



# 2011 Minerals Yearbook

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## CROATIA

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# THE MINERAL INDUSTRY OF CROATIA

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Petroleum extraction and refining were the major economic activities of Croatia's mineral industry. Mineral resources included bauxite, clays, coal, gypsum, mica, natural asphalt, petroleum, and salt. The country remained reliant on mineral commodity imports for its industrial needs. Most of the output of industrial minerals was consumed by the domestic market. The Government was continuing with the process for entering the European Union (EU) in 2013.

The Energy and Mining Directorate (EMD) is the Government agency responsible for governmental activities related to the energy and mining sectors. The Directorate's responsibilities include drafting laws and regulations related to the energy and mining sectors and planning, proposing, developing, and implementing energy and mining policies, including the Government's energy development strategy (Energy and Mining Directorate, 2011a).

The Croatian Geological Survey (CGS), which is within the EMD, is responsible for the analysis, collection, distribution, evaluation, and storage of geologic information. The CGS is the leading public research institute in Croatia in the field of geosciences and geological engineering. The CGS collects geologic data for various purposes, such as exploration of mineral resources, environmental protection, assurance of the fresh water supply, and urban planning (Croatian Geological Survey, 2011).

The Mining Department within the EMD oversees the exploration for and extraction of mineral raw materials, except for clay, construction stone, and sand and gravel. The Mining Department also issues licenses for the exploration for and extraction of mineral raw materials, issues building permits for mining facilities and plants, and grants mining concessions for mining works and the extraction of mineral raw materials (Energy and Mining Directorate, 2011b).

The Mining Act, including its 141 Articles, was passed by the Government on June 19, 2009. In 2011, the Government passed the first amendments to the Mining Act. The amendments affected several articles and were designed to fill the gaps in the mining framework that had been brought into effect by the Act. The amendments introduced, among other changes, the following four articles: Article 17, which provides for compensation to owners of property that has been damaged as a result of exploitation and (or) exploration by persons or legal entities that do not hold the required permits; Article 40, which obliges the holder of a license to submit a report on mineral reserves; Article 51, which requires the bidder for public tenders for the exploration and (or) exploitation of mineral reserves to submit a statement that the bidder is not involved in any proceedings for unlawful exploration and (or) exploitation; Article 136a, which specifies that a holder of the rights to mineral reserves will lose that right automatically if exploration or exploitation is not commenced within the timeframe set out in the license. The amendments were in line with the overall

tone of the Mining Act, which is designed to give control over mineral reserves back to the state (International Law Office, 2011).

## Minerals in the National Economy

In 2011, mineral resources and mineral production were not significant to Croatia's national economy. Croatia had a trade deficit in mining and quarrying goods (a category that included mineral fuels) in 2011; exports were valued at about 851 million kuna (HRK) (\$143 million<sup>1</sup>), and imports were valued at HRK15.5 billion (\$2.6 billion). Exports of petroleum and natural gas were valued at HRK618 million (\$104 million), and imports of natural gas and petroleum were valued at HRK14.3 billion (\$2.4 billion) (Croatian Bureau of Statistics, 2011).

Croatia's main trading partner was the EU, and the main export partners were Italy (19%), Bosnia and Herzegovina (12%), Germany (10%), and Slovenia (8%). The main import partners were Italy (15%), Germany (13%), Russia (9%), and China (7%). The economic downturn in the EU, which was Croatia's main export market, lessened external demand for Croatia's industrial exports. Economic recovery in the EU was expected to be slow and to continue to dampen private consumption (Rabobank Group, 2011).

## Production

In 2011, Croatia's metals production was limited mainly to aluminum alloys and steel. Croatia no longer mined metal ores, and metal production was based on domestic and foreign secondary raw materials. Industrial minerals produced included cement, clays, gypsum, and lime, which were sufficient for most of the country's requirements. Also, mineral fuels, including natural gas and petroleum, were produced (table 1).

## Structure of the Mineral Industry

Table 2 is a list of the major mineral industry facilities.

## Commodity Review

Mineral commodity production continued at more or less the same levels as in 2010 with the exception of cement, gypsum, and silica sand, for which production decreased. There were no other reported significant changes in the levels of mineral production. Mineral resource sites in Croatia in 2009 (the latest year for which data were available) included, in order of the number of sites, crushed stone aggregates, 253 sites; dimension stone, 103 sites; sand and gravel, 82 sites; clay, 49 sites; bauxite, 15 sites; and gypsum, 9 sites. No information regarding the exploration and (or) development status of these sites was available in 2011 (Slobodan and others, 2007).

<sup>1</sup>Where necessary, values have been converted from Croatian kuna (HRK) to U.S. dollars (US\$) at an average rate of HRK5.95=US\$1.00 for 2011.

The Energy Law passed in 2001 with amendments in 2004 and 2007 regulates measures to ensure a secure and reliable energy supply, efficient power generation and its use, and other key issues relevant to the energy sector. The Government adopted a new Energy Development Strategy in 2009 for a period up to 2020. A fund for financing of the National Energy Programs was established with a special section to deal with energy efficiency and renewable energy sources and provide for energy efficiency programs. The Government made a commitment to include 20% of renewable energy in its total energy consumption by 2020 (Energy and Mining Directorate, 2011b).

## Outlook

Croatia is expected to remain a modest producer of mineral commodities, although increases in the production of industrial minerals could take place as infrastructure is modernized. Mineral fuels are expected to remain the most important outputs of Croatia's mineral sector, although the country will most likely remain heavily dependent on imports of mineral fuels.

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

(Metric tons unless otherwise specified)

| Commodity <sup>2</sup>                                   | 2007                       | 2008                | 2009                 | 2010                | 2011 <sup>e</sup>    |                      |
|----------------------------------------------------------|----------------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
| <b>METALS</b>                                            |                            |                     |                      |                     |                      |                      |
| Aluminum: <sup>e,3</sup>                                 |                            |                     |                      |                     |                      |                      |
| Alloys                                                   | 32,703 <sup>3</sup>        | 31,582 <sup>3</sup> | 30,000               | 30,000              | 32,000               |                      |
| Semimanufactures:                                        |                            |                     |                      |                     |                      |                      |
| Rolled                                                   | 49,050 <sup>3</sup>        | 52,135 <sup>3</sup> | 50,000               | 50,000              | 60,000               |                      |
| Extruded                                                 | 6,953 <sup>3</sup>         | 6,287 <sup>3</sup>  | 6,000                | 6,000               | 8,000                |                      |
| Total                                                    | 56,003 <sup>3</sup>        | 58,422 <sup>3</sup> | 56,000               | 56,000              | 68,000               |                      |
| Steel:                                                   |                            |                     |                      |                     |                      |                      |
| Crude, from electric furnaces                            | 76,252                     | 121,759             | 51,583               | 95,000 <sup>r</sup> | 90,000               |                      |
| Semimanufactures, hot rolled <sup>e</sup>                | 75,000                     | 121,000             | 51,000               | 103,000             | 100,000              |                      |
| <b>INDUSTRIAL MINERALS</b>                               |                            |                     |                      |                     |                      |                      |
| Cement                                                   | thousand metric tons       | 3,587               | 3,637                | 2,823               | 5,078 <sup>r</sup>   | 4,754 <sup>3</sup>   |
| Clays:                                                   |                            |                     |                      |                     |                      |                      |
| Bentonite                                                |                            | 19,578              | 19,759               | NA                  | NA                   | NA                   |
| Ceramic clay <sup>e</sup>                                |                            | 300,000             | 300,000              | NA                  | NA                   | NA                   |
| Gypsum and anhydrite, crude                              |                            | 334,962             | 329,649              | 221,888             | 248,675 <sup>r</sup> | 231,008 <sup>3</sup> |
| Lime                                                     | thousand metric tons       | 572                 | 541                  | 350                 | 330 <sup>r</sup>     | 271 <sup>3</sup>     |
| Nitrogen, N content of ammonia <sup>e</sup>              | do.                        | 300                 | 300                  | 300                 | 358 <sup>r,3</sup>   | 367 <sup>3</sup>     |
| Pumice and related materials, volcanic tuff <sup>e</sup> | do.                        | 15 <sup>3</sup>     | 15                   | 15                  | 15                   | 15                   |
| Salt, all sources <sup>e</sup>                           |                            | 32,536 <sup>3</sup> | 30,000               | 30,000              | 30,000               | 30,000               |
| Sand and gravel, excluding glass sand <sup>e</sup>       |                            | 350,000             | 350,000              | 350,000             | 350,000              | 350,000              |
| Silica sand (quartz, quartzite, glass sand)              |                            | 147,855             | 150,000 <sup>e</sup> | 278,231             | 240,919 <sup>r</sup> | 227,437 <sup>3</sup> |
| Stone: <sup>e</sup>                                      |                            |                     |                      |                     |                      |                      |
| Crushed and brown                                        | thousand metric tons       | 18,000              | 18,000               | 17,652 <sup>3</sup> | 13,270 <sup>3</sup>  | 13,033 <sup>3</sup>  |
| Dimension stone                                          |                            | 1,500,000           | 1,500,000            | 1,500,000           | 1,500,000            | 1,500,000            |
| Sulfur, byproduct of petroleum                           |                            | 7,500 <sup>e</sup>  | 9,819                | 10,315              | 6,834 <sup>r</sup>   | 7,254 <sup>3</sup>   |
| <b>MINERAL FUELS AND RELATED MATERIALS</b>               |                            |                     |                      |                     |                      |                      |
| Carbon black                                             |                            | 23,724              | 16,903               | 3,976               | --                   | --                   |
| Natural gas, gross production                            | million cubic meters       | 2,892               | 2,729                | 2,705               | 2,727                | 2,471 <sup>3</sup>   |
| Petroleum: <sup>e</sup>                                  |                            |                     |                      |                     |                      |                      |
| Crude, gross weight, includes condensate                 | thousand 42-gallon barrels | 6,520               | 6,200                | 5,760               | 5,340                | 5,616 <sup>3</sup>   |
| Refinery products                                        | do.                        | 39,900              | 32,100               | 31,700              | 31,200               | 31,500               |

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised. do. Ditto. NA Not available. -- Zero.

<sup>1</sup>Table includes data available through August 31, 2012.

<sup>2</sup>In addition to commodities listed, common clay and other industrial minerals may have been produced, but available information is inadequate to make reliable estimates of output.

<sup>3</sup>Reported figure.

TABLE 2  
CROATIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Thousand metric tons unless otherwise specified)

| Commodity                             |                                    | Major operating companies                                      | Location of main facilities                                                             | Annual capacity  |
|---------------------------------------|------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------|
| Aluminum, alloys and semimanufactures |                                    | Tvornica Lakhir Metala (TLM) d.o.o.<br>(Adrial d.o.o. Sibenik) | Sibenik                                                                                 | 40 <sup>c</sup>  |
| Do.                                   |                                    | Top-Tvornica Olovni i Aluminijskih                             | Savska                                                                                  | NA               |
| Carbon black                          |                                    | Petrokemija d.d.                                               | Kutina                                                                                  | NA               |
| Cement                                |                                    | Cemex Hrvatska d.d. (CEMEX S.A.B.<br>de C.V., 100%)            | Plants at Kastel Sucurac, Solin, and Solin Majdan                                       | 2,400            |
| Do.                                   |                                    | Holcim (Hrvatska) d.o.o.                                       | Plant at Koromacno                                                                      | 1,000            |
| Do.                                   |                                    | Istra Cement International d.d.<br>(Part of CALUCEM Group)     | Plant at Pula                                                                           | NA               |
| Do.                                   |                                    | Tvornica Cementa Umag d.o.o.                                   | Cement plant at Umag                                                                    | 350              |
| Do.                                   |                                    | Nasicecement d.d. (Nexe Grupa d.d.)                            | Nasice                                                                                  | 1,000            |
| Natural gas                           | million cubic meters               | INA-Industrija Nafte d.d. Zagreb (INA)                         | Natural gasfields at Molve, offshore platforms in the Adriatic Sea, and other locations | 3,000            |
| Petroleum:                            |                                    |                                                                |                                                                                         |                  |
| Crude                                 | thousand 42-gallon barrels per day | do.                                                            | Oilfields at Kalinovac, Sandrovac, Struzec, Zutica, and other locations.                | 20 <sup>c</sup>  |
| Refined                               |                                    | do.                                                            | Refinery at Rijeka (Urinj)                                                              | 3,500            |
| Do.                                   |                                    | do.                                                            | Refinery at Sisak                                                                       | 2,300            |
| Salt                                  |                                    | Solana Pag d.d.                                                | Pag Island (marine salt)                                                                | NA               |
| Steel, crude                          |                                    | CMC Sisak d.d. [Commercial Metals Co. (CMC)]                   | Plant at Sisak                                                                          | 80               |
| Do.                                   |                                    | Zeljezara Split d.d. (Zlomrex S.A., 94.8%)                     | Plant at Split                                                                          | 185 <sup>1</sup> |

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

<sup>1</sup>Zeljezara Split d.d. stopped production in early 2009, and production remained suspended throughout 2011.