- Chalcocite  
- Covellite  
- Iron Oxides (unspecified)

**Host rock mineralogy:**  
- Epidote  
- Chloritization  
- Carbonitization  
- Epidotitization  
- Albitization

**Host rocks Age:** Jurassic

**Host rock formation names:**  
- Diabase - Ophiolite Complexe  
- Dolerite, diabase  
- Gabbro

### Economy

**Exploitation type:** Mining method unknown

**Cu - Copper (metal):**  
**Ore type:** Ore in which the element forms a distinct mineral phase

- **Past production:** - t  
- **Reserve:** 24600 t  
- **Resource:** - t

**Au - Gold (metal):**  
**Ore type:** Ore of indeterminate nature

- **Past production:** - t
- **Reserve:** - t
- **Resource:** - t

### Environment

High acid generation potential due to the sulfide content of the primary ore body. This Acid Rock Drainage can be enhanced or reduced by the various mineral assemblages forming the hydrothermal alteration halo.

### Comments

Western Serbia. Average in Cu : 1-2%, Au usually less than 1 g/t.  
This Acid Rock Drainage can be enhanced or reduced by the various mineral assemblages forming the hydrothermal alteration halo.

### Geological references

Economic references

Other references
# Lebare

### General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Lebare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier:</td>
<td>YUG-00167</td>
</tr>
<tr>
<td>Commodities:</td>
<td>PbZn</td>
</tr>
<tr>
<td>Class:</td>
<td>N/A</td>
</tr>
<tr>
<td>Status:</td>
<td>Group of mineral occurrences</td>
</tr>
<tr>
<td>Company:</td>
<td></td>
</tr>
<tr>
<td>Longitude:</td>
<td>20.769</td>
</tr>
<tr>
<td>Latitude:</td>
<td>43.237</td>
</tr>
<tr>
<td>District:</td>
<td>Kosovo</td>
</tr>
</tbody>
</table>

### Geology

**Ore deposit type (gitology)**
- Unspecified ore deposits related to volcanic systems and shallow intrusives
- Unspecified ore deposits related to basic-ultrabasic magmatic rocks

**Ore deposit shape**
- Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrrhotite</td>
<td>Silicification</td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td></td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td></td>
</tr>
<tr>
<td>Sphalerite</td>
<td></td>
</tr>
<tr>
<td>Galena</td>
<td></td>
</tr>
<tr>
<td>Marcasite</td>
<td></td>
</tr>
<tr>
<td>Grey copper</td>
<td></td>
</tr>
<tr>
<td>Tetrahedrite</td>
<td></td>
</tr>
<tr>
<td>Psilomelane</td>
<td></td>
</tr>
</tbody>
</table>

**Host rocks**

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicified serpentinite - Hydroquartzite</td>
<td>Serpentinite</td>
</tr>
<tr>
<td></td>
<td>Andesite</td>
</tr>
</tbody>
</table>

### Economy

**Exploitation type**
- Unworked

**PbZn Lead + Zinc (metal)**

<table>
<thead>
<tr>
<th>Ore type: Ore of indeterminate nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production:</td>
</tr>
<tr>
<td>Reserve:</td>
</tr>
<tr>
<td>Resource:</td>
</tr>
</tbody>
</table>

### Environment

Acid generation potential due to the sulfides minerals contained in the ore. Expected dissolved contents of Fe, Cu, Zn and Pb in drainage waters. As may be released from the arsenopyrite and the sulfosalt into the surface water with expected concentrations in stream sediments.

### Comments

Presence of "hydroquartzites" - gold ??

### Geological references

Other references
Mineral deposits of Serbia - Ore deposits database

Lece

General data

Deposit name(s): Lece
Identifier: YUG-00083
Status: Deposit of unknown status

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Class</th>
<th>Quantity</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb</td>
<td></td>
<td>39 000 t</td>
<td>C</td>
</tr>
<tr>
<td>Zn</td>
<td></td>
<td>58 000 t</td>
<td>C</td>
</tr>
<tr>
<td>Au</td>
<td></td>
<td>10 t</td>
<td>D</td>
</tr>
<tr>
<td>Ag</td>
<td></td>
<td>39 t</td>
<td>E</td>
</tr>
</tbody>
</table>

Company:

Longitude: 21.535
Latitude: 42.928
District: Jablanicki

Geology

Ore deposit type (gitology)
Low-sulphidation (adularia - sericite) epithermal deposits: Au, Ag, Pb, Zn, Cu, Sb, (Hg, As, Mn, Tl)

Ore deposit shape
Breccia-pipe, funnel, chimney, column, brecciated dyke
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata
Discordant envelope of disseminated ore

Mineralization

Age: Neogene (Miocene to Pliocene)

Ore mineralogy
Pyrite
Marcasite
Sphalerite
Galena
Gold
Chalcopyrite
Enargite
Grey copper
Stibnite
Hematite

Host rock mineralogy
Quartz
Agate
Siderite
Sericite
Chalcedony
Opal
Calcite
Amethyst
Ankerite

Hydrothermal alteration
Adularization
Silicification
Sericitization
Kaolinization

Host rocks
Age: Neogene (Miocene to Pliocene)

Hostrock formation names
Gajtan and Tulare calderas
Andesitic Volcanic Complex

Host rock lithology
Volcaniclastic rocks: pyroclastic rocks, volcaniclastic (volcano-detrital, volcano-sedimentary) rocks
Andesite
Dacite
Latite

Economy

Exploitation type
Underground mining

Au Gold (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5 t</td>
<td>4.11 g/t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>- g/t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>- g/t</td>
</tr>
</tbody>
</table>

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

<table>
<thead>
<tr>
<th>Past production</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 t</td>
<td>16.91 g/t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>- g/t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>- g/t</td>
</tr>
</tbody>
</table>
Mineral deposits of Serbia - Ore deposits database

YUG-00083

Pb  Lead (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 39000 t  Average grade: 1.7 %
Reserve: - t  Average grade: - %
Resource: - t  Average grade: - %

Zn  Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 58000 t  Average grade: 2.5 %
Reserve: - t  Average grade: - %
Resource: - t  Average grade: - %

Environment

The sulfidic composition of the primary ore mineralogy as well as the large alteration halos when oxygenized, generate acidic waters and release dissolved metals into the environment.

The presence of Cu sulfosalts containing As may generate arsenic-rich mine water composition.

Most of those elements can contaminate surface and groundwater, soils and stream sediments.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Existence of CN or Hg associated with the gold mineral processing?

Comments

Uppermost level: gold values range from trace to several g/t, 2 g/t average. Vertical extension 30 to over 100 m.

PbZn mineralisation beneath Au mineralization, with a vertical extension of 100 to 250 m. The ore contains 2.8% Pb, 6% Zn, 6 g/t Au and 16 g/t Ag.

Downward extension with only PbZn mineralization and minor Au content.

Bottom characterized by minor content of PbZn, up to 0.3% Cu and traces of Au.

Production 1953-1959: 470,000 t @ 1.95% Pb, 4.5% Zn, 6 g/t Au and 19 g/t Ag.

Production 1953-1983: 2,320,209 t @ 1.7% Pb, 2.5% Zn, 4.11 g/t Au and 16.91 g/t Ag (Popovic - 2000)

Geological references


Schumacher F. - (1954) - The ore deposits of Yugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492


Economic references
Leskova Glava

General data

Deposit name(s): Leskova Glava
Commodities: PbZn 0 t
Class: N/A
Status: Deposit or prospect of unknown status
Company: Kosovo
Longitude: 20.714
Latitude: 43.000
District: Kosovo

Geology

Ore deposit type (gitology)
Atypical or unspecified ore deposits associated with acid and alkaline plutonic rocks
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization Age:

Host rocks Age:

Economy

Exploitation type
Unworked

PbZn Lead + Zinc (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment

No data available.

Comments

S of Crnac

Geological references

Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metalogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo-Macedonian metallogenic province - Geoloshki Anali Balkanskoga Poluostrva, 42, p. 507-525.

Economic references

Other references
**General data**

Deposit name(s): Lipa  
Identifier: YUG-00122  
Commodities: Cu  
Class: D  
Status: Old industrial mine, exhausted deposit  
Company: Rudarsko Topionicarski Basen BOR  
Longitude: 21.962  
Latitude: 44.190  
District: Borski

**Geology**

Ore deposit type (gitiology): High-sulphidation epithermal massive-enargite (gold) sulphide deposits: Cu, (As, Au)  
Ore deposit shape: Subconcordant or stratabound mass or lens of massive to submassive ore  
Mineralization: Pyrite  
Age:  
Host rock mineralogy: Chalcedony  
Hydrothermal alteration: Kaolinization  
Kaolinite  
Diaspore

**Economy**

Exploitation type: Mining method unkown  
Cu Copper (metal)  
Ore type: Ore in which the element forms a distinct mineral phase  
Past production: 11000 t  
Average grade: 1.1 %  
Reserve: - t  
Average grade: - %  
Resource: - t  
Average grade: - %

**Environment**

High acid generation potential due to the sulfidic composition of the primary ore.  
The widespread hydrothermal alteration types (silica, advanced argillic) tends to increase acid-generating capacity of the rocks.  
Potential release of Cu and others metals into the drainage waters.

**Comments**

**Geological references**


Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458


**Economic references**
Other references

Lipljan

General data

Deposit name(s): Lipljan, Muhadjer Babus
Identifier: YUG-00041

Commodities: LstL 0 t Class N/A Status: Deposit of unknown status

Company:
Longitude: 21.128 Latitude: 42.521 District: Kosovo

Geology

Ore deposit type (gitology)
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.
Slates, marble and ornamental-stone deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization Age:

Host rocks Age: Triassic

Hostrock formation names
Kacanik-Veles Formation

Host rock lithology
Undifferentiated metamorphic rock
Marble, cipolin (crystalline limestone)

Economy

Exploitation type
Mining method unknown

LstL Limestone for lime (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
No specific environmental signature is known with this type of ore deposit.

Comments

Geological references

Economic references

Other references
Lipnica

General data

Deposit name(s): Lipnica
Identifier: YUG-00154
Commodities: Gp
Class: N/A
Status: Producing industrial mine
Company: Fabrica cementa NOVI POPOVAC
Longitude: 20.825
Latitude: 43.905
District: Sumadijski

Geology

Ore deposit type (gitology)
Evaporite-related industrial rocks and minerals: attapulgite, gypsum, anhydrite, magnesite, sulphur
Unspecified volcano-sedimentary and sedimentary-exhalative deposits

Ore deposit shape
Subconcordant or stratabound mass or lens of massive to submassive ore

Mineralization
Age: Upper/Late Jurassic (Malm)
Ore mineralogy
Gypsum
Anhydrite
Calcite

Host rocks
Age: Upper/Late Jurassic (Malm)
Host rock lithology
Coarse turbidite, mass-flow deposit
Volcaniclastic sandstone
Medium- to fine-grained detrital rock
Dolerite, diabase

Economy

Exploitation type
Surface mining
Gp Gypsum, anhydrite (substance)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment
Potential contamination of drainage water by suspended matter and salts.
Geomorphic modifications in the landscape.

Comments
The deposit has been exploited for more than 60 years, and the ore used in the cement industry as retarders.

Geological references
Economic references

Other references
General data

Deposit name(s): Lipovac
Identifier: YUG-00051

Commodities:
- Cr: 0 t Class N/A Status: Dormant deposit
- Fe: 0 t Class N/A
- Ni: 0 t Class N/A

Company: Sumadijski
Longitude: 20.621  Latitude: 44.257  District: Lipovac

Geology

Ore deposit type (gitology)
- Gabbronorite hosted deposits of disseminated titanomagnetite: Fe, Ti, (V, P)
- Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.

Ore deposit shape
- Subconcordant or stratabound mass or lens of massive to submassive ore
- Stratabound envelope of disseminated ore

Mineralization

Ore mineralogy
- Magnetite
- Chromite
- Spinel
- Millerite
- Pyrrhotite
- Pentlandite
- Chalcopyrite
- Bravioite

Host rocks

Host rock lithology
- Basic to ultrabasic rock s.l.
- Peridotite
- Serpentinite
- Harzburgite

Economy

Exploitation type
- Unworked

Fe  Iron (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: 42.5 %
Resource: - t Average grade: - %

Cr  Chrome (Cr2O3)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: 3 %
Resource: - t Average grade: - %

Ni  Nickel (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: - %
Reserve: - t Average grade: 1 %
Resource: - t Average grade: - %
Environment
The oxidation of the sulfide minerals associated with the magnetite leads to the production of Acid Mine Drainage and the release of contaminants (readily soluble salts and metals) into the environment.
The presence of chromite in a laterite-related ore deposit, may generate hexavalent Chromium in the environment.
This element is highly toxic for the humans and the ecosystems and can be bioaccumulated in the food chain.

Comments
The massive ore contains 40-45% Fe, up to 2.7-3.4% Cr and up to 1% Ni+Co (Jankovic -1982) - PGE ?
Data in Laznicka P. (1985) p 175

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-051
The Iron Ore Deposits of Europe - 1978 YU08
Lisa

General data

Deposit name(s): Lisa
Identifier: YUG-00070
Commodities: Sb 0 t Class N/A Status: Deposit of unknown status
Company: 
Longitude: 20.259 Latitude: 43.650 District: Moravicki

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives

Ore deposit shape
Discordant envelope of disseminated ore

Mineralization Age: Cenozoic

Ore mineralogy
Stibnite
Pyrite
Bravoite
Valentinite
Senarmontite

Hydrothermal alteration
Silicification

Host rocks Age: Upper/Late Cretaceous

Hostrock formation names
Silicified limestone
Upper Cretaceous marl

Host rock lithology
Limestone
Marl

Economy

Exploitation type
Mining method unknown
Sb Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment

Presence of pyrite in the associated minerals that may generate Acid Mining Drainage.

Comments

Golija district

Geological references


Economic references

Other references

Other data bases

Report BRGM/RC-51448-FR
General data

Deposit name(s): Lisina
Identifier: YUG-00097

Company: Bosiljgrad
District: Pcinjski

Commodities: Phos
Class: D
Status: Dormant deposit

Longitude: 22.451
Latitude: 42.527

Resources of about 40 Mt @ 10-13% P2O5, beneficiation tests have shown that the ore can provide a phosphate concentrate nearly 33% P2O5.

The apatite is intergrown or coated with carbonate.

The phosphorite bed is 16-32 m thick, containing 2-19 % P2O5, but average is 10-12% P2O5 (Jankovic and al - 1997)

Geological references

Lisina Deposit name(s): Identifier: Class: Commodities:
Status: Commodity:

Lower/Early Ordovician (Arenig-Tremadocian)

Ore deposit type (gitology)
Sedimentary phosphate deposits: P, (U)

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization Age: Ordovician

Ore mineralogy
Apatite
Host rock mineralogy
Quartz
Sericite
Calcite
Biotite

Host rocks Age: Lower/Early Ordovician (Arenig-Tremadocian)

Hostrock formation names
Metamorphosed phosphatic sandstone
Host rock lithology
Quartzite, quartzose sandstone
Sericitic schist, sericite schist of igneous origin

Exploitation type
Unworked

Phos Phosphate (P2O5)
Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: - %
Reserve: - t
Average grade: - %
Resource: 4600000 t
Average grade: 11.5 %

Environment
No specific environmental signature according to the data available.

Comments
Resources of about 40 Mt @ 10-13% P2O5, beneficiation tests have shown that the ore can provide a phosphate concentrate nearly 33% P2O5.
The apatite is intergrown or coated with carbonate.
The phosphorite bed is 16-32 m thick, containing 2-19 % P2O5, but average is 10-12% P2O5 (Jankovic and al - 1997)

Geological references
Simic M. - (1997) - Geological-structural features of the Besna Kobila Zone in SE Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif". Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 185-195

**Economic references**

**Other references**

**Other data bases**

Carte Métallogénique de l'Europe 26-165
Liska

**General data**

Deposit name(s): Liska  
Chave  
Krivac Strana  
Zlatibor

Commodities: Mg  
Quantities: 740 000 t  
Class: D  
Status: Deposit of unknown status

Company: Radna Organizacija Rudnik Magnezita Magnezit

Longitude: 19.634  
Latitude: 43.694  
District: Zlatiborski

**Geology**

Ore deposit type (地质学)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)

Mineralization
Age: Cenozoic

Ore mineralogy
Magnesite (Giobertite)

Host rocks
Age:

Hostrock formation names
Zlatibor Massif

Host rock lithology
Basic to ultrabasic rock s.l.
Peridotite
Serpentinite

**Economy**

Exploitation type
Underground mining  
Surface mining

Mg  
Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 740000 t  
Average grade: -

Reserve: - t  
Average grade: -

Resource: - t  
Average grade: -

**Environment**

Erosion of earthen materials exposed at the site may cause significant loadings of sediments to nearby waterbodies and the source of degradation of surface water quality.

**Comments**

The mine was established in 1956.  
1956-1970, current output of 20,000 t/y of ore,  

**Geological references**


Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-070
Lubnica

General data

Deposit name(s): Lubnica
Identifier: YUG-00228
Commodities: Coal
Class: N/A
Status: Producing small-scale mine
Company: Rudnik lignita LUBNICA
Longitude: 22.188
Latitude: 43.862
District: Zajecarski

Geology

Ore deposit type (geology)
Lignite deposits
Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)
Mineralization
Age: Miocene
Host rocks
Age: Miocene
Host rock formation names
Timok Coal Basin
Host rock lithology
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.
Coarse-grained detrital rock s.s.
Medium- to fine-grained detrital sediment

Economy

Exploitation type
Underground mining
Coal, lignite (substance)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment
Potential Acid Rock Drainage generation due to the presence of possible sulfides minerals.
Suspended matter in mine discharge.
Colliery spoil heaps erosion, instability and combustion.

Comments
The lignite mined contains up to 35% of moisture, about 14% of ash. Its heating value is about 12,000 kJ/kg.

Geological references

Economic references

Other references
Mackatica

**General data**

- **Deposit name(s):** Mackatica
- **Identifier:** YUG-00087
- **Commodities:** Mo 100 000 t
- **Class:** B
- **Status:** Dormant deposit
- **Company:**
- **Longitude:** 22.217
- **Latitude:** 42.747
- **District:** Pcinjski

**Geology**

- **Ore deposit type (gitology):** Porphyry Cu-Mo and Mo deposits: Cu, Mo, (W, U, Re)
- **Ore deposit shape:** Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata
  - Column, chimney with possibly brecciated ore
- **Mineralization**
  - **Age:** Cenozoic
  - **Ore mineralogy:** Molybdenite, Pyrite, Hematite, Chalcopyrite, Galena, Hübnerite
  - **Host rock mineralogy:** Quartz, K-Feldspar, Muscovite, Calcite
  - **Hydrothermal alteration:** Silicification, Sericitization

- **Host rocks**
  - **Age:** Cenozoic
  - **Host rock formation names:** Surdulica granodiorite complex
  - **Host rock lithology:** Granodiorite, Dacite, Schist/shale

**Economy**

- **Exploitation type:** Unworked
- **Mo Molybdenum (metal):**
  - **Past production:** - t
  - **Average grade:** - %
  - **Reserve:** - t
  - **Average grade:** - %
  - **Resource:** 100000 t
  - **Average grade:** 0.1 %

**Environment**

High acid generation potential due to the primary ore composition enriched in sulfides minerals. The alteration types increase acid-generating capacity of the rocks.

**Comments**

Data in Laznicka P. (1985) p 1226 : 20,000 t Mo (0.1%)
Other data : 181 Mt @ 0.078% Mo : 141,180 t Mo
The contents of Cu and W in the ore are very low.
Rhenium is about 185 g/t in the Mo concentrate (Simic M. - 1997)

**Geological references**

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-122
General data
Deposit name(s): Maglic
Identifier: YUG-00071
Commodities: Cr 0 t Class N/A Status: Deposit or prospect of unknown status
Company: 
Longitude: 20.544 Latitude: 43.603 District: Raski
Geology
Ore deposit type (gitology)
Unspecified ore deposit type
Ore deposit shape
Atypical, unspecified or ill-defined form
Mineralization Age:
Ore mineralogy
Chromite
Host rocks Age:
Economy
Exploitation type
Mining method unknown
Cr Chrome (Cr2O3)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -
Environment
No specific environmental signature.
Comments
Geological references
Economic references
Other references
Other data bases
Carte Métallogénique de l'Europe 26-081
### General data

**Deposit name(s):** Magura

**Identifier:** YUG-00024

**Commodities:** Mg 2 500 000 t  
**Class:** C  
**Status:** Dormant deposit

**Company:**

**Longitude:** 21.009  
**Latitude:** 42.537  
**District:** Kosovo

### Geology

**Ore deposit type (gitology)**

Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

**Ore deposit shape**

Field of discordant lodes (n*km2, n*ha)  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**  
**Age:** Cenozoic

**Ore mineralogy**

Magnesite (Giobertite)  
Sepiolite

**Host rock mineralogy**

Opal  
Chalcedony

**Host rocks**  
**Age:**

**Host rock formation names**

Golesh ultramafic mass

**Host rock lithology**

Basic to ultrabasic rock s.l.  
Serpentinite

### Economy

**Exploitation type**

Underground mining

**Mg**

**Magnesium, magnesite (MgCO3)**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 2500000 t  
**Average grade:** -

**Reserve:** - t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

### Environment

Through erosion of exposed mining areas, the ore mineralogy and host rock alteration can generate high suspended solids content in surface water that can produce some impacts associated with surface waters, groundwater and terrestrial ecosystems.

### Comments

The ore contains 44-49% MgO, 0.2-1.5% CaO and 0.2-5.0% SiO2.

Production between 1923-1995: 2.5 Mt of magnesite.

High content of Sepiolite which has not been recovered up to now.

### Geological references


Economic references

Other references

Other data bases

Carte Métallogénique de l'Europe 26-111
Majdanpek

General data

Deposit name(s): Majdanpek
Identifier: YUG-00058

Commodities:
- Au: 240 t Class B
- Cu: 3,750,000 t Class B
- Ag: 1,750 t Class C
- Mo: 30,000 t Class C
- PbZn: 83,000 t Class C
- Fe: 0 t Class N/A

Company: Rudarsko Topionicarski Basen BOR
Longitude: 21.950
Latitude: 44.376
District: Borski

Status: Producing industrial mine

Geology

Ore deposit type (gitology)
- Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)
- Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe

Ore deposit shape
- Discordant envelope of disseminated ore
- Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization
- Ore mineralogy:
  - Chalcopyrite
  - Bornite
  - Molybdenite
  - Telluride
  - Gold
  - Pyrite
  - Magnetite
  - Tellurite

- Hydrothermal alteration:
  - Biotitization
  - Sericitization
  - Silicification

Host rocks
- Age: Upper/Late Cretaceous

Hostrock formation names
- Precambrian gneiss
- Senonian subvolcanic intrusion of andesite porphy

Host rock lithology
- Quartz diorite
- Gneiss (s.l.)

Economy

Exploitation type: Surface mining

Cu Copper (metal)
- Ore type: Ore in which the element forms a distinct mineral phase
- Past production: 1,550,000 t
- Reserve: - t
- Resource: 220,000 t
- Average grade: 0.31%

Mo Molybdenum (metal)
- Ore type: Ore in which the element forms a distinct mineral phase
- Past production: - t
- Reserve: 30,000 t
- Resource: - t
- Average grade: 0.005%
Mineral deposits of Serbia - Ore deposits database

YUG-00058

<table>
<thead>
<tr>
<th>Ag</th>
<th>Silver (metal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem</td>
<td></td>
</tr>
<tr>
<td>Past production:</td>
<td>750 t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>1000 t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>1.5 g/t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Au</th>
<th>Gold (metal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore type: Ore in which the element forms a distinct mineral phase</td>
<td></td>
</tr>
<tr>
<td>Past production:</td>
<td>100 t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>140 t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>0.2 g/t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PbZn</th>
<th>Lead + Zinc (metal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore type: Ore in which the element forms a distinct mineral phase</td>
<td></td>
</tr>
<tr>
<td>Past production:</td>
<td>- t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>83000 t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>4.6 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fe</th>
<th>Iron (metal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore type: Ore in which the element forms a distinct mineral phase</td>
<td></td>
</tr>
<tr>
<td>Past production:</td>
<td>- t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
<tr>
<td>Average grade:</td>
<td>-</td>
</tr>
</tbody>
</table>

Environment

Acid Mine Drainage production generating high concentrations of dissolved metals in drainage water. The large alteration halos and mineral assemblages have a significant acid generation capacity.

No accurate information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissoluted metals.

Comments

In 1978, reserves were estimated at 200 Mt @ 0.83% Cu and 0.005% Mo. Modern open-pit began in 1959 and in 1981, the output was 14 Mt/y of ore and 33.5 Mt of overburden.

Ore output : 36,000 t/day

Chalcopyrite contains native gold, tellurides and selenides.

Molybdenite has a Rhenium content of 2000 g/t.

Data in Laznicka P. (1985) p 974 : 3 Mt Cu (0.6%), 30,000 t Mo, 1,800 t Ag, 190 t Au.

In 1998, current reserves exceed 800 Mt @ 0.4% Cu and 0.3 g/t Au (Herrington and al - 1998).

Majdanpek produces magnetite concentration from flotation tailing, the concentrate is about 62% Fe.

Geological references


Karamata S, Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458

Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492


Economic references


Lewis A. - (1983) - Yugoslavia’s "RTB Bor" copper combine; Europe's largest copper producer eliminates concentrate imports as the new Veliki Krivelj complex reaches capacity. - E&M J, 184, (10), p. 70-74.


Other references

Other data bases

Carte Métallogénique de l’Europe 26-058

The Iron Ore Deposits of Europe - 1978 YU10
Mandre

General data

Deposit name(s): Mandre
Commodities: U
Company: Moravicki
Longitude: 20.316
Latitude: 44.086

Geology

Deposit name(s): Mandre
Commodities: U
Company: Moravicki
Longitude: 20.316
Latitude: 44.086

Geology

Ore deposit type (gitology)
Uraniferous vein, breccia and stratound disseminated deposits: U, (Mo, Cu, Se, F, Th, REE, Pb, Zn)

Ore deposit shape
Discordant isolated lode with different vein morphologies: tension-gash, bayonet-shaped ("jog"), en echelon, sigmoidal, saddle reef, etc.

Mineralization

Ore mineralogy
Uraninite
Pyrite
Chalcopyrite
Tetrahedrite
Marcasite
Galena
Martite
Magnetite

Host rock mineralogy
Ankerite
Dolomite
Calcite
Barite
Siderite

Host rocks

Age: Tertiary

Host rock lithology
Undifferentiated metamorphic rock
Graphitic shale

Economy

Exploitation type
Unworked

U Uranium (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment

Acid generation potential due to the sulfides minerals present in the ore.
Expected concentrations of dissolved U, radionuclides and base metals in the drainage waters.
Radon and gamma radiations.

Comments

Geological references

Klajn D. - (1983) - Uranium hydrothermal mineralization in the Borac-Rudnik Area (Sumadija); possible relation with buried stratiform ore deposits. - Anuarul Institutului de Geologie si Geofizica = Annuaire de l'Institut de Geologie et de Geophysique, 61, p. 199-204.

Economic references
**General data**

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Markov Kamen</th>
<th>Identifier:</th>
<th>YUG-00067</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities:</td>
<td>Cu</td>
<td>Class:</td>
<td>N/A</td>
</tr>
<tr>
<td>Company:</td>
<td></td>
<td>Status:</td>
<td>Old workings</td>
</tr>
<tr>
<td>Longitude:</td>
<td>22.090</td>
<td>Latitude:</td>
<td>43.786</td>
</tr>
<tr>
<td>District:</td>
<td>Zajecarski</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Geology**

- **Ore deposit type (gitology)**: Unspecified ore deposit type
- **Ore deposit shape**: Atypical, unspecified or ill-defined form
- **Mineralization**: 
  - Age: 
  - Ore mineralogy: Pyrite, Chalcocite
- **Host rocks**: 
  - Age: 
  - Host rock lithology: Andesite

**Economy**

- **Exploitation type**: Mining method unknown
- **Cu**: Copper (metal)

<table>
<thead>
<tr>
<th>Ore type:</th>
<th>Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production:</td>
<td>- t</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
</tbody>
</table>

**Environment**

**Comments**

Bor District

**Geological references**


**Economic references**

**Other references**

**Other data bases**

- Carte Métallologique de l'Europe: 26-074
General data

Deposit name(s): Mazic
Identifier: YUG-00119
Commodities: PbZn 0 t Class N/A Status: Deposit or prospect of unknown status
Company: TREPCA Mining and Metallurgical Complex
Longitude: 20.969 Latitude: 42.928 District: Kosovo

Geology

Ore deposit type (gitology)
Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe
Ore deposit shape
Atypical, unspecified or ill-defined form
Mineralization Age:
Host rocks Age:

Economy

Exploitation type
Unworked
PbZn Lead + Zinc (metal)
Ore type: Ore of indeterminate nature
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
No data.

Comments
Trepa ore field

Geological references

Economic references

Other references
Meljenica

General data

Deposit name(s): Meljenica
Identifier: YUG-00120
Commodities: PbZn 0 t Class N/A Status: Deposit or prospect of unknown status
Company: TREPCA Mining and Metallurgical Complex
Longitude: 20.923 Latitude: 42.948 District: Kosovo

Geology

Ore deposit type (geology)
Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization Age: Tertiary

Host rocks Age:

Economy

Exploitation type
Unworked

PbZn Lead + Zinc (metal)

Ore type: Ore of indeterminate nature
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment

No data.

Comments

Trepca ore field

Geological references


Economic references


Other references

Report BRGM/RC-51448-FR
Mineral deposits of Serbia - Ore deposits database

Mokra Gora

**General data**

**Deposit name(s):** Mokra Gora  
**Identifier:** YUG-00194  
**Commodities:**  
- Ni: 3,500,000 t, Class A  
- Cr: 5,800,000 t, Class B  
- Fe: 10,000,000 t, Class C  
**Status:** Dormant deposit  
**Company:**  
**Longitude:** 19.500  
**Latitude:** 43.801  
**District:** Zlatiborski

**Geology**

**Ore deposit type (geology):**  
Residually enriched ore deposits: Fe, Mn, Ni-Co, Au, Pt, P, U, corundum, etc.  
Fe and Mn sedimentary deposits: Fe, Mn  
**Ore deposit shape:** Stratabound envelope of disseminated ore  
**Mineralization Age:** Lower/Early Cretaceous  
**Ore mineralogy:**  
- Fe-Chlorite  
- Hematite  
- Goethite  
- Magnetite  
- Chromite  
- Millerite  
- Pyrite  
**Host rock mineralogy:**  
- Quartz  
- Clay

**Host rocks Age:** Lower/Early Cretaceous  
**Host rock formation names:**  
- Late cretaceous redeposition - Marine sedimentary  
- Lateritic weathering of ultrabasic rock  
**Host rock lithology:**  
- Oolitic limestone, oncoidal limestone  
- Coarse-grained detrital rock s.i.  
- Medium- to fine-grained detrital rock

**Economy**

**Exploitation type:** Unworked  
**Fe Iron (metal):**  
**Ore type:** Ore in which the element forms a distinct mineral phase  
**Past production:** - t  
**Reserve:** - t  
**Resource:** 10,000,000 t  
**Average grade:** 21.47 %  
**Ni Nickel (metal):**  
**Ore type:** Ore in which the element forms a distinct mineral phase  
**Past production:** - t  
**Reserve:** - t  
**Resource:** 35,000,000 t  
**Average grade:** 0.705 %  
**Cr Chrome (Cr2O3):**  
**Ore type:** Ore in which the element forms a distinct mineral phase  
**Past production:** - t  
**Reserve:** - t  
**Resource:** 58,000,000 t  
**Average grade:** 1.16

**Environment**

Possible particulate and colloidal iron compounds in discharge waters.
Potential Acid Rock Drainage production due to the presence of some sulfides (pyrite, millerite).

**Comments**

The grade of the ore is very variable: 20-40% Fe, on average 26.5% Fe, 1.3-2% Cr, 0.3-1.3% Ni, up to 0.15% Co and 20-40% SiO₂ (Jankovic-1982).

**Geological references**


Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.


**Economic references**

**Other references**

**Other data bases**

Carte Métallogénique de l'Europe 26-069

The Iron Ore Deposits of Europe - 1978 YU11
Morava

General data

Deposit name(s): Morava
Commodities: Coal
Class: N/A
Status: Producing small-scale mine
Company: Rudnik mrkog uglja i lignita JASENOVAC
Longitude: 21.453
Latitude: 44.075
District: Pomoravski

Geology

Ore deposit type (geology)
- Lignite deposits
- Coal deposits

Ore deposit shape
- Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
- Age: Miocene

Host rocks
- Age: Miocene

Host rock formation names
- Despotovac Coal Basin

Host rock lithology
- Detrital rock s.l.
- Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

Economy

Exploitation type
- Underground mining
- Longwall mining

Coal
- Ore type: Ore in which the element forms a distinct mineral phase
- Past production: - t
- Reserve: - t
- Resource: - t
- Average grade: -

Environment

Potential acid rock drainage with respect of the sulfides content.
Suspended matter in mine water discharge. Large geomorphic modifications of the landscape (pits, gullies, spoil heaps...).
Landform instability (collapses) created during and after mining operations.

Comments

The mine is active since 1936. In 1981, the current output was 40,000 t/y and an annual output of 100,000 t/y of brown coal and 60,000 t of lignite was expected for 1985.

The lignite contains up to 35% of moisture and its heating value is up to 12,500 kJ/kg.

Geological references


Economic references


Other references
### General data

**Deposit name(s):** Mramor  
**Identifier:** YUG-00169  
**Commodities:** Mg  
**Class:** N/A  
**Status:** Deposit of unknown status  
**Company:**  
**Longitude:** 20.000  
**Latitude:** 44.054  
**District:** Zlatiborski

### Geology

**Ore deposit type (geology):**  
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks  
Supergene ore deposits

**Ore deposit shape:**  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization Age:** Miocene

**Ore mineralogy:** Magnesite (Giobertite)

**Host rocks Age:**  
Maljen - Suvobor ultramafic massif  
Serpentinite  
Dunite  
Harzburgite

### Economy

**Exploitation type:**  
Mining method unknown

**Mg Magnesium, magnesite (MgCO3)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
<th>Average grade</th>
<th>Average grade</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore in which the element forms a distinct mineral phase</td>
<td>- t</td>
<td>- t</td>
<td>- t</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Environment

Potential contamination of drainage waters by suspended matter.

### Comments

Low grade, not economic

### Geological references


### Economic references

### Other references
Mineral deposits of Serbia - Ore deposits database

Nevade

General data

Deposit name(s): Nevade
Commodities: Mg 0 t
Company: Moravicki
Longitude: 20.495   Latitude: 44.047
District: Moravicki

Identifier: YUG-00159

Status: Dormant deposit

Geology

Deposit type (geology)
Lacustrine deposits (sebkha, salar, alkaline lake): Li, B, (Na, Mg, Ca, nitrates, sulphates, etc.)
Unspecified volcano-sedimentary and sedimentary-exhalative deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization Age: Upper/Late Miocene

Ore mineralogy
Magnesite (Giobertite)
Opal
Dolomite
Pyrite

Host rocks Age: Upper/Late Miocene

Host rock mineralogy
Varved lacustrine sediment
Medium- to fine-grained detrital rock
Pyroclastic deposits s.l.
Latite

Host rock formation names
Gornji Milanovac Miocene series

Environment
Moderate acid generation potential due to the presence of pyrite in the gangue mineralogy and potentially buffered by the magnesite content.

Economy

Exploitation type
Unworked

Mg Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: t Average grade: -
Reserve: t Average grade: -
Resource: t Average grade: -

Comments
Resources of about 25 Mt of low-grade ore

Geological references


Economic references

Other references
Novakovaca

General data

Deposit name(s): Novakovaca
Identifier: YUG-00230
Commodities: Cu 0 t Class N/A Status: Deposit or prospect of unknown status
Company:
Longitude: 19.689 Latitude: 44.169 District:

Geology

Ore deposit type (gitology)
Volcanogenic massive sulphides (VMS) deposits: Cu, Pb, Zn +/- Au-Ag, (Sn, S, As, Cd, Bi, etc.)

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization Age: Jurassic

Ore mineralogy
Chalcopyrite
Pyrite
Magnetite

Host rocks Age: Jurassic

Host rock lithology
Dolerite, diabase

Economy

Exploitation type
Mining method unkown

Cu Copper (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
High Acid generation potential due to the sulfides minerals contained in the ore.
Expected high dissolved and particulate contents of Cu in drainage waters.

Comments

Geological references

Economic references

Other references
**General data**

**Deposit name(s):** Novo Brdo Mn  
**Identifier:** YUG-00184

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Mass (t)</th>
<th>Class</th>
<th>Status</th>
<th>Company</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mn</td>
<td>1,421,440</td>
<td>C</td>
<td>Old industrial mine, abandoned deposit</td>
<td>TREPCA Mining and Metallurgical Complex</td>
<td>Kosovo</td>
</tr>
<tr>
<td>PbZn</td>
<td>58,660</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>59</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Longitude:** 21.428  
**Latitude:** 42.620

**Geology**

**Ore deposit type (gitology)**  
Atypical or unspecified high- or low-sulphidation ore deposits  
Atypical supergene deposits

**Ore deposit shape**  
Concordant to subconcordant envelope of disseminated ore

**Mineralization**  
**Age:** Tertiary

**Ore mineralogy**  
Manganese oxide (unspecified)  
Manganite  
Psilomelane  
Pyrolusite (Polianite)  
Iron Oxides (unspecified)  
Chalcophanite  
Polianite  
Coronadite  
Smithsonite  
Calamine

**Host rock mineralogy**  
Siderite  
Rhodochrosite (Dialoqite)  
Calcite  
Dolomite

**Environment**

Possible high dissolved contents of Fe, Mn and Zn in drainage waters.
Comments
Indicated reserves: 1.4 Mt @ 22.21% Mn, 13.35% Fe, 1.12% Pb, 3.07% Zn and 42 g/t Ag. Inferred reserves: 5 Mt with similar grades.

Geological references

Economic references

Other references
Novo Brdo PbZn

General data

Deposit name(s): Novo Brdo PbZn
Identifier: YUG-00031

Company: TREPCA Mining and Metallurgical Complex
Longitude: 21.420
Latitude: 42.616
District: Kosovo

Geology

Ore deposit type (gitology)
Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe
Volcanic-hosted industrial rock and mineral deposits: bentonite, diatomite, kaolinite, pumice, opal, chalcedony, zeolite, vermiculite, perlite, etc.

Ore deposit shape
Subconcordant or stratabound mass or lens of massive to submassive ore

Mineralization
Age: Tertiary

Ore mineralogy
Sphalerite
Galena
Pyrite
Pyrhotite
Arsenopyrite
Chalcopyrite
Marcasite
Bournonite
Grey copper

Host rock mineralogy
Halloysite
Siderite
Psilomelane
Pyrolusite (Polianite)
Chalcophanite
Polianite
Coronadite

Hydrothermal alteration
Advanced argillic alteration
Skarn formation

Host rocks
Age: Paleozoic (Primary)

Host rock formation names
Paleozoic metamorphites
Tertiary andesites

Host rock lithology
Undifferentiated metamorphic rock
Marble, cipolin (crystalline limestone)
Andesite

Economy

Exploitation type
Underground mining

ClyR White-firing clays (refractory & ceramic) (subst.)
Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: 3000000 t
Resource: - t

Pb Lead (metal)
Ore type: Ore in which the element forms a distinct mineral phase

Past production: 105000 t
Reserve: 118000 t
Resource: 34130 t

Average grade
- %
2.9 %
4.4 %
0.8 %
Mineral deposits of Serbia - Ore deposits database

YUG-00031

Zn  Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>110000 t</td>
<td>131000 t</td>
<td>17100 t</td>
</tr>
</tbody>
</table>

Average grade:
- 3.2 %
- 4.9 %
- 0.4 %

Ag  Silver (metal)

Ore type: Ore of indeterminate nature

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>360 t</td>
<td>366 t</td>
<td>247 t</td>
</tr>
</tbody>
</table>

Average grade:
- 105 g/t
- 137 g/t
- 58 g/t

Au  Gold (metal)

Ore type: Ore of indeterminate nature

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>2.9 t</td>
<td>4.3 t</td>
</tr>
</tbody>
</table>

Average grade:
- - g/t
- 1.1 g/t
- 1.1 g/t

Environment

The ore content in sulfides (Pb, Zn and Fe) generate acid and dissolved metals during oxidation.

Acid generation and drainage can affect both surface and groundwater in particular through mine water discharge.

The advanced argillic alteration existing at the mine site decreases acid-buffering capacity and also substantially decreases rock and fracture permeability.

Near the former processing plant, along the river Kriva, pyritic tailings (0.6-1 Mt) is a source of surface water contamination.

The existence of an ore processing plant at Gracanica has generated large tailings disposals (15-18Mt) that can be a source of groundwater and surface water contamination.

Comments

In the Middle Ages, the mining activity was very intense and it made Novo Brdo the biggest town in Balkan Peninsula (40,000 inhabitants).

In 1982, the Novo Brdo mine was currently scheduled for expansion to 450,000 t/y of Pb-Zn ore.

During the exploitation at Farbani Potok, a large body of pure halloysite was discovered, the reserves are estimated at 3.0 Mt of halloysite assaying 39-42% Al2O3, 39-43% SiO2 and less than 1% Fe2O3.

Farbani Potok : the ore contains 1-5% Pb, 1-8% Zn, about 100 g/t Ag and 3-4 g/t Au.

ITT/UNMIK Mission (12/2000) : Past production (1964-1997) : 3,439,000 t @ 2.9% Pb, 3.2% Zn and 105 g/t Ag. Resources of poly metallic ore : 2,674,000 t @ 4.4% Pb, 4.9% Zn, 137 g/t Ag and 1.1 g/t Au. Resources of pyritic ore : 4,266,000 t @ 0.8% Pb, 0.4% Zn, 58 g/t Ag and 1.0 g/t Au.

Geological references


Report BRGM/RC-51448-FR
Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-117
Novo Okno

General data

Deposit name(s): Novo Okno  Identifier: YUG-00150
Commodities: Cu 0 t  Class N/A  Status: Deposit of unknown status
Company: Rudarsko Topionicarski Basen BOR
Longitude: 22.106  Latitude: 44.086  District: Borski

Geology

Ore deposit type (gxtology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Unspecified volcano-sedimentary and sedimentary-exhalative deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)
Stratabound envelope of disseminated ore

Mineralization  Age: Upper/Late Cretaceous

Ore mineralogy
Pyrite
Chalcopyrite
Enargite
Covellite
Chalcocite
Bornite

Host rocks  Age: Upper/Late Cretaceous

Hostrock formation names  Host rock lithology
Timok andesite complex  Andesite

Economy

Exploitation type
Mining method unknown

Cu  Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: t  Average grade: -
Reserve: t  Average grade: -
Resource: t  Average grade: -

Environment

High acid generation potential potential due to the sulfide content of the primary ore.
Expected high dissolved content of Cu and Fe in drainage water.

Comments

Bor district. Has been in operation since 1983.

Geological references


Economic references
**Other references**

**General data**

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Odorivci</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities:</td>
<td>Fe</td>
</tr>
<tr>
<td>Class</td>
<td>N/A</td>
</tr>
<tr>
<td>Status:</td>
<td>Deposit or prospect of unknown status</td>
</tr>
</tbody>
</table>

**Company:**

| Longitude: | 22.900 |
| Latitude:  | 43.150 |

**District:** Pirotski

**Geology**

**Ore deposit type (gitology)**

*Oolitic iron ore deposits (Clinton, Minette): Fe*

**Ore deposit shape**

*Stratabound envelope of disseminated ore*

**Mineralization**

**Age:** Lower/Early Jurassic (Lias)

**Ore mineralogy**

*Hematite*

*Siderite*

*Iron Oxides(unspecified)*

**Host rocks**

**Age:** Lower/Early Jurassic (Lias)

**Host rock lithology**

*Limestone*

**Economy**

**Exploitation type**

*Mining method unkown*

**Fe Iron (metal)**

*Ore type: Ore of indeterminate nature*

**Past production:** - t

**Reserve:** - t

**Resource:** - t

**Average grade:** -

**Environment**

*Discharge water can have high suspended solids contents enriched in Fe/Mn.*

**Comments**

**Geological references**

**Economic references**

**Other references**

*Other data bases*

*Carte Métallologénique de l'Europe 26-101*
Osanica

**General data**

Deposit name(s): Osanica

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Identifier</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au</td>
<td>YUG-00199</td>
<td>Deposit of unknown status</td>
</tr>
<tr>
<td>Sb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Company: Branicevski

Longitude: 21.660  Latitude: 44.298

**Geology**

**Ore deposit type (gitology)**
- Granitic and peri-granitic veins and stockworks (greisen): Sn-W, (Cu, Bi, Sb, base metals)

**Ore deposit shape**
- Field of discordant lodes (n*km², n*ha)

**Mineralization**

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wolframite</td>
<td>Quartz</td>
</tr>
<tr>
<td>Stibnite</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td></td>
</tr>
<tr>
<td>Marcasite</td>
<td></td>
</tr>
<tr>
<td>Scheelite</td>
<td></td>
</tr>
<tr>
<td>Gold</td>
<td></td>
</tr>
</tbody>
</table>

**Host rocks**

<table>
<thead>
<tr>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Host rock lithology**
- Granite (s.l.)
- Gneiss (s.l.)
- Mica schist of sedimentary origin s.l.

**Economy**

**Exploitation type**
- Mining method unknown

**W** Wolfram (WO₃)

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t  Average grade: -</td>
</tr>
<tr>
<td>Reserve: - t       Average grade: -</td>
</tr>
<tr>
<td>Resource: - t      Average grade: -</td>
</tr>
</tbody>
</table>

**Au** Gold (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t  Average grade: -</td>
</tr>
<tr>
<td>Reserve: - t       Average grade: -</td>
</tr>
<tr>
<td>Resource: - t      Average grade: -</td>
</tr>
</tbody>
</table>

**Sb** Antimony (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t  Average grade: -</td>
</tr>
<tr>
<td>Reserve: - t       Average grade: -</td>
</tr>
<tr>
<td>Resource: - t      Average grade: -</td>
</tr>
</tbody>
</table>

**Environment**

Acid generation potential due to the sulfides minerals contained in the ore.
Expected high dissolved contents of base metals and W in surface water.
**Comments**

The ore contains 0.5-1.5% WO3 and 3-5% Sb, the wolframite contains 400 g/t of Scandium (Jankovic - 1982)

**Geological references**


Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458

**Economic references**

**Other references**
General data

Deposit name(s): Ostrovica Lojane
Identifier: YUG-00091
Commodities: Cr
Class: N/A
Status: Deposit or prospect of unknown status

Company: Kosovo
Longitude: 21.500
Latitude: 42.368

Geology

Ore deposit type (gitology)
Ophiolite-hosted ore deposits: Cr, (PGE)

Ore deposit shape
Concordant to subconcordant mass, lens or pod of massive to submassive ore

Mineralization
Age:

Ore mineralogy
Chromite

Host rocks
Age:

Host rock lithology
Dunite
Peridotite

Economy

Exploitation type
Unworked
Cr Chrome (Cr2O3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
No specific environmental signature according to the data available.

Comments
Grade: 35-42% Cr2O3

Geological references

Economic references

Other references

Other databases
Carte Métallogénique de l'Europe 26-133
Pasjaca

General data

Deposit name(s): Pasjaca
Commodities: Gr
Class: N/A
Status: Old prospect
Company: Topolicki
Longitude: 21.583
Latitude: 43.158
District: Topolicki

Geology

Ore deposit type (gitology)
Industrial rocks and minerals related to metamorphic rocks: andalusite group, wollastonite, graphite, etc.
Pegmatites: Sn, Nb-Ta, Li-Be, gemstones, cryolite, mica, etc.

Ore deposit shape
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization Age:

Ore mineralogy
Graphite
Quartz
Muscovite

Host rocks Age:

Host rock lithology
Pegmatite
Gneiss (s.l.)

Economy

Exploitation type
Unworked

Gr Graphite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

Average grade: -

Environment
Exposed earthen materials at the surface can be an environmental concern due to the erosion-sedimentation process that can threat surface water and ecosystem quality.

Comments

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-097
General data

Deposit name(s): Pek
Identifier: YUG-00176

Voluijski Kljuc

Commodities: Au 4 t  Class D  Status: Deposit under development - project

Company:
Longitude: 21.761  Latitude: 44.473  District: Brancevski

Geology

Ore deposit type (gitology)
Alluvial-eluvial placers: Au, Pt, Sn, Ti, REE, diamond, gemstones, (Zr, etc.)

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization  Age: Quaternary

Ore mineralogy
Gold
Magnetite
Ilmenite
Rutile
Titanite
Monazite

Host rocks  Age: Quaternary

Host rock lithology
Alluvium s.l.

Economy

Exploitation type
Unworked

Au  Gold (metal)

Ore type: Native-element ore

Past production: 2.2 t  Average grade: - g/m3
Reserve: - t  Average grade: - g/m3
Resource: 2 t  Average grade: 0.3 g/m3

Environment
Few data available to determine an environmental signature.

Comments
Placer 5000 m long, 400-600m wide, layer 2-3m thick, 0.3 g/m3 Au : 2 t gold

Geological references

Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

Economic references

Other references
General data

Deposit name(s): Petkovic
Identifier: YUG-00126

Commodities:
- Co: 0 t, Class: N/A
- Cu: 0 t, Class: N/A
- Ni: 0 t, Class: N/A

Status: Deposit of unknown status

Company:
Longitude: 20.659
Latitude: 42.422
District: Kosovo

Geology

Ore deposit type (geology)
- Unspecified ore deposits related to basic-ultrabasic magmatic rocks
- Fault-related ore deposits in a magmatic context: Cu, As-Co-Cu-Ni-Ag-Bi

Ore deposit shape
- Discordant mass or lens of massive to submassive ore
- Discordant envelope of disseminated ore

Mineralization

Ore mineralogy
- Chalcopyrite
- Pyrrhotite
- Pentlandite
- Skutterudite
- Breithauptite
- Rammelsbergite
- Cubanite
- Sphalerite
- Valerite
- Magnetite
- Chromite
- Niccolite
- Chloanthite
- Millerite
- Pyrite
- Bornite
- Chalcostite
- Gold

Host rocks

Host rock formation names
- Orahovac Peridotite Complex

Host rock lithology
- Basic to ultrabasic rock s.l.
- Peridotite
- Pyroxenite
- Amphibolite (s.l.)
- Serpentinite

Economy

Exploitation type
- Unworked

Cu: Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t
Average grade: -
Avg. grade: -
Ni  Nickel (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Co  Cobalt (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

**Environment**

Acid generation potential due to the sulfidic ore composition.
Potential release of dissolved metals (Fe, Cu, Zn, Ni, Co...) into the drainage water with possible concentration in stream sediments.
Presence of arsenites ans sulfoarsenites that may release As into the environment with particular concentration in the stream sediments.

**Comments**

Massive ore contains 1-2.5% Cu, 0.2-0.4% Ni, 0.1-0.25% Co, while disseminated ore contains 0.25% Cu, 0.3% Ni and 0.15% Co.

**Geological references**


**Economic references**

**Other references**
Picelj

General data

Deposit name(s): Picelj
Commodities: Asb
Company: 
Longitude: 20.985
Latitude: 42.975
District: Kosovo

Geology

Ore deposit type (gitology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization Age:
Ore mineralogy
Chrysotile (Clino-, Ortho-, Para-)

Host rocks Age:
Hostrock formation names
Kopaonik ultramafite mass
Host rock lithology
Basic to ultrabasic rock s.l.
Serpentinite
Peridotite s.l.

Economy

Exploitation type
Mining method unknown
Asb Asbestos (substance)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment

Emission of particulate matters in the form of fugitive dust.
The dust mainly composed of fibrous minerals can be inhaled by people and thus may induce hillnesses.

Comments

Located in Kopaonik mountains

Geological references


Economic references

Other references
Piskanja

General data

Deposit name(s): Piskanja
Identifier: YUG-00137

Pobrdski Potok

Commodities: Bor 2 600 000 t
Class C
Status: Deposit under development - project

Company: Ras-Borati Ltd
Longitude: 20.663
Latitude: 43.375
District: Raski

Geology

Ore deposit type (gitology)
Lacustrine deposits (sebkha, salar, alkaline lake): Li, B, (Na, Mg, Ca, nitrates, sulphates, etc.)

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Miocene

Ore mineralogy
Colemanite

Host rock mineralogy
Magnesite (Gibertite)
Dolomite

Ore type: Ore in which the element forms a distinct mineral phase

Exploitation type
Unworked

Bor Borates (B2O3)

Past production: - t
Reserve: - t
Resource: 2600000 t
Average grade: 37 %

Environment

Potential contamination of drainage waters by Bore compounds.

Comments

Ras-Borati Ltd : joint venture between Serbia’s Elektroprivredna and Canada’s Erin Ventures Inc.

In 1997, the partners plan to complete 15,000 m drilling programme to prove 7 Mt @ 35-39% B2O3.

The ore include Colemanite and Howlite (2SiO2, 4CaO, 5B2O3, 5H2O).

Geological references


Economic references

## General data

**Deposit name(s):** Popina  
**Identifier:** YUG-00210  
**Commodities:** Agt  
**Class:** N/A  
**Status:** Deposit of unknown status  
**Company:** Rasinski  
**Longitude:** 20.947  
**Latitude:** 43.603  
**District:** Rasinski

## Geology

- **Ore deposit type (gitology):** Atypical supergene deposits, Unspecified ore deposits related to basic-ultrabasic magmatic rocks
- **Ore deposit shape:** Tabular-shaped orebody of secondary origin
- **Mineralization Age:** Neogene (Miocene to Pliocene)
- **Ore mineralogy:** Opal, Chalcedony  
- **Host rock mineralogy:** Quartz  
- **Host rocks Age:** Neogene (Miocene to Pliocene)
- **Host rock lithology:** Coarse-grained detrital rock s.s., Basic to ultrabasic rock s.l.

## Economy

- **Exploitation type:** Unworked  
- **Agt Agata, chalcedony, jasper (substance)**  
- **Ore type:** Ore in which the element forms a distinct mineral phase
- **Past production:**  
  - **Agt:** 0 t  
  - **Average grade:** -
- **Reserve:**  
  - **Agt:** 0 t  
  - **Average grade:** -
- **Resource:**  
  - **Agt:** 0 t  
  - **Average grade:** -

## Environment

Possible contamination of surface water by suspended matter.

## Comments

## Geological references


## Economic references

## Other references
Mineral deposits of Serbia - Ore deposits database

General data

Deposit name(s): Popovac
Identifier: YUG-00223
Company: Fabrica cementa NOVI POPOVAC
Longitude: 21.509  Latitude: 43.923  District: Pomoravski

Geology

Ore deposit type (gitology)
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)
Mineralization Age:
Host rocks Age: Jurassic

Host rock lithology
Limestone
Marl

Economy

Exploitation type
Surface mining

LstC Cement limestone (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment
Dust production and fallout.
Geomorphic modifications in the landscape (quarry).

Comments
Production 1990 : 770 kt
2 deposits : Marl : Tresnja, and limestone : Cokoce

Geological references

Economic references

Other references
### General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Postojka Coka</th>
</tr>
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<tbody>
<tr>
<td>Identifier:</td>
<td>YUG-00164</td>
</tr>
<tr>
<td>Commodities: Qtz</td>
<td>0 t</td>
</tr>
<tr>
<td>Class: N/A</td>
<td>Status: Deposit of unknown status</td>
</tr>
<tr>
<td>Company:</td>
<td></td>
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<tr>
<td>Longitude: 21.843</td>
<td>Latitude: 44.387</td>
</tr>
<tr>
<td>District: Borski</td>
<td></td>
</tr>
</tbody>
</table>

### Geology

**Ore deposit type (gitology)**
Industrial rocks and minerals related to plutonic rocks: ornamental stones, feldspar, nepheline, etc.

**Ore deposit shape**
Field of discordant lodes (n*km², n*ha)

**Mineralization**

<table>
<thead>
<tr>
<th>Age:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qtz</td>
</tr>
<tr>
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<tr>
<td>N/A</td>
</tr>
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</table>

**Host rocks**

<table>
<thead>
<tr>
<th>Host rock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neresnica Pluton</td>
<td>Granite (s.l.)</td>
</tr>
</tbody>
</table>

### Economy

**Exploitation type**
Unworked

**Qtz**
Massive quartz, blocks for ferrosilicon (SiO₂)

**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>t</th>
<th>Average grade:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>t</td>
<td>Average grade:</td>
</tr>
<tr>
<td>Resource:</td>
<td>t</td>
<td>Average grade:</td>
</tr>
</tbody>
</table>

### Environment
No specific environmental signature.

### Comments

### Geological references

### Economic references

### Other references
Pozega

General data
Deposit name(s): Pozega
Identifier: YUG-00068
Commodities: Mn
Class: N/A
Status: Deposit or prospect of unknown status
Company:
Longitude: 20.038
Latitude: 43.846
District: Zlatiborski

Geology
Ore deposit type (gitology)
Unspecified ore deposit type
Ore deposit shape
Atypical, unspecified or ill-defined form
Mineralization Age:
Host rocks Age:

Economy
Exploitation type
Mining method unknown
Mn Manganese (metal)
Ore type: Ore of indeterminate nature
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment

Comments

Geological references

Economic references

Other references
Other data bases
Carte Métallogéénique de l’Europe 26-076
Radejna

**General data**

**Deposit name(s):** Radejna, Vidlic

**Commodities:** Fe 1 050 000 t  
**Class:** D

**Status:** Deposit or prospect of unknown status

**Company:**

**Longitude:** 22.833  
**Latitude:** 43.032

**District:** Pirotski

**Geology**

**Ore deposit type (gitology):**
Oolitic iron ore deposits (Clinton, Minette): Fe

**Ore deposit shape:** Stratabound bed (single or multi-layered)

**Mineralization**

**Age:** Lower/Early Jurassic (Lias)

**Ore mineralogy:**
- Goethite
- Hematite
- Iron Oxides (unspecified)

**Host rocks**

**Age:** Lower/Early Jurassic (Lias)

**Host rock lithology:** Sedimentary rock

**Economy**

**Exploitation type:** Unworked

**Fe** Iron (metal)

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  
**Average grade:** - %

**Reserve:** 525000 t  
**Average grade:** 35 %

**Resource:** 525000 t  
**Average grade:** 35 %

**Environment**

Drainage water with suspended solids content enriched in Fe/Mn.

**Comments**

Reserves C1 : 1.5 Mt @ 35% Fe and C2 : 1.5 Mt.

**Geological references**


Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss, p. 411-418.

**Economic references**

**Other references**

**Other data bases**

The Iron Ore Deposits of Europe - 1978  
YU26
**General data**

**Deposit name(s):** Radocelo  
**Perisin Potok**  
**Commodities:**  
- Fe: 0 t  
  Class: N/A  
- Ni: 0 t  
  Class: N/A  
**Status:** Deposit of unknown status

**Company:**  
**Longitude:** 20.442  
**Latitude:** 43.469  
**District:** Raski

**Geology**

**Ore deposit type (gitology)**  
Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.  
Fe and Mn sedimentary deposits: Fe, Mn

**Ore deposit shape**  
Stratabound envelope of disseminated ore

**Mineralization**

**Mineralogy**
- Hematite
- Magnetite
- Chromite
- Pyrite

**Host rocks**
- Age: Mesozoic (Secondary)
- Permo-Triassic Studenica series

**Host rock lithology**
- Undifferentiated metamorphic rock
- Serpentinite

**Economy**

**Exploitation type**
- Mining method unknown

**Fe - Iron (metal)**
- Ore type: Ore in which the element forms a distinct mineral phase
- Past production: - t
- Reserve: - t
- Resource: - t
- Average grade: -

**Ni - Nickel (metal)**
- Ore type: Ore in which the element forms a distinct mineral phase
- Past production: - t
- Reserve: - t
- Resource: - t
- Average grade: -

**Environment**

Acid generation potential due to the presence of pyrite. The existence of chromite in a lateritic context may lead to the release of hexavalent chromium (toxic form of Chromium) into the environment.

**Comments**

The ore contains 40-50% Fe, 1.3 to 2% Cr, up to 0.8% Ni, less than 0.1% S and P and 8-15% SiO2.

**Geological references**

Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.


Economic references

Other references
General data

Deposit name(s): Rajiceva Gora  
Identifier: YUG-00110

Commodities:  
Sb  33 600 t  Class B  
PbZn  15 000 t  Class D  
As  0 t  Class N/A  
Au  0 t  Class N/A

Company: Zajaca - Rudarsko - Topionicski Basen
Longitude: 20.929  
Latitude: 43.156  
District: Rasinski

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives  
Ore deposits of basic to ultrabasic affinity: Hg, Sb, As, (Co, Ni, Au, Ag, Cu, Zn)

Ore deposit shape
Stratabound envelope of disseminated ore  
Discordant envelope of disseminated ore

Mineralization  Age: Neogene (Miocene to Pliocene)

Ore mineralogy  Host rock mineralogy  Hydrothermal alteration
Stibnite  Quartz  Silicification
Galena  Chalcedony
Sphalerite  Calcite
Realgar  Barite
Pyrite
Marcasite
Arsenopyrite
Pyrrhotite
Bravoite
Bournonite
Boulangerite
Jamesonite
Grey copper
Chalcopyrite
MILLERITE
Orpiment
Cinnabar
Gold

Host rocks  Age:

Hostrock formation names  Host rock lithology
Contact Serpentinite - Upper Cretaceous flysch  Serpentinite  
Volcaniclastic rocks: pyroclastic rocks,  
volcaniclastic (volcano-detrital,  
volcano-sedimentary) rocks  
Latite  
Listwaenite

Economy

Exploitation type
Underground mining

PbZn  Lead + Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: - %
Reserve: 15 000 t  Average grade: 0.5 %
Resource: - t  Average grade: - %
Mineral deposits of Serbia - Ore deposits database

Sb  Antimony (metal)

| Ore type: Ore in which the element forms a distinct mineral phase |
| Past production: t | Average grade: % |
| Reserve: 33600 t | Average grade: 1.12 % |
| Resource: t | Average grade: % |

As  Arsenic (metal)

| Ore type: Ore in which the element forms a distinct mineral phase |
| Past production: t | Average grade: |
| Reserve: t | Average grade: |
| Resource: t | Average grade: |

Au  Gold (metal)

| Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem) |
| Past production: t | Average grade: |
| Reserve: t | Average grade: |
| Resource: t | Average grade: |

Environment
High acid generation potential due to the sulfidic composition of the primary ore.
The hydrothermal alteration type (silica) tends to decrease acid-buffering capacity of the host-rocks. Moreover, the presence of sulfosalts (sulfoarsenites) and cinnabar tends to release, when oxidized, elements like As and Hg into the environment. Those elements, when accumulated in the natural receptors (like soils or stream sediments) are toxic for human health and ecosystems.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Comments
Data in Laznicka P. (1985) p 999 : 10 Mt ore
Reserves : 3 Mt @ 1.12% Sb, 0.5% PbZn, 0.24% As

Geological references

Economic references

Other references
Ramaca

**General data**

Deposit name(s): **Ramaca**  
Identifier: **YUG-00207**  
Commodities: Agt  
Class: N/A  
Status: Dormant deposit  
Company:  
Longitude: 20.681  
Latitude: 44.111  
District: Sumadijski

**Geology**

Ore deposit type (gitology)  
Atypical supergene deposits  
Supergene industrial rock and mineral deposits: clays, kaolin, silica sand, etc.

Ore deposit shape  
Tabular-shaped orebody of secondary origin

Mineralization  
Age:

Ore mineralogy  
Opal  
Chalcedony

Host rocks  
Age:

Host rock lithology  
Serpentinite  
Ultrabasic rock

**Economy**

Exploitation type  
Unworked  
Agt  
Agata, chalcedony, jasper (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production:  
- t  
Average grade: -

Reserve:  
- t  
Average grade: -

Resource:  
- t  
Average grade: -

**Environment**

Possible contamination of surface water by suspended matter.

**Comments**

**Geological references**


**Economic references**

**Other references**
General data

Deposit name(s): Rastiste

Commodities: Ti 0 t

Class N/A

Status: Deposit or prospect of unknown status

Company:

Longitude: 19.363

Latitude: 43.935

District: Zlatiborski

Geology

Ore deposit type (gitology)
Gabbro-norite hosted deposits of disseminated titano-magnetite: Fe, Ti, (V, P)

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization Age:

Ore mineralogy
- Magnetite
- Titanomagnetite
- Ilmenite

Host rocks Age:

Host rock lithology
- Gabbro
- Serpentinite
- Peridotite

Economy

Exploitation type
Unworked

Ti Titanium, general (TiO2)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t

Average grade: -

Reserve: - t

Average grade: -

Resource: - t

Average grade: -

Environment

No specific environmental signature.

Comments

Geological references

Economic references

Other references
Razhana

General data

Deposit name(s): Razhana  Identifier: YUG-00168

Commodities: Mg  Class N/A  Status: Old industrial mine, exhausted deposit

Company:

Longitude: 19.944  Latitude: 44.081  District: Zlatiborski

Geology

Ore deposit type (gitology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks
Supergene ore deposits

Ore deposit shape
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization  Age: Cenozoic

Ore mineralogy
Magnesite (Gioberite)

Host rocks  Age:

Host rock formation names  Host rock lithology
Maljen - Suvobor ultramafic massif  Serpentinite
Harzburgite

Economy

Exploitation type
Mining method unkown

Mg  Magnesium, magnesite (MgCO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment

Potential contamination of drainage waters by suspended matter.

Comments

Geological references


Economic references

Other references
Rembas

General data

Deposit name(s): Rembas
             Resavica
Commodities: Coal 0 t Class N/A
Status: Producing small-scale mine
Company: Rudnik mrkog uglja REMBAS - EPS
Longitude: 21.600 Latitude: 44.016
District: Pomerovski

Geology

Ore deposit type (gitology)
Coal deposits
Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)
Mineralization Age: Miocene
Host rocks Age: Miocene
Hostrock formation names
Resava Morava Coal Basin
Host rock lithology
Detrital rock s.l.

Economy

Exploitation type
Underground mining
Coal Coal, lignite (substance)
Ore type: Ore of indeterminate nature
Past production: - t
Reserve: - t
Resource: - t
Average grade: -%

Environment

Potential acid rock drainage with respect of the sulfides content.
Suspended matter in mine water discharge.
Large geomorphic modifications of the landscape (pits, gullies, spoil heaps...).
Landform instability (collapses) created during and after mining operations.

Comments

In 1981, the coal was mined by operations Senjski Rudnik, Vodna, Resavica and Jasenovac. An output of 736,000 t/y was expected.
The coal heating value ranges from 14,000 to 21,000 kJ, moisture is about 18%, ash 16% and sulphur below 1%.

Geological references


Economic references


Other references
Reskovica

General data

Deposit name(s): Reskovica
Identifier: YUG-00060
Commodities:
- Cu: 0 t, Class N/A
- PbZn: 0 t, Class N/A

Company: Branicevski
Longitude: 21.624
Latitude: 44.253
District: Branicevski
Status: Deposit or prospect of unknown status

Geology

Ore deposit type (gitology)
Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag. (Au)

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization

Mineralization
Sphalerite
Galena
Chalcopyrite
Magnetite
Cosalite
Molybdenite
Scheelite

Hydrothermal alteration

Skarn formation

Host rocks

Age:

Economy

Exploitation type
Mining method unknown

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t, Average grade: -
Reserve: - t, Average grade: -
Resource: - t, Average grade: -

PbZn Lead + Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t, Average grade: -
Reserve: - t, Average grade: -
Resource: - t, Average grade: -

Environment

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu...) that can affect drainage water, soils and stream sediments.

Comments

Geological references

Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458
Economic references

Other references
Other data bases
Carte Métallogénique de l’Europe  26-060
**Rgotina**

### General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Rgotina</th>
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<tbody>
<tr>
<td>Commodities:</td>
<td>Silc</td>
</tr>
<tr>
<td>Class</td>
<td>N/A</td>
</tr>
<tr>
<td>Status</td>
<td>Producing industrial mine</td>
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<tr>
<td>Company</td>
<td>Radna Organizacija R. Kvarnog Peska Kvarc-Rgotina</td>
</tr>
<tr>
<td>Longitude</td>
<td>22.262</td>
</tr>
<tr>
<td>Latitude</td>
<td>44.007</td>
</tr>
<tr>
<td>District</td>
<td>Zajecarski</td>
</tr>
</tbody>
</table>

### Geology

**Deposit name(s):** Rgotina  
**Identifier:** YUG-00148

**Commodities:** Silica (Silc)

**Class:** N/A

**Status:** Producing industrial mine

**Company:** Radna Organizacija R. Kvarnog Peska Kvarc-Rgotina

**Longitude:** 22.262  
**Latitude:** 44.007  
**District:** Zajecarski

#### Ore deposit type (geology)

Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

#### Ore deposit shape

Stratiform bed: single or multi-layered (syn-depositional with host rock)

#### Mineralization

**Age:** Miocene

#### Host rocks

**Age:** Miocene

**Host rock lithology:** Sand

### Economy

**Exploitation type:** Surface mining

**Silica, silica sand (substance):**

**Ore type:** Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production:</th>
<th>- t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>- t</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
</tr>
</tbody>
</table>

**Average grade:** -

### Environment

Potential contamination of drainage water with suspended matter.

Potential geomorphic modifications of the landscape.

### Comments

2 opencast mines were operative in 1982: Velika Poljana and Oblaci with a content of SiO2 between 93-99% after washing. Exploited by open pit since 1905.

During 1972-1976, the annual production varied between 150,000 and 220,000 t for the glass and smelting industries and 100,000 t for the building industry.

### Geological references


### Economic references


### Other references
Ridanj

General data
Deposit name(s): Ridanj
Commodities: Fe
Company: Branicevski
Longitude: 21.685
Latitude: 44.632
District: Branicevski
Identifier: YUG-00055
Status: Deposit or prospect of unknown status

Geology
Ore deposit type (gitology)
Fe (magnetite) skarns: Fe, (Co)
Ore deposit shape
Atypical, unspecified or ill-defined form
Mineralization
Age:
Ore mineralogy
Magnetite
Pyrite
Pyrrhotite
Chalcopyrite
Host rocks
Age:

Economy
Exploitation type
Mining method unknown
Fe Iron (metal)
Ore type: Ore of indeterminate nature
Past production: - t
Reserve: - t
Resource: - t
Average grade: -
Average grade: -
Average grade: -

Environment
The associated sulfide minerals assemblage can produce Acid Mine Drainage, source of potential impacts on surface water, groundwater, soils and stream sediments.

Comments

Geological references
Karamata S., Knezevic V., Pecska 2. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-055
Mineral deposits of Serbia - Ore deposits database

**General data**

**Deposit name(s):** Rogozna

**Identifier:** YUG-00160

**Commodities:** PbZn 0 t  
**Class:** N/A  
**Status:** Deposit or prospect of unknown status

**Company:**

**Longitude:** 20.634  
**Latitude:** 43.034  
**District:** Raski

**Geology**

**Ore deposit type (gitology)**

Atypical or unspecified ore deposits associated with acid and alkaline plutonic rocks

**Ore deposit shape**

Atypical, unspecified or ill-defined form

**Mineralization**

**Age:**

**Host rocks**

**Age:**

**Economy**

**Exploitation type**

Unworked

**PbZn Lead + Zinc (metal)**

**Ore type:** Ore of indeterminate nature

**Past production:** - t  
**Average grade:** -

**Reserve:** - t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

**Environment**

No data available.

**Comments**

S-SW of Crnac, limit with Kosovo

**Geological references**

Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metalogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo-Macedonian metalogenic province - Geoloshki Anali Balkanskoga Poluostrva, 42, p. 507-525.

**Economic references**

**Other references**
## General data

<table>
<thead>
<tr>
<th>Deposit name(s):</th>
<th>Rudjinci</th>
<th>Identifier:</th>
<th>YUG-00182</th>
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<tbody>
<tr>
<td><strong>Commodities:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ni</td>
<td>7 000 t</td>
<td>Class C</td>
<td></td>
</tr>
<tr>
<td>Co</td>
<td>161 000 t</td>
<td>Class C</td>
<td></td>
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<tr>
<td><strong>Company:</strong></td>
<td></td>
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<tr>
<td>Longitude:</td>
<td>20.888</td>
<td>Latitude:</td>
<td>43.598</td>
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<tr>
<td><strong>District:</strong></td>
<td>Raski</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Status:</strong></td>
<td>Dormant deposit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Geology

### Ore deposit type (gitology)
- Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.

### Ore deposit shape
- Stratabound envelope of disseminated ore

### Mineralization Age:
**Ore mineralogy**
- Nontronite
- Magnesite (Giobertite)
- Montmorillonite
- Pyrite
- Bravoite
- Millerite
- Stibnite
- Cinnabar

**Host rock mineralogy**
- Silica

**Host rocks Age:**
- Serpentinite
- Peridotite

## Economy

### Exploitation type
- Unworked

### Ni Nickel (metal)
- **Ore type:** Ore in which the element forms a distinct mineral phase
- **Past production:** - t
- **Reserve:** - t
- **Resource:** 161 000 t
- **Average grade:** - %

### Co Cobalt (metal)
- **Ore type:** Ore of indeterminate nature
- **Past production:** - t
- **Reserve:** - t
- **Resource:** 7000 t
- **Average grade:** 0.05 %

## Environment
- Acid generation potential due to the presence of pyrite.
- Possible contamination of drainage waters by high content of suspended matter, and by dissolved metals such as Ni, Sb and possibly Hg.

## Comments
- Veluce-Rudjinci Ore Field (Boev and Jankovic - 1996): Exploration carried out determined possible ore reserves of 14 Mt @ 1.15% Ni and 0.05% Co.
- 2 orebodies: Orlovac and Ravno Bucje.
Geological references

Economic references

Other references
Rudna Glava

General data

Deposit name(s): Rudna Glava

Commodities: Fe 870 000 t Class E Status: Old industrial mine, abandoned deposit
Au 0 t Class N/A
Cu 0 t Class N/A

Company: 
Longitude: 22.094 Latitude: 44.333 District: Borski

Geology

Ore deposit type (gitology)
Fe (magnetite) skarns: Fe, (Co)

Ore deposit shape
Discordant mass or lens of massive to submassive ore

Mineralization 
Age: Lower/Early Carboniferous (Dinantian, Tournaissian+Visean, Lower/Early Namurian)

Ore mineralogy
Magnetite
Chalcopyrite
Pyrrhotite
Molybdenite
Scheelite
Smaltite

Host rock mineralogy
Garnet
Pyroxene
Chlorite
Epidote
Quartz

Hydrothermal alteration
Skarn formation

Host rocks
Age: Paleozoic (Primary)

Host rock lithology
Marble, cipolin (crystalline limestone)
Granodiorite
Quartz gabbro
Skarn

Economy

Exploitation type
Mining method unkown

Fe Iron (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: 350000 t Average grade: - %
Reserve: 520000 t Average grade: 42 %
Resource: - t Average grade: - %

Au Gold (metal)

Ore type: Ore of indeterminate nature
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -
**Environment**

Acid mine drainage potential due to the primary ore composition enriched in sulfides like chalcopyrite and pyrrhotite.

**Comments**

Old mine (4500 B.C.) for Cu and probably gold
Fe mine from 1935-1963
Ore : 42% Fe, 0.1-0.6% Cu and 0.38-0.94% Cr.

**Geological references**

Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.

**Economic references**

**Other references**

**Other databases**
The Iron Ore Deposits of Europe - 1978 YU14
**General data**

**Deposit name(s):** Rudnik  
**Identifier:** YUG-00052  
**Commodities:**  
- **Pb** 133,000 t  
- **Ag** 525 t  
- **Zn** 126,000 t  
- **Cu** 21,000 t  
- **Bi** 0 t  
**Status:** Producing industrial mine  
**Company:** DP Rudnik i Flotacija Rudnik  
**Longitude:** 20.512  
**Latitude:** 44.140  
**District:** Sumadijski

**Geology**

**Ore deposit type**  
Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)

**Ore deposit shape**  
Subconcordant or stratabound mass or lens of massive to submassive ore  
Discordant lode or vein (thickness > 50 cm), in clusters or isolated

**Mineralization**  
**Age:** Cenozoic

**Ore mineralogy**  
- Galena  
- Sphalerite  
- Chalcopyrite  
- Cubanite  
- Valleriite  
- Breithauptite  
- Maucherite  
- Millerite  
- Pyrhotite  
- Pyrite  
- Linnaeite  
- Grey copper  
- Bournonite

**Host rock mineralogy**  
- Barite  
- Quartz  
- Calcite

**Hydrothermal alteration**  
- Skarn formation  
- Silicification  
- Kaolinization

**Host rocks**  
**Age:** Cretaceous

**Host rock formation names**  
- Cretaceous sediments  
- Late Tertiary dikes and stocks andesites dacites

**Host rock lithology**  
- Limestone  
- Andesite  
- Quartz diorite

**Economy**

**Exploitation type**  
Sublevel stoping

**Pb Lead (metal)**  
**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 133,000 t  
**Average grade:** 1.9 %  
**Reserve:** - t  
**Average grade:** - %  
**Resource:** - t  
**Average grade:** - %

**Zn Zinc (metal)**  
**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 126,000 t  
**Average grade:** 1.8 %  
**Reserve:** - t  
**Average grade:** - %  
**Resource:** - t  
**Average grade:** - %
Mineral deposits of Serbia - Ore deposits database

YUG-00052

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 21000 t
Average grade: 0.3 %
Reserve: - t
Average grade: - %
Resource: - t
Average grade: - %

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem

Past production: 525 t
Average grade: 75 g/t
Reserve: - t
Average grade: - g/t
Resource: - t
Average grade: - g/t

Bi Bismuth (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem

Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu...) that can affect drainage water, soils and stream sediments.
The potential acid mine drainage generated is buffered by the gangue mineralogy (carbonates) which are acid-consuming minerals. The host rock assemblage (limestone) which alters to calc-silicates decrease acid-buffering capacity.

The information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals, indicates the existence of 7 Mt of active tailings (still high content in pyrite and pyrrhotite) in Rudnik.

Comments

In 1982, current annual output was about 200,000 t of ore.
Metal content differs from one orebody to another, ranging from 0.36 to 7.36% Pb, 0.32 to 5.68% Zn and 0.15 to 1.19% Cu, also with Ag (25 to 155 g/t), Bi (13 to 698 g/t) and Cd (50 to 272 g/t) in the galena concentrate.

Modern mining started in 1952.

Nov 2001 - Visit J.Monthel : 7 Mt of tailings with 25-30% pyrite-pyrrhotite, Annual production : 205,000t of ore containing about 3100 t of Pb, 3100t of Zn and 340t Cu. Grade of the ore during 2001 : 1.9% Pb, 1.8% Zn, 0.3% Cu and 75 g/t Ag. Presence of Au and possibility of Pt/Pd minerals.

Geological references

Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

Economic references


Other references

Other data bases
Carte Métallogénique de l'Europe 26-052
General data

Deposit name(s): Rudovci
Company: Ro Samot Rudnici Vatrostalnih Glina
Longitude: 20.461
Latitude: 44.354
District: Sumadijski

Geology

Ore deposit type (gitology)
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization Age: Pliocene
Ore mineralogy
Kaolin
Illite
Host rocks Age: Pliocene
Host rock lithology
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.

Economy

Exploitation type
Surface mining
Underground mining

ClyR White-firing clays (refractory & ceramic) (subst.)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Kln Kaolin (substance)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment
Potential contamination of drainage water with suspended matter.
Potential geomorphic modifications of the landscape.

Comments
In 1981, the output was about 230,000 t/y and expected at 320,000 t/y in 1985.
Pits name: Svabinač, Lazine, Rudovci, Krusik and Vrbica.

Geological references
Simic V. and Jovic V. - (1997) - Genetic types of kaolin and kaolinite clay deposits in Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif". Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 197-201
Economic references

Other references
General data

Deposit name(s): Rujevac
Identifier: YUG-00111

Commodities:
- As: 0 t, Class: N/A, Status: Deposit of unknown status
- PbZn: 0 t, Class: N/A
- Sb: 0 t, Class: N/A

Company: Zajaca - Rudarsko - Topionicarski Basen
Longitude: 19.314
Latitude: 44.342
District: Macvanski

Geology

Ore deposit type (gitology)
- Unspecified ore deposits related to volcanic systems and shallow intrusives
- Jasperoid-hosted stratabound low sulphidation epithermal veins: Hg, Sb

Ore deposit shape
- Stratabound envelope of disseminated ore
- Concordant to subconcordant stockwork (veinlets network) envelope

Mineralization

Age: Miocene

Ore mineralogy
- Stibnite
- Pyrite
- Sphalerite
- Galena
- Arsenopyrite
- Realgar
- Chalcopyrite
- Boulangerite
- Bournonite
- Zinkenite
- Grey copper
- Orpiment
- Cinnabar
- Gold

Host rock mineralogy
- Quartz
- Calcite
- Chalcedony

Hydrothermal alteration
- Silicification

Host rock lithology
- Limestone
- Medium- to fine-grained detrital sediment
- Schist/shale
- Dacite

Economy

Exploitation type
- Sublevel stoping

Sb Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t

PbZn Lead + Zinc (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Reserve: - t
Resource: - t
As Arsenic (metal)

| Ore type: Ore in which the element forms a distinct mineral phase |
| Past production: - t | Average grade: - |
| Reserve: - t | Average grade: - |
| Resource: - t | Average grade: - |

Environment
High acid generation potential due to the sulfidic composition of the primary ore.
The hydrothermal alteration type (silica) tends to decrease acid-buffering capacity of the host-rocks.
Moreover, the presence of sulfosalts (sulfoarsenites) and cinnabar tends to release, when oxidized, elements like As and Hg into the environment.
Those elements, when accumulated in the natural receptors (like soils or stream sediments) are toxic for human health and ecosystems.
No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Comments
Exploitation began in 1981. Overall output was 120,000 t/y in 1981 (RTB Zajaca).
The ore contains 2.3% Sb, 0.5-2.2% As, 0.2-0.8% Pb and 0.5-0.6% Zn

Geological references

Economic references

Other references
Rujiste

General data

Deposit name(s): Rujiste
Commodities: Asb 0 t
Company: YUG-00039
Longitude: 20.767
Latitude: 42.926
District: Kosovo

Geology

Ore deposit type (gitology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape
Field of discordant lodes (n*km², n*ha)

Mineralization Age:
Ore mineralogy
Chrysotile (Clino-, Ortho-, Para-

Host rocks Age:
Host rock formation names
Kozarevo-Gradevci Serpentinite Mass
Host rock lithology
Basic to ultrabasic rock s.l.

Economy

Exploitation type
Mining method unkown
Asb Asbestos (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
Fibrous minerals in the form of fugitive dust pose a risk to human health through air contamination (airborne transportation).
Mining wastes expose asbestos to erosion by natural agents (wind and water).
The weak, widely exposed, highly fractured rocks are geologic factors that influence environmental effects.

Comments

Geological references
Vakanjac B and Ilich M. - (1980) - Non-metals in the ultramafites of the ophiolite complex of Yugoslavia, - Ophiolites;
11th World Mining Congress, Beograd. p. 95-111.

Economic references

Other references
Ruplje

General data

Deposit name(s): **Ruplje**

Identifier: **YUG-00201**

Company: Jablanicki

Longitude: 22.227

Latitude: 42.849

District: Jablanicki

Commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Grade</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag</td>
<td>0 t</td>
<td>N/A</td>
</tr>
<tr>
<td>Au</td>
<td>0 t</td>
<td>N/A</td>
</tr>
<tr>
<td>Cu</td>
<td>0 t</td>
<td>N/A</td>
</tr>
<tr>
<td>PbZn</td>
<td>0 t</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Status: Old industrial mine, exhausted deposit

Geology

**Ore deposit type (gitology)**
Unspecified ore deposits related to volcanic systems and shallow intrusives

**Ore deposit shape**
Field of discordant lodes (n*km2, n*ha)

**Mineralization**

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrite</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Sphalerite</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Galena</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Arsenopyrite</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Marcasite</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Tetrahedrite</td>
<td>Tertiary</td>
</tr>
</tbody>
</table>

**Host rocks**

<table>
<thead>
<tr>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Host rock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruplje dacite stock</td>
<td>Dacite</td>
</tr>
</tbody>
</table>

Economy

**Exploitation type**
Underground mining

**PbZn Lead + Zinc (metal)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore in which the element forms a distinct mineral phase</td>
<td>- t</td>
<td>- t</td>
<td>- t</td>
<td>-</td>
</tr>
</tbody>
</table>

**Cu Copper (metal)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore in which the element forms a distinct mineral phase</td>
<td>- t</td>
<td>- t</td>
<td>- t</td>
<td>-</td>
</tr>
</tbody>
</table>

**Au Gold (metal)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)</td>
<td>- t</td>
<td>- t</td>
<td>- t</td>
<td>-</td>
</tr>
</tbody>
</table>
Mineral deposits of Serbia - Ore deposits database

YUG-00201

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem

<table>
<thead>
<tr>
<th>Past production:</th>
<th>t</th>
<th>Average grade:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve:</td>
<td>t</td>
<td>Average grade:</td>
</tr>
<tr>
<td>Resource:</td>
<td>t</td>
<td>Average grade:</td>
</tr>
</tbody>
</table>

Environment

Potential acid drainage production due to the sulfides minerals present in the ore.
Expected high dissolved contents of base metals and arsenic in drainage waters with possible concentrations in stream sediments.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Comments

The more important concentrations have been discovered at Crveni Breg and Novo Selo.

Samples from the Crveni Breg dump: 4.44-13.14% Pb, 7.91-20.44% Zn, 0.14-0.17% Cu, 0.19-1.18% As, 0.23-2.17 g/t Au and 550-783 g/t Ag (Simic - 1997).

Geological references

Simic M. (1997) - Geological-structural features of the Besna Kobila Zone in SE Serbia - Proceedings of the Symposium "Magmatism, metamorphism and metallogeny of the Vardar Zone and Serbo-Macedonian Massif". Plate tectonics aspects of Alpine Metallogeny in the Carpatho-Balkan Region. Faculty of Mining and Geology Stip, pp. 185-195

Economic references

Other references
Rusanda

General data

Deposit name(s): Rusanda
Commodities: Petr
Class: N/A
Status: Producing deposit
Company:
Longitude: 20.239
Latitude: 45.538
District:

Geology

Ore deposit type (gitology)
- Oil deposits: oil, (S)

Ore deposit shape
- Atypical, unspecified or ill-defined form

Mineralization
- Age:

Host rocks
- Age:

Economy

Exploitation type
- Mining method unknown

Petr Petroleum (substance)
- Ore type: Ore in which the element forms a distinct mineral phase

Past production: - m3
Average grade: -
Reserve: - m3
Average grade: -
Resource: - m3
Average grade: -

Environment

Potential contamination of surface waters, soils and sediments by hydrocarbons and oil products.

Comments

Geological references

Economic references

Other references
Mineral deposits of Serbia - Ore deposits database

YUG-00225

Sar

General data

Deposit name(s): Sar
Identifier: YUG-00225
Commodities: LstC
Company: 
Longitude: 21.276
Latitude: 42.140
District: Kosovo

Geology

Deposit name(s): Sar
Identifier: YUG-00225
Commodities: LstC
Company: 
Longitude: 21.276
Latitude: 42.140
District: Kosovo

Geology

Deposit name(s): Sar
Identifier: YUG-00225
Commodities: LstC
Company: 
Longitude: 21.276
Latitude: 42.140
District: Kosovo

Ore deposit type (gitology)
Sedimentary-related industrial rocks and minerals: Clays, limestones, dolomite, calcite, siliceous sand, quartzite, etc.

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization Age:
Host rocks Age: Upper/Late Cretaceous
Host rock lithology
Limestone
Marl

Economy

Exploitation type
Surface mining
LstC Cement limestone (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
Dust production and fallout.
Geomorphic modifications in the landscape (quarry).

Comments
Content of CaCO3 : 73.8%
Production 1990 : 284 kt

Geological references

Economic references

Other references
Sastavci

General data
Deposit name(s): Sastavci
Commodities: PbZn
Class: N/A
Status: Deposit of unknown status
Company: Raski
Longitude: 20.703
Latitude: 43.312
District: Raski

Geology
Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Ore deposit shape
Stratabound envelope of disseminated ore
Mineralization Age: Cenozoic
Host rocks Age:

Host rock lithology
Quartz diorite
Dacite
Andesite
Pyroclastic rocks s.l.

Economy
Exploitation type
Mining method unknown
PbZn Lead + Zinc (metal)
Ore type: Ore of indeterminate nature
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment
No data available.

Comments

Geological references

Economic references

Other references
**General data**

**Deposit name(s):** Sijarsinska Banja  
**Identifier:** YUG-00203  
**Commodities:** Au  
**Class:** N/A  
**Status:** Deposit or prospect of unknown status  
**Company:**  
**Longitude:** 21.623  
**Latitude:** 42.776  
**District:** Jablanicki

**Geology**

**Deposit or prospect of unknown status**

**Ore deposit type (gitology)**  
Fault and shear-zone controlled low sulphidation epithermal veins: Au, Ag, (Mn)  
Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)

**Ore deposit shape**  
Field of discordant lodes (n*km2, n*ha)  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**  
**Age:** Tertiary  
**Ore mineralogy**  
Pyrite  
Chalcopyrite  
Arsenopyrite  
Galena  
Sphalerite  
Bismuthinite  
Stibnite  
Gold

**Host rock mineralogy**  
Quartz

**Host rock lithology**  
Amphibolite (s.l.)  
Gneiss (s.l.)  
Andesite

**Exploitation type**  
Unworked

**Au**  
**Gold (metal)**  
**Ore type:** Ore in which the element forms a distinct mineral phase  
**Past production:** - t  
**Average grade:** -  
**Reserve:** - t  
**Average grade:** -  
**Resource:** - t  
**Average grade:** -

**Environment**

High acid generation potential due to the sulfides minerals contained in the ore.  
Expected high dissolved contents of base metals, Sb, Bi and As in drainage waters with possible concentrations of some of those elements in stream sediments.

**Comments**

Rekalije and Guri Gat occurrences

**Geological references**

Economic references

Other references
Sip

General data

Deposit name(s): Sip
Orahovac

Identifier: YUG-00089

Commodities: Cr 40 000 t  Class E  Status: Old small-scale mine, exhausted deposit

Company:

Longitude: 20.652  Latitude: 42.463  District: Kosovo

Geology

Ore deposit type (gitology)
Ophiolite-hosted ore deposits: Cr, (PGE)

Ore deposit shape
Concordant to subconcordant mass, lens or pod of massive to submassive ore

Mineralization  Age:
Ore mineralogy
Chromite

Host rocks  Age:

Host rock lithology
Dunite
Peridotite

Economy

Exploitation type
Mining method unknown

Cr  Chrome (Cr2O3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 40000 t  Average grade: 48 %
Reserve: - t  Average grade: - %
Resource: - t  Average grade: - %

Environment

No specific environmental signature.

Comments

30-50 kt ore extracted between 1929-1945 - 48% Cr2O3

Geological references


Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe  26-127
General data

Deposit name(s): Soko Sokobanja

Commodities: Coal 0 t Class N/A

Company: Rudnik mrkoj ugla SOKO - EPS

Longitude: 22.040 Latitude: 43.626

District: Zajecarski

Geology

Ore deposit type (gitology)
Lignite deposits
Coal deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization Age: Miocene

Host rocks Age: Miocene

Hostrock formation names
Sokobanja Coal Basin

Host rock lithology
Bituminous or carbureted rock: clay, claystone, sand, sandstone, limestone, dolomite, etc.
Detrital rock s.l.

Economy

Exploitation type
Underground mining

Coal Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment

Potential acid rock drainage with respect of the sulfides content.
Suspended matter in mine water discharge.
Large geomorphic modifications of the landscape (pits, gullies, spoil heaps...).
Landform instability (collapses) created during and after mining operations.

Comments

Output expected : 260,000 t/y in 1985.
Coal heating value is 15,700 kJ, moisture is up to 22%, ash content about 18%.

Geological references


Economic references


Other references
General data

Deposit name(s): Stancha Identifier: YUG-00133
Commodities: Cu 5 000 t Class E Status: Deposit or prospect of unknown status
Company:
Longitude: 20.430 Latitude: 43.722 District:

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to basic-ultrabasic magmatic rocks
Volcanogenic massive and disseminated Cu-Au sulphide deposits: Cu, Au, (Zn, Co, Mo, Bi)

Ore deposit shape
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata
Discordant envelope of disseminated ore

Mineralization Age:
Ore mineralogy
Pyrite
Chalcopyrite
Magnetite
Ilvaite
Pyrrhotite

Hydrothermal alteration
Silicification
Chloritization

Host rocks Age: Jurassic
Host rock lithology
Dolerite, diabase
Peridotite

Economy

Exploitation type
Mining method unknown
Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t Average grade: - %
Reserve: - t Average grade: - %
Resource: 5000 t Average grade: 0.5 %

Environment
High acid generation potential due to the sulfide content of the primary ore body.
This Acid Rock Drainage can be enhanced by the various mineral assemblages forming the hydrothermal alteration halo.

Comments
Resources : 1 Mt @ 0.5% Cu

Geological references

Economic references

Other references
General data

Deposit name(s): Stara Planina
Commodities: Fe
Company:
Longitude: 22.683
Latitude: 43.217
District: Pirotski

Identification: YUG-00080
Status: Deposit or prospect of unknown status

Geology

Ore deposit type (geology)
- Oolitic iron ore deposits (Clinton, Minette): Fe

Ore deposit shape
- Stratified envelope of disseminated ore

Mineralization
- Age: Lower/Early Jurassic (Lias)

Ore mineralogy
- Hematite
- Siderite
- Iron Oxides (unspecified)

Host rocks
- Age: Lower/Early Jurassic (Lias)

Host rock lithology
- Limestone

Economy

Exploitation type
- Mining method unknown

Fe Iron (metal)
- Ore type: Ore of indeterminate nature

Past production: t
Reserve: t
Resource: t
Average grade:

Environment

Potential contamination of surface water by suspended matter.

Comments

Geological references

Economic references

Other references

Other data bases
- Carte Métallogénique de l'Europe 26-099
Stari Glog

General data

Deposit name(s): Stari Glog
Identifier: YUG-00093
Commodities: Mo 0 t Class N/A Status: Deposit or prospect of unknown status
Company: 
Longitude: 21.906 Latitude: 42.553 District: Pcinjski

Geology

Ore deposit type (gitology)
Granitic and peri-granitic veins and stockworks (greisen): Sn-W, (Cu, Bi, Sb, base metals)

Ore deposit shape
Discordant lode or vein (thickness > 50 cm), in clusters or isolated

Mineralization Age:
Ore mineralogy Host rock mineralogy
Molybdenite Quartz

Host rocks Age:

Host rock lithology
Granite (s.l.)

Economy

Exploitation type
Mining method unknown
Mo Molybdenum (metal)

Ore type: Ore of indeterminate nature

Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment

No specific environmental signature.

Comments

Geological references

Schumacher F. - (1954) - The ore deposits of Jugoslavia and the development of its mining industry - Economic Geology, Vol 49, n°5, pp. 451-492

Economic references

Other references

Other data bases
Carte Métallogénique de l’Europe 26-135
### General data

**Deposit name(s):** Stari Trg  
**Company:** TREPCA Mining and Metallurgical Complex  
**District:** Kosovo  
**Longitude:** 20.917  
**Latitude:** 42.938  
**Identifier:** YUG-00023  

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Amount (t)</th>
<th>Class</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2 281 000</td>
<td>A</td>
<td>Dormant</td>
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<tr>
<td>Ag</td>
<td>3 064</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Bi</td>
<td>4 115</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Zn</td>
<td>1 483 000</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Cd</td>
<td>1 655</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

### Geology

**Ore deposit type (gitology)**  
Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)

**Ore deposit shape**  
Discordant mass or lens of massive to submassive ore  
Breccia-pipe, funnel, chimney, column, brecciated dyke

**Mineralization**  
Age: Miocene

**Ore mineralogy**  
- Galena  
- Sphalerite  
- Pyrhotite  
- Pyrite  
- Chalcopyrite  
- Arsenopyrite  
- Stibnite  
- Jamesonite  
- Boulangerite  
- Magnetite  
- Scheelite  
- Cubanite  
- Bismuth

**Host rock mineralogy**  
- Rhodochrosite (Dialloqite)  
- Dolomite  
- Calcite  
- Garnet  
- Epidote  
- Actinolite  
- Diopside  
- Wollastonite  
- Quartz  
- Siderite

**Hydrothermal alteration**  
- Sericitization  
- Silification  
- Pyritization  
- Carbonization  
- Skarn formation

**Host rocks**  
Age: Paleozoic (Primary)

**Hostrock formation names**  
Ordovician to Silurian marble

**Host rock lithology**  
- Sericitic schist, sericite schist of sedimentary origin  
- Marble, cipolin (crystalline limestone)  
- Dacite  
- Undifferentiated volcanic breccia

### Economy

**Exploitation type**  
Underground mining

**Pb Lead (metal)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Amount (t)</th>
<th>Average grade</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore type</td>
<td>2066000</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Reserve</td>
<td>215000</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>Resource</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
In 1982: reserves of at least 50 Mt of ore @ 5-7% Pb and 4% Zn. Mineralization extends below 1,300 m. Mined since the Middle Ages, Trepca is currently worked by cut-and-fill techniques. In 1982, the output was 600,000 t of ore.

Data in Laznicka P. (1985) p 1248: 3 Mt Pb (6%), 2 Mt Zn (4%) and 5,000 t Ag (100 g/t).

Data in “geology of canadian mineral deposit types (1995), from Forgan (1950): 12.5 Mt @ 3.8% Zn, 8.6% Pb, 0.2% Cu, 140 g/t Ag.

Production 1930-1950: 10,047,540t @ 8.2% Pb (825,000 t Pb), 5.6% Zn (566,000 t Zn) and 102 g/t Ag (1,022 t Ag). Bi was produced in about the same amount as Ag (Schumacher F. 1954).

Mission ITT-UNMIK (12/2000): Past production (1931-1998): 34,350,000 t @ 6.0% Pb, 4.0% Zn, 75 g/t Ag. Resources: 5,500,000 t @ 3.9% Pb, 2.0% Zn and 90 g/t Ag.

**Environment**

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu...) that can affect drainage water, soils and stream sediments. The potential acid mine drainage generated is buffered by the gangue mineralogy (carbonates) which are acid-consuming minerals. The host rock assemblage (marble and cipolin) which alters to calc-silicates decrease acid-buffering capacity. Presence of As which is highly mobile in medium to high pH environment and which can accumulate in stream sediments.

The information related to tailings disposals which are potential sources of contaminants in the form of particulates and dissolved metals, indicate that large amounts of such materials (~30 Mt) exist in the Prvi Tunel area.

**Comments**

In 1982: reserves of at least 50 Mt of ore @ 5-7% Pb and 4% Zn. Mineralization extends below 1,300 m. Mined since the Middle Ages, Trepca is currently worked by cut-and-fill techniques. In 1982, the output was 600,000 t of ore.

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**Geological references**


Economic references


Other references

Other data bases

Carte Métallogénique de l'Europe  26-105
Mineral deposits of Serbia - Ore deposits database

Stavalj

General data

Deposit name(s): Stavalj, Sjenica
Identifier: YUG-00146

Commodities: Coal
Class: 0 t
Status: Producing small-scale mine

Company: Rudnik lignita STAVALJ - EPS
Longitude: 19.991
Latitude: 43.278
District: Zlatiborski

Geology

Ore deposit type (gitology)
Lignite deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Miocene

Host rocks
Age: Miocene

Host rock formation names
Sjenica Coal Basin
Host rock lithology
Undifferentiated sediment

Economy

Exploitation type
Surface mining
Underground mining

Coal
Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
Potential acid rock drainage with respect of the sulfides content.
Suspended matter in mine water discharge.
Large geomorphic modifications of the landscape (pits, gullies, spoil heaps...).
Landform instability (collapses) created during and after mining operations.

Comments
Annual output ranged up to 50,000 t/y in 1981.
Heating value 14,600 kJ, moisture 30.9%, ash 9.74% sulphur 0.94%.

Geological references

Economic references

Other references
Stimlje

General data

Deposit name(s): Stimlje
Identifier: YUG-00102
Commodities: Fe 400 000 t Class E Status: Deposit of unknown status
Company:
Longitude: 21.050 Latitude: 42.467 District: Kosovo

Geology

Ore deposit type (gitology)
Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.
Fe and Mn sedimentary deposits: Fe, Mn

Ore deposit shape
Cap, blanket, crust
Subconcordant or stratabound mass or lens of massive to submassive ore

Mineralization Age: Upper/Late Cretaceous

Ore mineralogy
Chamosite
Hematite
Magnetite
Goethite
Chromite

Host rocks Age: Upper/Late Cretaceous

Economy

Exploitation type
Mining method unknown

Fe Iron (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t Average grade: - % Reserve: - t Average grade: - % Resource: 400000 t Average grade: 36 %

Environment
Potential particulate and colloidal iron compounds in drainage water.

Comments
The ore contains 28-44% Fe, 1.3-2.3% Cr and 0.01% Co

Geological references

Economic references

Other references
Other data bases
The Iron Ore Deposits of Europe - 1978 YU18
General data

Deposit name(s): Stolice

Commodities: Sb

Class: N/A

Status: Deposit of unknown status

Company: Macvanski

Longitude: 19.302

Latitude: 44.401

District: Macvanski

Geology

Ore deposit type (geology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Vein and disseminated Sb deposits: Sb, Hg, As, (Au, Tl)
Jasperoid-hosted stratabound low sulphidation epithermal veins: Hg, Sb

Ore deposit shape
Stratabound envelope of disseminated ore
Field of discordant lodes (n*km², n*ha)

Mineralization

Age:

Upper/Late Carboniferous
(Stephanian-Westphalian, Upper/Late
Namurian, Silesian, Pennsylvanian)

Mineralization

Ore mineralogy
Stibnite
Pyrite
Chalcopyrite
Galena

Host rock mineralogy
Quartz

Hydrothermal alteration
Silicification

Host rocks
Age:
Upper/Late Carboniferous
(Stephanian-Westphalian, Upper/Late
Namurian, Silesian, Pennsylvanian)

Host rock lithology
Limestone
Undifferentiated metamorphic rock
Dacite
Andesite

Economy

Exploitation type
Mining method unknown

Sb Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t

Reserve: - t

Resource: - t

Average grade: -

Environment

Acid generation potential due to the sulfides minerals contained in the ore.
Expected dissolved content of Cu and Sb in drainage waters.

Comments

Geological references

Mudrinic C. - (1975) - Primarni oreoli rasejavanja rudnih metala u antimonskom lezistu Stolice (Zapadna Srbija) Translated Title: Primary dispersion aureoles of the Stolica antimony deposit; western Serbia. - Zbornik Radova Rudarsko Geoloskog Fakulteta, Universitet u Beogradu, 18, p. 57-66.
Economic references

Other references
**General data**

- **Deposit name(s):** Stragari
- **Identifier:** YUG-00053
- **Commodities:** Asb
- **Status:** Deposit of unknown status
- **Company:**
- **Longitude:** 20.674
- **Latitude:** 44.163
- **District:** Sumadijski

**Geology**

- **Ore deposit type (geology):** Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks
- **Ore deposit shape:** Discordant envelope of disseminated ore
- **Mineralization Age:** Cenozoic
- **Ore mineralogy:** Chrysotile (Clino-, Ortho-, Par)
- **Host rocks Age:**
  - **Hostrock formation names:** Contact serpentinite mass - Cretaceous limestone
  - **Host rock lithology:** Basic to ultrabasic rock s.l.
  - Serpentinite
  - Limestone

**Economy**

- **Exploitation type:** Surface mining
- **Asb Asbestos (substance):** Ore in which the element forms a distinct mineral phase
- **Past production:** - t
- **Average grade:** - %
- **Reserve:** - t
- **Average grade:** 15 %
- **Resource:** - t
- **Average grade:** %

**Environment**

- Fibrous minerals in the form of fugitive dust pose a risk to human health through air contamination (airborne transportation).
- Mining wastes expose asbestos to erosion by natural agents (wind and water).

**Comments**

**Geological references**


**Economic references**


**Other references**

- **Other data bases**
  - Carte Métallogénique de l'Europe 26-053

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**General data**

**Deposit name(s):** Suplja Stena  
**Identifier:** YUG-00047  
**Commodities:** Hg  
**Class:** D  
**Status:** Old industrial mine, abandoned deposit

**Company:**  
**Longitude:** 20.544  
**Latitude:** 44.632  
**District:** Beograd

**Geology**

**Ore deposit type (geology)**
Unspecified ore deposits related to volcanic systems and shallow intrusives  
Mercury deposits hosted by sediments injected by basic diatremes (Almaden): Hg, (As, Sb)

**Ore deposit shape**
Discordant envelope of disseminated ore  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**

**Age:** Miocene

**Ore mineralogy**
- Cinnabar  
- Pyrite  
- Marcasite  
- Sphalerite  
- Chalcopyrite

**Host rock mineralogy**
- Quartz  
- Barite

**Hydrothermal alteration**
- Silicification

**Host rock lithology**
- Basic to ultrabasic rock s.l.  
- Serpentinite  
- Undifferentiated sediment

**Economy**

**Exploitation type**
Underground mining

**Hg Mercury (metal)**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** 80 t  
**Average grade:** 1.46 %

**Reserve:** 229 t  
**Average grade:** 0.6 %

**Resource:** t  
**Average grade:** - %

**Environment**

The primary ore mineralogy, mainly composed of sulfides generates Acid Mine Drainage and associated dissolved metals that can affect the quality of drainage water, soils and stream sediments.  
The alteration of cinnabar leads to the release of Mercury that can be bioaccumulated in the ecosystems and the foodchain.

**Comments**

The ore contains 0.2-1.0% Hg (Jankovic - 1982).  
Between 1885-1891, 7,796 t @ 1.46% Hg have been extracted.

**Geological references**


**Economic references**

**Other references**

*Other data bases*
### General data

**Deposit name(s):** Suva Ruda  
**Identifier:** YUG-00103

**Commodities:**  
- **Fe:** 1 000 000 t  
- **Cu:** 0 t

**Company:** Rudnik Magnetita Suva Ruda - Raska  
**Longitude:** 20.735  
**Latitude:** 43.304  
**District:** Raski

**Status:** Deposit of unknown status

### Geology

**Ore deposit type (gitology):**  
Fe (magnetite) skarns: Fe, (Co)

**Ore deposit shape:**  
Subconcordant or stratabound mass or lens of massive to submassive ore

**Mineralization:**  
**Age:** Paleozoic (Primary)

**Ore mineralogy:**  
- Magnetite  
- Chalcopyrite  
- Martite  
- Pyrite  
- Marcasite  
- Valentinite  
- Bismuthinite

**Host rock mineralogy:**  
- Garnet

**Hydrothermal alteration:**  
- Skarn formation

**Host rocks:**  
**Age:** Paleozoic (Primary)

**Host rock lithology:**  
- Exoskarn  
- Amphibolite (s.l.)  
- Marble, cipolin (crystalline limestone)  
- Calcic hornfels, tactite

### Economy

**Exploitation type:**  
- Surface mining  
- Underground mining

**Fe Iron (metal):**  
**Ore type:** Ore in which the element forms a distinct mineral phase

- **Past production:**  
- t  
- **Average grade:** - %

- **Reserve:** 1000000 t  
- **Average grade:** 42 %

- **Resource:** - t  
- **Average grade:** - %

**Cu Copper (metal):**  
**Ore type:** Ore in which the element forms a distinct mineral phase

- **Past production:** - t  
- **Average grade:** 0.96 %

- **Reserve:** - t  
- **Average grade:** - %

- **Resource:** - t  
- **Average grade:** - %

### Environment

Acid mine drainage potential due to the primary ore composition enriched in sulfides like chalcopyrite, pyrite, marcasite.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

### Comments

Mining was initiated in 1972 with an output of 250,000 t/y and a content of 26.78% Fe3O4 and 0.96% Cu
**Geological references**


Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.


**Economic references**


**Other references**

**Other data bases**

The Iron Ore Deposits of Europe - 1978  YU19
Suvo Rudiste

General data

Deposit name(s): Suvo Rudiste  Identifier: YUG-00104
Commodities:  
Fe  200 000 t  Class E  Status: Old industrial mine, exhausted deposit
Cu  0 t  Class N/A
Mn  0 t  Class N/A
Company: Rudnik Magnetita Suva Ruda - Raska
Longitude: 20.790  Latitude: 43.291  District: Rasinski

Geology

Ore deposit type (gitology)
Fe (magnetite) skarns: Fe, (Co)

Ore deposit shape
Subconcordant or stratabound mass or lens of massive to submassive ore

Mineralization  Age: Cenozoic

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetite</td>
<td>Garnet</td>
<td>Skarn formation</td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marcasite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valentinite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bismuthinite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hematite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Host rocks  Age: Paleozoic (Primary)

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kopaonik granodioritic complex</td>
<td>Exoskarn</td>
</tr>
<tr>
<td>Paleozoic schists</td>
<td>Marble, cipolin (crystalline limestone)</td>
</tr>
<tr>
<td></td>
<td>Amphibolite (s.l.)</td>
</tr>
<tr>
<td></td>
<td>Calcic hornfels, tactite</td>
</tr>
</tbody>
</table>

Economy

Exploitation type
Surface mining

Fe  Iron (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t</td>
</tr>
<tr>
<td>Reserve: 200000 t</td>
</tr>
<tr>
<td>Resource: - t</td>
</tr>
</tbody>
</table>

Cu  Copper (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t</td>
</tr>
<tr>
<td>Reserve: - t</td>
</tr>
<tr>
<td>Resource: - t</td>
</tr>
</tbody>
</table>

Mn  Manganese (metal)

<table>
<thead>
<tr>
<th>Ore type: Ore of indeterminate nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past production: - t</td>
</tr>
<tr>
<td>Reserve: - t</td>
</tr>
<tr>
<td>Resource: - t</td>
</tr>
</tbody>
</table>
**Comments**

The ore contained 36-40% Fe, 0.7% Cu and 0.2% Mn. In 1982, annual output was 300,000 t/y ore.

---

**Environment**

Acid mine drainage potential due to the primary ore composition enriched in sulfides like chalcopyrite, pyrite, marcasite etc.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

---

**Geological references**


Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas: explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.


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**Economic references**


---

**Other references**

**Other data bases**

The Iron Ore Deposits of Europe - 1978 YU20
General data

Deposit name(s): Takovo  Identifier: YUG-00115

Commodities: Sb 0 t  Class N/A  Status: Group of mineral occurrences

Company:  

Longitude: 20.397  Latitude: 44.056  District: Moravicki

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to volcanic systems and shallow intrusives
Sediment-hosted ore deposits related to shallow intrusions: Au, Ag, Hg, Sb, As

Ore deposit shape
Discordant envelope of disseminated ore
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization

Age: Neogene (Miocene to Pliocene)

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stibnite</td>
<td>Quartz</td>
<td>Silicification</td>
</tr>
<tr>
<td>Cinnabar</td>
<td>Chalcedony</td>
<td></td>
</tr>
<tr>
<td>Pyrite</td>
<td>Opal</td>
<td></td>
</tr>
<tr>
<td>Marcasite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Host rocks

Age: Triassic

<table>
<thead>
<tr>
<th>Host rock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triassic silicified limestone</td>
<td>Dacite</td>
</tr>
<tr>
<td>Subvolcanic dacite intrusions</td>
<td>Limestone</td>
</tr>
</tbody>
</table>

Economy

Exploitation type
Unworked

Sb  Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

<table>
<thead>
<tr>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>t</td>
<td>t</td>
</tr>
</tbody>
</table>

Average grade:

-  
-  
-  

Environment

High acid generation potential due to the sulfidic composition of the primary ore.
The hydrothermal alteration type (silica) tends to decrease acid-buffering capacity of the host-rocks. Moreover, the presence of cinnabar tends to release, when oxidized, Hg into the environment.
This element, when accumulated in the natural receptors (like soils or stream sediments) is toxic for human health and ecosystems.

Comments

Geological references


Economic references
Other references
General data

Deposit name(s): Tanda  
Commodities: W  
Company:
Longitude: 22.157  
Latitude: 44.233  
District: Borski

Geology

Ore deposit type (gitology)
Granitic and peri-granitic veins and stockworks (greisen): Sn-W, (Cu, Bi, Sb, base metals)

Ore deposit shape
Discordant lode or vein (thickness > 50 cm), in clusters or isolated

Mineralization

Ore mineralogy
Scheelite  
Chalcopyrite  
Molybdenite  
Sphalerite  
Galena  
Pyrite  
Stibnite  
Gold

Host rock mineralogy
Feldspar

Host rocks
Granite of Tanda

Age:

Hostrock formation names
Granite of Tanda

Host rock lithology
Granite (s.l.)

Economy

Exploitation type
Mining method unknown

W Wolfram (WO3)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  
Reserve: - t  
Resource: - t

Average grade: -

Environment

Acid generation potential due to the sulfides minerals contained in the ore.
Expected high dissolved contents of base metals and W in surface water.

Comments

The ore contains up to 0.9% WO3 (Jankovic - 1982)

Geological references


Economic references

Other references
Teocin

**General data**

- **Deposit name(s):** Teocin
- **Identifier:** YUG-00209
- **Commodities:** Qtz
  - **Class:** D
  - **Status:** Deposit of unknown status
- **Company:**
- **Longitude:** 20.279
- **Latitude:** 44.088
- **District:** Moravicki

**Geology**

- **Ore deposit type (gíntology):** Unspecified ore deposits related to volcanic systems and shallow intrusives
- **Ore deposit shape:** Field of discordant lodes (n*km², n*ha)
- **Mineralization Age:**
  - **Ore mineralogy:** Quartz
- **Host rocks Age:** Triassic
  - **Host rock lithology:** Dolomite, dolostone

**Economy**

- **Exploitation type:** Mining method unknown
- **Qtz Massive quartz, blocks for ferrosilicon (SiO₂)**
  - **Ore type:** Ore in which the element forms a distinct mineral phase
  - **Past production:** - t
  - **Reserve:** - t
  - **Resource:** 71550 t
  - **Average grade:** -

**Environment**

- Possible contamination of surface water by suspended matter.

**Comments**

- Possibility for piezoelectric or/and optical use

**Geological references**


**Economic references**

**Other references**
**Tisovik**

**General data**

<table>
<thead>
<tr>
<th>Deposit name(s)</th>
<th>Tisovik</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities:</td>
<td>Pb</td>
</tr>
<tr>
<td>Class:</td>
<td>N/A</td>
</tr>
<tr>
<td>Status:</td>
<td>Old small-scale mine, exhausted deposit</td>
</tr>
<tr>
<td>Company:</td>
<td></td>
</tr>
<tr>
<td>Longitude:</td>
<td>19.563</td>
</tr>
<tr>
<td>Latitude:</td>
<td>44.264</td>
</tr>
<tr>
<td>District:</td>
<td>Kolubarski</td>
</tr>
</tbody>
</table>

**Geology**

*Ore deposit type (gitology)*
- Carbonate-hosted base metals deposits: Pb-Zn-Ag, Ba, F
- Unspecific volcano-sedimentary and sedimentary-exhalative deposits

*Ore deposit shape*
- Atypical, unspecified or ill-defined form

*Mineralization*
- Age: Middle Triassic (Muschelkalk)

*Ore mineralogy*
- Cerussite
- Mimetite
- Pyrite

*Host rocks*
- Age: Middle Triassic (Muschelkalk)

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Triassic carbonate facies</td>
<td>Carbonate rock s.l.</td>
</tr>
</tbody>
</table>

**Economy**

*Exploitation type*
- Mining method unkown

<table>
<thead>
<tr>
<th>Pb</th>
<th>Lead (metal)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ore type: Ore in which the element forms a distinct mineral phase</td>
</tr>
<tr>
<td>Past production:</td>
<td>- t Average grade: -</td>
</tr>
<tr>
<td>Reserve:</td>
<td>- t Average grade: -</td>
</tr>
<tr>
<td>Resource:</td>
<td>- t Average grade: -</td>
</tr>
</tbody>
</table>

**Environment**

Acid mine drainage potential due to the pyritic composition of the primary ore. The carbonates (like cerussite) existing either in the gangue or in the host rocks may increase the acid-buffering capacity of the rocks.

**Comments**

**Geological references**


Popovic R. - (1991) - Pojava sulfidne mineralizacije u Dolovima (dolina reke Ljubovide, zapadna Srbija) Translated Title: Occurrence of sulfide mineralization in Dolovi, the Ljubovida River valley, western Serbia. - Glasnik Prirodnjacakog Muzeja u Beogradu, Serija A: Mineralogija, Geologija, Paleontologija, 46, p. 143-149.

**Economic references**

*Other references*
Tolishnitsa

General data

Deposit name(s): Tolishnitsa
Identifier: YUG-00132

Commodities: Cu 15000 t Class D
Au 0 t Class N/A

Status: Deposit or prospect of unknown status

Company:

Longitude: 20.460 Latitude: 43.612 District:

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to basic-ultrabasic magmatic rocks
Volcanogenic massive and disseminated Cu-Au sulphide deposits: Cu, Au, (Zn, Co, Mo, Bi)

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization Age:

Ore mineralogy
Pyrite
Chalcopyrite
Magnetite
Cubanite
Covellite
Chalcocite
Iron Oxydes(unspecificed)

Host rock mineralogy
Quartz
Chalcedony
Carbonates

Hydrothermal alteration
Silicification
Chloritization

Environment
High acid generation potential due to the sulfide content of the primary ore body.
This Acid Rock Drainage can be enhanced by the various mineral assemblages forming the hydrothermal alteration halo.

Economy
Exploitation type
Mining method unkown

Cu Copper (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: 15000 t
Average grade: - %

Au Gold (metal)
Ore type: Ore of indeterminate nature
Past production: - t
Reserve: - t
Resource: - t
Average grade: - %

Comments
Resources: 2.5 Mt @ 0.6% Cu

Geological references
Economic references

Other references
General data

Deposit name(s): **Topola**

**Commodities:** Fe

**Class:** E  
**Status:** Deposit of unknown status

**Company:**

**Longitude:** 20.683  
**Latitude:** 44.253  
**District:** Sumadijski

Geology

**Ore deposit type (gitiology)**
Laterite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.

**Ore deposit shape**
Cap, blanket, crust
Subcordant or stratabound mass or lens of massive to submassive ore

**Mineralization Age:** Lower/Early Cretaceous

**Ore mineralogy**
Chamosite
Goethite

**Host rocks Age:** Lower/Early Cretaceous

Economy

**Exploitation type**
Mining method unknown

**Fe Iron (metal)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Past production:</th>
<th>t</th>
<th>Average grade:</th>
<th>-</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reserve:</td>
<td>130000 t</td>
<td>Average grade:</td>
<td>31</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Resource:</td>
<td>- t</td>
<td>Average grade:</td>
<td>-</td>
<td>%</td>
</tr>
</tbody>
</table>

Environment

Drainage water with suspended solids content enriched in Fe/Mn.

Comments

The ore contains 31% Fe, 20% SiO2, 19% Al2O3, 1% Ni and 2.74% Cr.

Geological references


Economic references

Other references

Other data bases
The Iron Ore Deposits of Europe - 1978  
YU22
Trbusnica

**General data**

Deposit name(s): Trbusnica  
Commodities: Sb  
Class: N/A  
Status: Group of mineral occurrences  
Company:  
Longitude: 20.363  
Latitude: 44.352  
District: City of Beograd

**Geology**

**Ore deposit type (geology)**
Unspecified ore deposits related to volcanic systems and shallow intrusives

**Ore deposit shape**
Atypical, unspecified or ill-defined form

**Mineralization**

<table>
<thead>
<tr>
<th>Age</th>
<th>Neogene (Miocene to Pliocene)</th>
</tr>
</thead>
</table>

**Ore mineralogy**

- Stibnite
- Sphalerite
- Galena
- Pyrite
- Jamesonite

**Host rock mineralogy**

- Quartz
- Chalcedony
- Calcite

**Host rocks**

<table>
<thead>
<tr>
<th>Age</th>
<th>Upper/Late Cretaceous</th>
</tr>
</thead>
</table>

**Host rock formation names**

- Upper Cretaceous flysch

**Host rock lithology**

- Limestone
- Flysch and fine- to medium-grained volcaniclastic (volcano-sedimentary) turbidite

**Economy**

**Exploitation type**
Unworked

**Sb Antimony (metal)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Ore in which the element forms a distinct mineral phase</th>
</tr>
</thead>
</table>

| Past production | - t | Average grade | - |
| Reserve         | - t | Average grade | - |
| Resource        | - t | Average grade | - |

**Environment**

Acid generation potential due to the sulfides content of the primary ore.

**Comments**

**Geological references**

- Stajevic B and Mudrinic C. - (1978) - Pojave antimona kod Trbusnice (Severna Sumadija) Translated Title: Antimony occurrences at Trbusnica near Lazarevac, northern Sumadija. - Zbornik Radova Rudarsko Geoloskog Fakulteta, Universitet u Beogradu, 21, p. 35-42.

**Economic references**

**Other references**
**General data**

**Deposit name(s):** Trijeska

**Identifier:** YUG-00217

**Commodities:** U 0 t **Class:** N/A **Status:** Primary occurrence of unknown status

**Company:**

**Longitude:** 20.522 **Latitude:** 44.011 **District:** Moravicki

**Geology**

**Ore deposit type (gitology)**
Uraniferous vein, breccia and stratabound disseminated deposits: U, (Mo, Cu, Se, F, Th, REE, Pb, Zn)

**Ore deposit shape**
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization Age:** Tertiary

<table>
<thead>
<tr>
<th>Ore mineralogy</th>
<th>Host rock mineralogy</th>
<th>Hydrothermal alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apatite</td>
<td>Opal</td>
<td>Kaolinization</td>
</tr>
<tr>
<td>Pyrite</td>
<td>Illite</td>
<td></td>
</tr>
<tr>
<td>Chalcopyrite</td>
<td>Iron Oxydes(unspecified)</td>
<td></td>
</tr>
</tbody>
</table>

**Host rocks Age:** Tertiary

<table>
<thead>
<tr>
<th>Hostrock formation names</th>
<th>Host rock lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borac calderas and Trijeska neck</td>
<td>Pyroclastic rocks s.l.</td>
</tr>
<tr>
<td></td>
<td>Andesite</td>
</tr>
</tbody>
</table>

**Economy**

**Exploitation type**
Unworked

**U Uranium (metal)**

<table>
<thead>
<tr>
<th>Ore type</th>
<th>Past production</th>
<th>Reserve</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ores in which the element is adsorbed onto clays, organic compounds, oxyhydroxides, etc.</td>
<td>-  t</td>
<td>-  t</td>
<td>-  t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average grade</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Environment**

Acid generation potential due to the sulfides minerals present in the ore.
Expected concentrations of dissolved U, radionuclides and base metals in the drainage waters.
Radon and gamma radiations.

**Comments**

**Geological references**
Klaín D. - (1983) - Uranium hydrothermal mineralization in the Borac-Rudnik Area (Sumadija); possible relation with buried stratiform ore deposits. - Anuarul Institutului de Geologie si Geofizica = Annuaire de l'Institut de Geologie et de Geophysique, 61, p. 199-204.

**Economic references**

**Other references**
Mineral deposits of Serbia - Ore deposits database

Trnava

General data

Deposit name(s): Trnava
Identifier: YUG-00074
Commodities: Mg 0 t
Class N/A
Status: Deposit of unknown status
Company: Raski
Longitude: 20.586
Latitude: 43.124
District: Raski

Geology

Ore deposit type (geology)
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks
Ore deposit shape
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata
Mineralization Age:
Ore mineralogy
Magnesite (Giobertite)
Host rocks Age:

Economy

Exploitation type
Mining method unknown
Mg Magnesium, magnesite (MgCO3)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -

Environment

Comments
Other Trnava: 20.5123/43.2889, near Raska

Geological references

Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-091
Trstenik

General data

Deposit name(s): Trstenik  Identifier: YUG-00030
Commodities: Ni 30 000 t  Class C  Status: Deposit of unknown status
Fe 1 200 000 t  Class D
Cr 105 000 t  Class E
Co 0 t  Class N/A
Company: 
Longitude: 20.848  Latitude: 42.667  District: Kosovo

Geology

Ore deposit type (gitology)
Residually enriched ore deposits: Fe, Mn, Ni-Co, Au, Pt, P, U, corundum, etc.
Oolitic iron ore deposits (Clinton, Minette): Fe

Ore deposit shape
Stratabound envelope of disseminated ore
Cap, blanket, crust

Mineralization Age: Upper/Late Cretaceous

Ore mineralogy
Goethite
Magnetite
Chromite
Hematite
Siderite
Fe-Chlorite
Millerite

Host rock mineralogy
Calcite
Quartz
Serpentine
Kaolinite

Host rocks Age: Upper/Late Cretaceous

Hostrock formation names
Paleozoic serpentinite
Upper Cretaceous rocks (Senonian)

Host rock lithology
Conglomerate
Sandstone
Reef limestone (bioherm, biostome)
Oolitic limestone, oncoidal limestone

Economy

Exploitation type
Unworked

Fe Iron (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: - %
Reserve: 120000 t  Average grade: 40 %
Resource: - t  Average grade: - %

Cr Chrome (Cr2O3)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: - %
Reserve: 105000 t  Average grade: 3.5 %
Resource: - t  Average grade: - %

Ni Nickel (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: - %
Reserve: 30000 t  Average grade: 1 %
Resource: - t  Average grade: - %

Report BRGM/RC-51448-FR
Mineral deposits of Serbia - Ore deposits database

YUG-00030

Co Cobalt (metal)

Ore type: Ore of indeterminate nature

Past production: - t
Reserve: - t
Resource: - t

Average grade: - %

Average grade: 0.1 %

Average grade: - %

Environment

Particulate and colloidal iron compounds can contaminate discharge water.

Comments

Investigated in 1952 by adits and drilling.

Individual bodies not over 0.5 Mt of ore with 34.39% Fe (max 41.5%), 1.39% Cr, 0.98% Ni and 0.1% Co.

Data in Laznicka P. (1985) p 212 : 1.2 Mt Fe (40%), 105,000 t Cr (3.5%) and 30,000 t Ni (1%)

Drenica ore field : Trstenik, Vrbovec and Gradina deposits (Boev and Jankovic - 1996).

Geological references


Economic references

Other references

Other data bases

The Iron Ore Deposits of Europe - 1978 YU24
**General data**

**Deposit name(s):** Tulare  
**Identifier:** YUG-00136

**Commodities:**  
- Au: 0 t  
- Cu: 0 t  
- PbZn: 0 t

**Company:**  
**Longitude:** 21.443  
**Latitude:** 42.795  
**District:** Jablanicki

### Geology

**Ore deposit type (gitology)**  
Low-sulphidation (adularia - sericite) epithermal deposits: Au, Ag, Pb, Zn, Cu, Sb, (Hg, As, Mn, Tl)  
Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)

**Ore deposit shape**  
Field of discordant lodes (n*km², n*ha)  
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

**Mineralization**  
**Age:** Neogene (Miocene to Pliocene)

**Ore mineralogy**  
- Pyrite
- Galena
- Sphalerite
- Chalcopyrite
- Tetrahedrite
- Enargite
- Bornite
- Antimonite
- Pyrrhotite
- Gold
- Electrum

**Host rock mineralogy**  
- Quartz
- Alunite

**Hydrothermal alteration**  
- Argillic alteration
- Silicification

**Host rocks**  
**Age:** Neogene (Miocene to Pliocene)

**Hostrock formation names**  
- Tulare Caldera
- Lece Volcanogenic complex

**Host rock lithology**  
- Pyroclastic rocks s.l.
- Andesite

### Economy

**Exploitation type**  
Unworked

**Au - Gold (metal)**

**Ore type:** Ore of indeterminate nature

**Past production:** - t  
**Average grade:** -  
**Reserve:** - t  
**Average grade:** -  
**Resource:** - t  
**Average grade:** -

**Cu - Copper (metal)**

**Ore type:** Ore of indeterminate nature

**Past production:** - t  
**Average grade:** -  
**Reserve:** - t  
**Average grade:** -  
**Resource:** - t  
**Average grade:** -
**PbZn**  Lead + Zinc (metal)

**Ore type:** Ore of indeterminate nature

| Past production: | - t | Average grade: | - |
| Reserve:         | - t | Average grade: | - |
| Resource:        | - t | Average grade: | - |

**Environment**
- High acid generation potential due to the sulfidic composition of the primary ore.
- The widespread hydrothermal alteration types (silica, advanced argillic) tends to increase acid-generating capacity of the rocks.
- Potential release of Cu and other metals (Zn, Pb, Sb...) into the drainage waters.

**Comments**

**Geological references**

**Economic references**

**Other references**
Mineral deposits of Serbia - Ore deposits database

General data
Deposit name(s): Usce  Identifier: YUG-00140
Commodities: Coal  Class: N/A
Company: Rudnik kamenog uglja IBARSKI RUDNICI - EPS
Longitude: 20.604  Latitude: 43.473  District: Raski

Geology

Ore deposit type (geology)
Coal deposits

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Miocene

Host rocks
Age: Miocene

Hostrock formation names
Ibar Tertiary coal basin

Host rock lithology
Coal (anthracite, graphite)
Detrital rock s.l.

Economy

Exploitation type
Underground mining

Coal

Coal, lignite (substance)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 0  t  Average grade: -
Reserve: 0  t  Average grade: -
Resource: 0  t  Average grade: -

Environment
Potential acid rock drainage with respect of the sulfides content.
Suspended matter in mine water discharge.
Landform instability (collapses) created during and after mining operations.

Comments
Coal mined in the Ibar basin is considerably metamorphosed by contact-thermal changes of andesite effusions.
The average sulphur content is 5 to 6% and the heating value is about 26,000 kJ/kg.

Geological references

Economic references

Other references
Valja Saka

**General data**

**Deposit name(s):** Valja Saka  
**Commodities:** PbZn  
**Class:** N/A  
**Status:** Deposit or prospect of unknown status

**Company:** Rudarsko Topioncarski Basen BOR  
**Longitude:** 21.909  
**Latitude:** 44.224  
**District:** Branicevski

**Geology**

**Ore deposit type (gitology):** Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)  
**Ore deposit shape:** Atypical, unspecified or ill-defined form

**Mineralization**  
**Age:**

**Host rocks**  
**Age:**

**Economy**

**Exploitation type:** Mining method unknown  
**PbZn** Lead + Zinc (metal)  
**Ore type:** Ore of indeterminate nature

**Past production:** t  
**Reserve:** t  
**Resource:** t  
**Average grade:**

**Environment**

**Comments**

**Geological references**

Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458

**Economic references**

**Other references**

Other data bases  
Carte Métallogénique de l'Europe 26-059
General data

Deposit name(s): Velebit
Commodities: Petr 0 m³
Status: Producing deposit
Company: 
Longitude: 19.942
Latitude: 45.977
District: 

Geology

Ore deposit type (gitology)
- Oil deposits: oil, (S)
Ore deposit shape
- Atypical, unspecified or ill-defined form
Mineralization
- Age:
Host rocks
- Age:

Economy

Exploitation type
- Mining method unknown
Petroleum (substance)
- Ore type: Ore in which the element forms a distinct mineral phase
Past production: - m³
Average grade: -
Reserve: - m³
Average grade: -
Resource: - m³
Average grade: -

Environment

Potential contamination of surface waters, soils and sediments by hydrocarbons and oil products.

Comments

Geological references

Economic references

Other references
Veliki Krivelj

General data

Deposit name(s): Veliki Krivelj
Identifier: YUG-00076
Commodities: Au 50 t Class B Status: Producing industrial mine
Cu 2 385 000 t Class B
Mo 120 000 t Class B
Ag 280 t Class D

Company: Rudarsko Topionicarski Basen BOR
Longitude: 22.097 Latitude: 44.131 District: Borski

Geology

Ore deposit type (gitology)
Porphyry Cu-Au deposits: Cu, Au, (Ag, Bi, Te)
Secondary Cu sulphide (cementation) deposits: Cu

Ore deposit shape
Discordant envelope of disseminated ore
Stockwork (or network) of stringers or veinlets (thickness < 50 cm), discordant on the strata

Mineralization Age: Upper/Late Cretaceous

Ore mineralogy
Chalcopyrite
Molybdenite
Pyrite
Magnetite
Scheelite
Fluorite

Hydrothermal alteration
Biotitization
Sericitization
Argillic alteration
Silicification

Host rocks Age: Upper/Late Cretaceous

Hostrock formation names
Timok andesite complex

Host rock lithology
Andesite
Quartz diorite
Diorite

Economy

Exploitation type
Surface mining

Cu Copper (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 510000 t Average grade: 0.34 %
Reserve: t Average grade: - %
Resource: 1875000 t Average grade: 0.34 %

Mo Molybdenum (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t Average grade: -
Reserve: 120000 t Average grade: -
Resource: - t Average grade: -

Ag Silver (metal)

Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: 60 t Average grade: 0.4 g/t
Reserve: - t Average grade: - g/t
Resource: 220 t Average grade: 0.4 g/t
Mineral deposits of Serbia - Ore deposits database

**Au Gold (metal)**

*Ore type: Ore of indeterminate nature*

<table>
<thead>
<tr>
<th>Past production</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 t</td>
<td>0.07 g/t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reserve</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>- t</td>
<td>- g/t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resource</th>
<th>Average grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 t</td>
<td>0.07 g/t</td>
</tr>
</tbody>
</table>

**Environment**

Extreme Acid Mine Drainage production due to the sulfides assemblages and the large alteration halos. This AMD is enhanced by the types of hydrothermal alteration (argillic, sericitic...) that greatly increase acid-generating capacity. Produced mine waters or drainage waters tend to have a high base metal content.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

**Comments**

In 1982, the production design rate was 8 Mt/y, containing more than 30,000 t of Cu and 60,000 t/y of magnetite, 200 t/y of Mo, precious and rare metals (Au,Ag,Pt,Pd,Se and Re).

Data in Laznicka P. (1985) p 975 : 3.2 Mt Cu (0.4%), 120,000 t Mo, 240 t Ag and 64 t Au. About 50% supergene enrichment.

**Geological references**

- Karamata S., Knezevic V., Pecskay Z. and Djordjevic M. - (1997) - Magmatism and metallogeny of the Ridanj-Krepoljin belt (eastern Serbia) and their correlation with northern and eastern analogues - Mineralium Deposita, 32, pp. 452-458
- Marjanovic D and Hovanec G. - (1979) - Promene rude lezista "Veliki Krivelj" u zavisnosti od lokalnih meteoroloskih faktora i autogenih procesa u rudnoj masi; rastovaranje grozda iz ruda Translated Title: Alterations of the Veliki Krivelj ore deposit as a result of meteorological factors and a - Rudarski Glasnik, 1, p. 39-45.

**Economic references**

Lewis A. - (1983) - Yugoslavia's "RTB Bor" copper combine; Europe's largest copper producer eliminates concentrate imports as the new Veliki Krivelj complex reaches capacity. - E&M J, 184, (10), p. 70-74.

**Other references**
Veliki Majdan

**General data**

- **Deposit name(s):** Veliki Majdan
- **Identifier:** YUG-00045
- **Company:** Hemijska Industrija Zorka Sabac, Veliki Majdan
- **Longitude:** 19.340
- **Latitude:** 44.306
- **District:** Macvanski

**Commodities:**

- Ag: 0 t, **Class:** N/A, **Status:** Producing industrial mine
- Cd: 0 t, **Class:** N/A
- Cu: 0 t, **Class:** N/A
- PbZn: 0 t, **Class:** N/A

**Geology**

**Ore deposit type (gitology)**

- Pb-Zn-Ag skarns and stratiform mantos: Pb, Zn, Ag, (Au)
- Low-sulphidation epi- to mesothermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)

**Ore deposit shape**

- Discordant mass (cylinder, sheet, cone, etc.) with filling commonly brecciated

**Mineralization**

**Age:** Cenozoic

**Ore mineralogy**

- Magnetite
- Sphalerite
- Valleriite
- Pyrrhotite
- Chalcopyrite
- Galena
- Arsenopyrite
- Grey copper
- Jamesonite
- Bouronite
- Miargyrite
- Pyrargyrite
- Stibnite
- Safflorite

**Host rock mineralogy**

- Quartz
- Calcite
- Barite
- Siderite

**Hydrothermal alteration**

- Skarn formation

**Host rocks**

**Age:** Triassic

**Host rock formation names**

- Contact zone of the Boranja granodiorite
- Triassic limestone

**Host rock lithology**

- Undifferentiated metamorphic rock
- Limestone
- Andesite
- Dacite

**Economy**

**Exploitation type**

- Underground mining

**PbZn Lead + Zinc (metal)**

**Ore type:** Ore of indeterminate nature

- **Past production:** - t
- **Average grade:** 5.9 %
- **Reserve:** - t
- **Average grade:** - %
- **Resource:** - t
- **Average grade:** - %

**Cu Copper (metal)**

**Ore type:** Ore of indeterminate nature

- **Past production:** - t
- **Average grade:** 0.4 %
- **Reserve:** - t
- **Average grade:** - %
- **Resource:** - t
- **Average grade:** - %
Ag  Silver (metal)

Ore type: Ore of indeterminate nature

Past production: - t  
Reserve: - t  
Resource: - t  
Average grade: - g/t

Cd  Cadmium (metal)

Ore type: Ore of indeterminate nature

Past production: - t  
Reserve: - t  
Resource: - t  
Average grade: - g/t

Environment

The primary mineralization is mainly composed of sulfides whose oxidation generates acid, ferric iron and dissolved metals (Pb, Zn, Cu...) that can affect drainage water, soils and stream sediments.

The potential acid mine drainage generated is buffered by the gangue mineralogy (carbonates) which are acid-consuming minerals. The host rock assemblage (marble and cipolin) which alters to calc-silicates decrease acid-buffering capacity.

Presence of As released by the oxidation of arsenopyrite and Grey copper. As which is highly mobile in medium to high pH environment, can be accumulated in stream sediments.

No information related to mine waste deposits as well as to tailings which are potential sources of contaminants in the form of particulates and dissolved metals.

Comments

Podrinje Zone, around the Boranja granodiorite intrusion
In 1982, current output was 60,000 t @ 3.5% Pb, 2.4% Zn, 0.4% Cu, 25% Pyrite, 160 g/t Ag and 200 g/t Cd.
In 1990, the grade was about 5% Pb, 4% Zn, 190 g/t Ag.

Geological references


Economic references


Other references

Other data bases
Carte Métallogénique de l'Europe  26-043
Mineral deposits of Serbia - Ore deposits database

Veluce

General data
Deposit name(s): Veluce
Identifier: YUG-00095
Commodities: Co 2 400 t Class C
Ni 36 900 t Class C
Pltd 0 t Class N/A
Company:
Longitude: 21.084
Latitude: 43.544
District: Rasinski

Geology
Ore deposit type (gitoogy)
Lateite-related ore deposits: Fe, Mn, Ni-Co, Au, Pt, corundum, P, REE, Nb, etc.
Modern placers, deposits associated with tillites, etc.: Au, Pt, Sn,Ti, REE, diamond, gemstones, (Zr, etc.)

Ore deposit shape
Concordant to subconcordant envelope of disseminated ore

Mineralization
Age:
Ore mineralogy
Nontronite
Magnesite (Giobertite)

Host rock mineralogy
Silica

Host rock lithology
Ultrabasic rock
Peridotite
Serpentinite

Economy
Exploitation type
Mining method unknown

Ni Nickel (metal)
Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Average grade: - %
Reserve: - t
Average grade: - %
Resource: 36900 t
Average grade: 1.23 %

Co Cobalt (metal)
Ore type: Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem
Past production: - t
Average grade: - %
Reserve: - t
Average grade: - %
Resource: 2400 t
Average grade: 0.08 %

Pltd Platinoids, group (metal)
Ore type: Ore of indeterminate nature
Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
The main potential environmental problems are related to:
- the clay minerals assemblage existing in a lateritic context, through erosion of exposed mining areas, those assemblages generate high suspended solids content in surface water that can produce many impacts associated with surface waters, groundwater and terrestrial ecosystems;
- The dissolved metals (Ni, Co and Fe, Mn) that migrate from old mining operations to local ground and surface water.
Comments
Veluce-Rudjinci Ore Field (Boev and Jankovic - 1996) : Exploration carried out determined possible ore reserves of 3 Mt @ 1.23% Ni and 0.08% Co.
Occurrences of placer minerals of Pt (Jankovic - 1982).

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-163
Mineral deposits of Serbia - Ore deposits database

YUG-00197

Veta

General data

Deposit name(s): Veta
Commodities: Gr
Company: 
Longitude: 22.173
Latitude: 43.201
District: Pirotski

Identifier: YUG-00197
Status: Deposit of unknown status

Economic references

Geological references

Other references

Economy

Exploitation type
Unworked
Gr Graphite (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t
Reserve: - t
Resource: - t
Average grade: -
Average grade: -
Average grade: -

Environment

Possible contamination of surface water by suspended matter.

Comments

The graphite content ranges from 9 to 18% C. Preliminary flotation tests have proved that products with 45-50% C can be obtained from the ore. The graphite lenses are up to 40 m long and 1-4m thick.

Geological references


Economic references
Vidovacki Krs

General data

Deposit name(s): Vidovacki Krs  Identifier: YUG-00218
Commodities:  
- Feld: 0 t  Class: N/A  Status: Deposit of unknown status
- Mica: 0 t  Class: N/A
- Qtz: 0 t  Class: N/A
Company:  
Longitude: 21.543  Latitude: 43.167  District: Toplicki

Geology

Ore deposit type (girology)
- Industrial rocks and minerals related to plutonic rocks: ornamental stones, feldspar, nepheline, etc.
- Pegmatites: Sn, Nb-Ta, Li-Be, gemstones, cryolite, mica, etc.

Ore deposit shape
- Mineralized dyke (orebody: magmatic rock)

Mineralization  Age:

Ore mineralogy
- Feldspar
- Quartz
- Muscovite
- Biotite

Host rocks  Age:

Host rock lithology
- Pegmatite

Economy

Exploitation type
- Surface mining

Feld  Feldspar, nepheline (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Qtz  Massive quartz, blocks for ferrosilicon (SiO2)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Mica  Mica, sheet (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t  Average grade: -
Reserve: - t  Average grade: -
Resource: - t  Average grade: -

Environment

Possible contamination of surface water by suspended matter.

Comments

Exploitation of feldspar from Prokuplje pegmatitic province was initiated in 1956. During the 80st the flotation process annually yields 50,000 t of feldspar concentrate, 38,000 t of quartz concentrate and 14,000 t of mica concentrate.
The deposit of Vidovacki Krs contains about 60% of feldspar, 30% of quartz, 5% muscovite and 5% biotite.

Geological references

Economic references

Other references
Vlajna

General data

Deposit name(s): Vlajna
Identifier: YUG-00219
Commodities: Feld
Class: N/A
Status: Deposit of unknown status
Company: Jablanicki
Longitude: 21.887
Latitude: 42.795
District: Jablanicki

Geology

Ore deposit type (gitology)
Industrial rocks and minerals related to plutonic rocks: ornamental stones, feldspar, nepheline, etc.

Ore deposit shape
Atypical, unspecified or ill-defined form

Mineralization
Age:

Host rocks
Age:

Economy

Exploitation type
Mining method unknown

Feld Feldspar, nepheline (substance)
Ore type: Ore of indeterminate nature
Past production: - t
Average grade: -
Reserve: - t
Average grade: -
Resource: - t
Average grade: -

Environment
No data available.

Comments
Kukavica Mountains, South of Leskovac, feldspar deposit indicated on the SFR Yugoslavia geological map - 1:500,000 - 1970.

Geological references

Economic references

Other references
**General data**

**Deposit name(s):** Vranovac

**Identifier:** YUG-00174

**Commodities:**
- Ag: 0 t, Class N/A
- Au: 0 t, Class N/A
- Bi: 0 t, Class N/A
- Fe: 0 t, Class N/A

**Status:** Deposit of unknown status

**Company:**

**Longitude:** 19.252  
**Latitude:** 44.329  
**District:** Macvanski

**Geology**

**Ore deposit type (gitology):**
Fe (magnetite) skarns: Fe, (Co)

**Ore deposit shape:**
Discordant mass or lens of massive to submassive ore

**Mineralization**

**Age:** Neogene (Miocene to Pliocene)

**Ore mineralogy**
- Magnetite
- Pyrrhotite
- Arsenopyrite
- Chalcopyrite
- Scheelite
- Pyrite
- Sphalerite
- Galena
- Bismuth
- Bismuthinite
- Tetradyrite
- Tellurobismuthite

**Host rock mineralogy**
- Garnet
- Diopside
- Hedenbergite
- Epidote
- Ilvaite

**Hydrothermal alteration**
Skarn formation

**Host rocks**

**Age:** Upper/Late Carboniferous  
(Stephanian-Westphalian, Upper/Late Namurian, Silesian, Pennsylvanian)

**Hostrock formation names**
- Permo Carboniferous marble and schist
- Neogene Boranja granodiorite

**Host rock lithology**
- Marble, cipolin (crystalline limestone)
- Schist/shale
- Granodiorite
- Skarn

**Economy**

**Exploitation type**
Unworked

**Fe**

**Iron (metal)**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t  
**Average grade:** -

**Reserve:** - t  
**Average grade:** -

**Resource:** - t  
**Average grade:** -

**Au**

**Gold (metal)**

**Ore type:** Ore in which the native element forms inclusions (sulphides, etc.)

**Past production:** - t  
**Average grade:** - g/t

**Reserve:** - t  
**Average grade:** 0.84 g/t

**Resource:** - t  
**Average grade:** - g/t
Ag  Silver (metal)

Ore type: Ore in which the native element forms inclusions (sulphides, etc.)

| Past production: | - t | Average grade: | - g/t |
| Reserve:         | - t | Average grade: | 640 g/t |
| Resource:        | - t | Average grade: | - g/t |

Bi  Bismuth (metal)

Ore type: Ore in which the element forms a distinct mineral phase

| Past production: | - t | Average grade: | - % |
| Reserve:         | - t | Average grade: | 1.88 % |
| Resource:        | - t | Average grade: | - % |

Environment

High acid generation potential due to the sulfides minerals contained in the primary ore. The Acid Rock Drainage produced may be partly buffered by the limestone and the skarn formation of the host lithology, but in general calc-silicate skarn minerals show low neutralizing reactivity with acid waters. Expected dissolved contents of Cu, Zn and Pb as well as As in the drainage waters with possible concentrations of those metals in the stream sediments.

Comments

The ore contains 0.84 g/t Au, 640 g/t Ag, 1.88% Bi

Geological references


Economic references

Other references
General data

Deposit name(s): Vrelo

Identifier: YUG-00229

Commodities: Asb 15 000 000 t

Class: A

Status: Industrial project under development

Company: Drvna industrija KOPAONIK - Kursumlija

Longitude: 21.250

Latitude: 43.057

Geology

Ore deposit type (geology)

Unspecified ore deposits related to basic-ultrabasic magmatic rocks

Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape

Atypical, unspecified or ill-defined form

Mineralization

Host rocks

Age:

Host rock lithology

Basalt

Economy

Exploitation type

Surface mining

Asb Asbestos (substance)

Ore type: Ore of indeterminate nature

Past production: - t

Average grade: -

Reserve: 15000000 t

Average grade: -

Resource: - t

Average grade: -

Environment

Dust emission and fallout of fibrous minerals can pose a risk to human health.

Comments

Project of mine and plant in order to produce basalt fiber with annual production capacity of 2,700 t of basalt continuous fibers.

Geological references

Economic references


Other references
## Vrska Cuka

### General data

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### Geology

- **Ore deposit type (geology)**: Coal deposits
- **Ore deposit shape**: Stratiform bed: single or multi-layered (syn-depositional with host rock)
- **Mineralization**: Age: Lower/Early Jurassic (Lias)
- **Host rocks**: Age: Lower/Early Jurassic (Lias)

**Host rock lithology**
- Coal (anthracite, graphite)
- Medium- to fine-grained detrital rock

### Economy

- **Exploitation type**: Mining method unknown
- **Coal**, **Coal, lignite (substance)**

**Ore type**: Ore in which the element forms a distinct mineral phase

<table>
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<th>Past production:</th>
<th>- t</th>
<th>Average grade:</th>
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<td>- t</td>
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</tr>
<tr>
<td>Resource:</td>
<td>- t</td>
<td>Average grade:</td>
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</table>

### Environment

Too few data for an environmental signature.

### Comments

Production is limited by complex mining-geological conditions. 3 coal seams are of interest.

Vrska Cuka bituminous coal contains on average 2 to 3% of moisture, 14% of ash, 1% sulphur and its heating value is about 27,000 kJ/kg.

### Geological references


### Economic references


### Other references
General data

Deposit name(s): Vuckovica
Identifier: YUG-00208
Commodities: Agt 0 t Class N/A
Status: Dormant deposit
Company:
Longitude: 20.794 Latitude: 43.948 District: Sumadijski

Geology

Ore deposit type (gitology)
Unspecified ore deposits related to basic-ultrabasic magmatic rocks
Asbestos, talc or magnesite deposits hosted by basic and ultrabasic rocks

Ore deposit shape
Field of discordant lodes (n*km2, n*ha)

Mineralization Age:

Ore mineralogy Host rock mineralogy
Opal Magnesite (Gibertite)
Chalcedony Dolomite
Agate Silica

Host rocks Age:

Host rock lithology
Ultrabasic rock
Serpentine

Economy

Exploitation type
Unworked
Agt Agata, chalcedony, jasper (substance)

Ore type: Ore in which the element forms a distinct mineral phase
Past production: - t Average grade: -
Reserve: - t Average grade: -
Resource: - t Average grade: -

Environment
Possible contamination of surface water by suspended matter.

Comments

Geological references

Economic references

Other references
Zajaca

General data

Deposit name(s): Zajaca

Commodities: Sb

Class: A

Status: Old industrial mine, abandoned deposit

Company: Zajaca - Rudarsko - Topionicski Basen

Longitude: 19.248

Latitude: 44.464

District: Macvanski

Geology

Ore deposit type (girology)

Vein and disseminated Sb deposits: Sb, Hg, As, (Au, Tl)

Jasperoid-hosted stratabound low sulphidation epithermal veins: Hg, Sb

Ore deposit shape

Stratabound envelope of disseminated ore

Field of discordant lodes (n*km2, n*ha)

Mineralization

Age: Cenozoic

Ore mineralogy

Sb

Host rock mineralogy

Quartz

Hydrothermal alteration

Silicification

Host rocks

Age: Upper/Late Carboniferous

(Stephanian-Westphalian, Upper/Late Namurian, Silesian, Pennsylvanian)

Hostrock formation names

Late Carboniferous limestone

Paleozoic schists

Host rock lithology

Undifferentiated metamorphic rock

Limestone

Economy

Exploitation type

Sublevel stoping

Sb Antimony (metal)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: 90000 t

Average grade: 2.5 %

Reserve: - t

Average grade: - %

Resource: - t

Average grade: - %

Environment

Generation of Acid Mine Drainage due to the content of iron sulfides and others sulfides.

Potential production of dissolved metals like Sb in surface water.

Comments

Podrinje Zone, around the Boranja granodiorite intrusion

The area produced about 90,000 t of Sb since 1890, with the deposits of Brasina, Rujevac, etc. Exploitation stopped in 1990.

Geological references


Economic references

Other references
Other data bases
Carte Métallogénique de l'Europe 26-042
Zaovine

General data

Deposit name(s): Zaovine
Identifier: YUG-00192
Commodities: Ti
Class: N/A
Status: Deposit or prospect of unknown status
Company:
Longitude: 19.406
Latitude: 43.871
District: Zlatiborski

Geology

Ore deposit type (gitology)
Gabbro-norite hosted deposits of disseminated titano-magnetite: Fe, Ti, (V, P)

Ore deposit shape
Stratabound envelope of disseminated ore

Mineralization
Age:

Ore mineralogy
Magnetite
Titanomagnetite
Ilmenite

Host rocks
Age:

Hostrock formation names
Tara Mountain Gabbro

Host rock lithology
Gabbro
Dolerite, diabase

Economy

Exploitation type
Unworked

Ti
Titanium, general (TiO2)

Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t
Average grade: -

Reserve: - t
Average grade: -

Resource: - t
Average grade: -

Environment
No specific environmental signature.

Comments

Geological references

Economic references

Other references
Zavlaka

**General data**

**Deposit name(s):** Zavlaka

**Commodities:** PbZn

**Company:**

**Longitude:** 19.500

**Latitude:** 44.464

**District:** Macvanski

**Identifier:** YUG-00191

**Status:** Deposit or prospect of unknown status

**Geology**

**Ore deposit type (gitology):**
Carbonate-hosted base metals deposits: Pb-Zn-Ag, Ba, F

**Ore deposit shape:**
Atypical, unspecified or ill-defined form

**Mineralization Age:** Triassic

**Host rocks Age:** Triassic

**Host rock lithology:** Limestone

**Economy**

**Exploitation type:** Unworked

**PbZn Lead + Zinc (metal):**

**Ore type:** Ore of indeterminate nature

**Past production:** - t

**Reserve:** - t

**Resource:** - t

**Average grade:** -

**Environment**

No data available.

**Comments**

**Geological references**


**Economic references**

**Other references**
Zeljin

**General data**

**Deposit name(s):** Zeljin

**Commodities:** Fe

**Class:** N/A

**Status:** Group of mineral occurrences

**Company:** Rasinski

**Longitude:** 20.793

**Latitude:** 43.429

**District:** Rasinski

**Geology**

**Ore deposit type (gitology):**
- Unspecified syn- to late orogenic ore deposits
- Unspecified ore deposits related to volcanic systems and shallow intrusives

**Ore deposit shape:**
- Discordant lode or vein (thickness > 50 cm), in clusters or isolated

**Mineralization**
- Neogene (Miocene to Pliocene)

**Ore mineralogy:**
- Hematite
- Pyrite

**Host rock mineralogy:**
- Quartz

**Host rock lithology:**
- Serpentinite
- Granite (s.l.)

**Economy**

**Exploitation type:**
- Mining method unknown

**Fe**

**Iron (metal):**

**Ore type:** Ore in which the element forms a distinct mineral phase

**Past production:** - t

**Reserve:** - t

**Resource:** - t

**Average grade:** -

**Environment**

Few data available to determine an environmental signature.

**Comments**

Grade: 50% Fe, 20-25% SiO2 and 0.5% S.

**Geological references**

Jankovic S. - (1977) - The iron ore deposits in Yugoslavia. - The iron ore deposits of Europe and adjacent areas; explanatory notes to the International map of the iron ore deposits of Europe, 12,500,000; Volume I, Text and figures. Zitzmann A (Ed), Bundesanst, Geowiss. p. 411-418.

**Economic references**

**Other references**
General data
Deposit name(s): Zijaca
Commodities: PbZn
Company: TREPCA Mining and Metallurgical Complex
Longitude: 20.914
Latitude: 42.964
District: Kosovo
Status: Deposit or prospect of unknown status

Geology
Ore deposit type (gitology)
Replacement deposits (skarns, mantos): Au, Cu, Pb, Zn, Ag, W, Mo, Sn, Fe
Ore deposit shape
Atypical, unspecified or ill-defined form
Mineralization Age:
Host rocks Age:

Economy
Exploitation type
Unworked
PbZn Lead + Zinc (metal)

Environment
No data.

Comments
Trepca ore field

Geological references
Jankovic S. - (1978) - Izotopni sastav olova u pojedinim tertsijarnim olovo-tsinkovim rudishtima Srpsko-makedonske metallogenetske provintsije Translated Title: The isotopic composition of lead in some Tertiary lead-zinc deposits within the Serbo- Macedonian metallogenic province - Geoloshki Anal Bi Balkanskoga Poluostrva. 42, p. 507-525.

Economic references
**General data**

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**Geology**

*Ore deposit type (gitology)*
- Unspecified ore deposits related to volcanic systems and shallow intrusives
- Unspecified ore deposits related to basic-ultrabasic magmatic rocks

*Ore deposit shape*
- Field of discordant lodes (n*km², n*ha)

*Mineralization Age:* Neogene (Miocene to Pliocene)

**Ore mineralogy**
- Arsenopyrite
- Pyrrhotite
- Pyrite
- Galena
- Sphalerite
- Tetrahedrite
- Loellingite
- Boulangerite
- Silver
- Jamesonite
- Pentlandite
- Breithauptite
- Smaltite
- Chloanthite

**Hydrothermal alteration**
- Silicification
- Sericitization
- Chloritization

**Host rocks Age:**

**Host rock lithology**
- Serpentinite
- Dacite
- Andesite

**Economy**

*Exploitation type*
- Unworked

**PbZn Lead + Zinc (metal)**

*Ore type:* Ore in which the element forms a distinct mineral phase

- Past production: - t
- Reserve: - t
- Resource: - t

*Average grade:* -

**Environment**

Acid generation potential due to the sulfides and sulfosalts content and enhanced by the hydrothermal alteration type.
Potential release of As into the environment with possible concentration in the stream sediments.
Expected dissolved contents of Ni, Co, Fe, Cu, Sb in drainage waters.

**Comments**

**Geological references**

Novovic T. - (1977) - Geologos-strukturne karakteristike i mineraloski sastav Pb-Zn lezista u Zimovniku (Kopaonik) Translated Title:


**Economic references**

**Other references**
Zitni Potok

General data

Deposit name(s): Zitni Potok  Identifier: YUG-00082
Commodities: Fe  Class: E  Status: Deposit of unknown status

Company:
Longitude: 21.594  Latitude: 43.090  District: Topolicki

Geology

Ore deposit type (gitology)
Banded iron formations (BIF "Superior Fe"): Fe

Ore deposit shape
Stratiform bed: single or multi-layered (syn-depositional with host rock)

Mineralization
Age: Precambrian

Ore mineralogy
Magnetite
Chalcopyrite
Pyrrhotite
Ilmenite
Hematite
Rutile

Host rocks
Age: Precambrian

Hostrock formation names
Quartz magnetite rocks

Host rock lithology
Ferrigenous quartzite, Banded Iron Formation (BIF), ilabrite
Chlorite schist of igneous origin
Gneiss (s.l.)

Economy

Exploitation type
Unworked

Fe  Iron (metal)
Ore type: Ore in which the element forms a distinct mineral phase

Past production: - t  Average grade: - %
Reserve: 100000 t  Average grade: 50 %
Resource: - t  Average grade: - %

Environment

The presence of chalcopyrite and pyrrhotite when oxidized may generate Acid Mine Drainage and readily soluble salts. Particulate and colloidal iron compounds in surface water may be notable.

Comments

The ore contains 53-60% Fe, 0.1-0.2% Mn, 0.2% S and 4-7% SiO2. The reserve is estimated as a few million tons.

Geological references

Economic references

Other references

Other data bases
Carte Métallogénique de l'Europe 26-106
The Iron Ore Deposits of Europe - 1978 YU30
Zlace

**General data**

Deposit name(s): Zlace

Identifier: YUG-00125

Company: Rudarsko Topionicarski Basen BOR

Longitude: 22.022

Latitude: 44.066

District: Borski

**Geology**

*Deposit type (gitology)*

Low-sulphidation epithermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)

*Ore deposit type shape*

Field of discordant lodes (n*km2, n*ha)

**Mineralization**

Age: Upper/Late Cretaceous

**Ore mineralogy**

<table>
<thead>
<tr>
<th>Ore mineral</th>
<th>Host rock mineral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>Quartz</td>
</tr>
<tr>
<td>Pyrite</td>
<td>Calcite</td>
</tr>
<tr>
<td>Sphalerite</td>
<td>Barite</td>
</tr>
<tr>
<td>Galena</td>
<td></td>
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<tr>
<td>Marcasite</td>
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<tr>
<td>Grey copper</td>
<td></td>
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<tr>
<td>Chalcopyrite</td>
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<tr>
<td>Bornite</td>
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</tbody>
</table>

**Host rocks**

Age: Upper/Late Cretaceous

*Host rock formation names*

Upper Cretaceous andesites

*Host rock lithology*

Andesite

**Economy**

*Exploitation type*

Underground mining

**Au Gold (metal)**

*Ore type:* Ore in which the element forms a distinct mineral phase

Past production: - t

Reserve: - t

Resource: - t

*Average grade:* - g/t

**Ag Silver (metal)**

*Ore type:* Ore in which the element does not form a distinct mineral phase (i.e. camouflaged or refractory elem)

Past production: - t

Reserve: - t

Resource: - t

*Average grade:* -

**Environment**

Production of Acid Rock Drainage due to the sulfidic composition of the primary ore.

Presence of calcite (an acid consuming mineral) in the gangue that can partly buffer the acidity produced.

Existence of CN or Hg associated with the gold mineral processing?

**Comments**

In exploitation up to 1939 by Beshina Gold Ld. Grade ore is variable, 2 to 23 g/t Au, 20 to 250 g/t Ag, about 1% Pb, 1.5% Zn and locally up to 1% Sb.

State of the resource in 1930: 41,000t @ 8.9 g/t Au and 65 g/t Ag.
Geological references

Economic references

Other references
Zuta Prlina

General data

Deposit name(s): Zuta Prlina
Identifier: YUG-00113

Commodities:
- Pb: 19 000 t (Class C) Status: Deposit of unknown status
- Zn: 18 000 t (Class D)

Company: TREPCA Mining and Metallurgical Complex
Longitude: 20.889
Latitude: 43.151
District: Kosovo

Geology

Ore deposit type (gitology)
- Low-sulphidation epithermal polymetallic-Ag veins: Pb, Zn, Ag, Mn, Cu, (As, Sb)

Ore deposit shape
- Field of discordant lodes (n*km2, n*ha)

Mineralization
- Age: Neogene (Miocene to Pliocene)

Ore mineralogy
- Pyrite
- Sphalerite
- Galena
- Chalcopyrite
- Pyrrhotite
- Arsenopyrite
- Grey copper
- Argentite
- Boulangerite
- Gold
- Proustite

Host rocks
- Age:

Hostrock formation names
- Serpentinite - Quartzlatite contact

Host rock lithology
- Serpentinite
- Latite

Economy

Exploitation type
- Underground mining

Pb Lead (metal)
- Ore type: Ore in which the element forms a distinct mineral phase
Past production: 19000 t
Reserve: - t
Resource: - t
Average grade: 2.5 %

Zn Zinc (metal)
- Ore type: Ore in which the element forms a distinct mineral phase
Past production: 18000 t
Reserve: - t
Resource: - t
Average grade: 2.5 %

Environment

High acid generation potential due to the sulfidic composition of the primary ore (highly reactive sulfides). The presence of calcite (an acid-consuming mineral) within the gangue tends to increase the acid-buffering capacity of the rocks. Release of dissolved base metals (Pb, Zn...) into the environment as well as As (presence of sulfoarsenites) that can accumulate in the stream sediments.

The ore processing plant located in Lepocavic has generated large amounts of tailings (8 Mt).
Comments

The mine has been in operation since 1971. In 1981, current output was 60,000 t/y of ore averaging 2% Pb and 5% Zn. This output should be increased by 20,000 t in 1983.

ITT/UNMIK Mission (12/2000) : Past production (1972-1982) : 734,000 t @ 2.5% Pb and 2.5 % Zn.

Geological references


Economic references


Other references