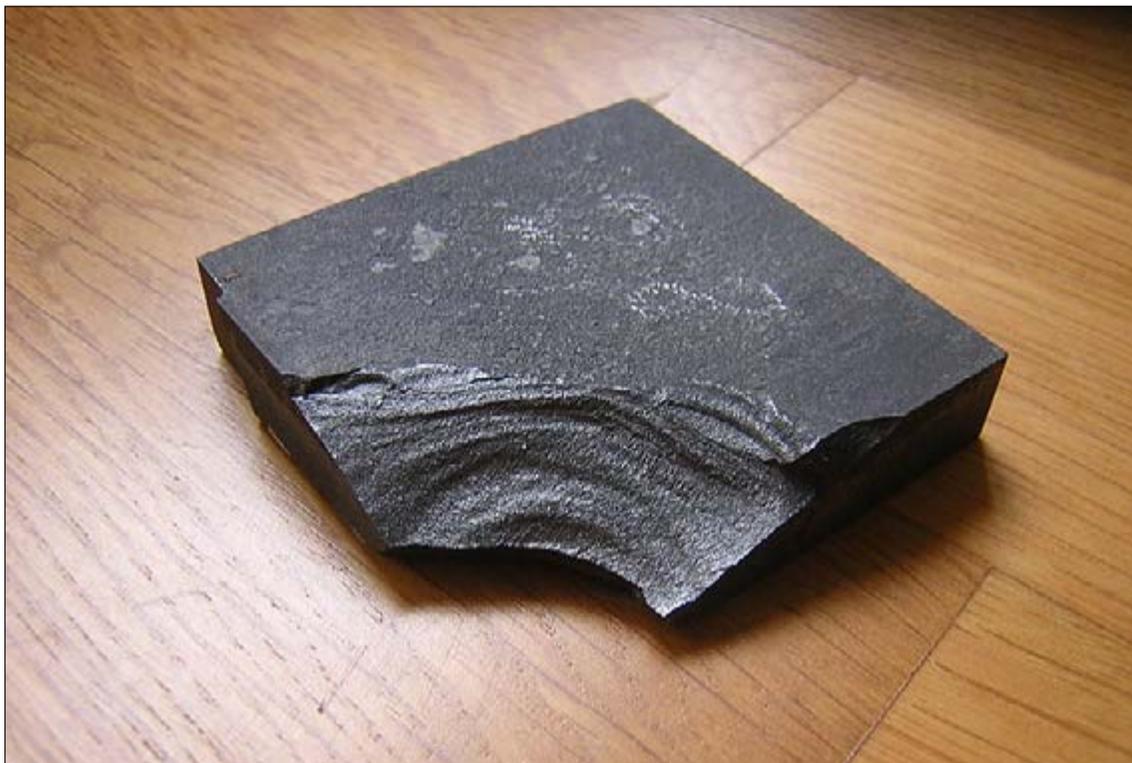




## China to Build Boron Carbide Plant in Turkey to Boost Defense Industry

**OE Watch Commentary:** Boron carbide (B<sub>4</sub>C) is one of the hardest synthetic substances known and is used in tank armor, helicopters, aircraft, and bullet-proof vests. Turkey is home to 73% of the world's boron reserves, and is now planning to refine and process this natural resource to develop boron carbide with a view to strengthen its defense industry. On 25 October, construction started on a new boron carbide plant in Turkey, to be built by the Chinese Machinery Engineering Corporation (CMEC) over the next two years. The accompanying passages from Turkish and Chinese sources discuss the significance of this project.

According to the passages, the plant will produce around 1000-1500 tons of boron carbide annually, worth some \$25-30 million; and is expected to be completed in 24 months. The project will employ 250 people and cost \$70 million. Speaking at the groundbreaking ceremony of the facility, Turkey's Minister of Energy and Natural Resources said that



*A piece of Boron carbide (B<sub>4</sub>C).*

Source: Preslav via Wikimedia, [https://commons.wikimedia.org/wiki/File:Boron\\_carbide.JPG](https://commons.wikimedia.org/wiki/File:Boron_carbide.JPG), Public domain

the boron carbide that will be produced would have low density, and a high level of resilience to high temperatures, making it ideal for military use such as helicopters, aircraft, armored vehicles, tanks and artillery tubes.

As the passages discuss, China Machinery Engineering Corporation (CMEC) will build the facility. CMEC and TRBOR Boron Technologies Inc of Turkey signed a deal on the plant in June. The second passage notes that CMEC would be collaborating with its Turkish counterpart in the fields of know-how and technology, and would continue to invest in Turkey. According to the second passage, China currently leads the global production of boron carbide, with Germany, India, Japan, the US, Ukraine, South Korea and England also on the list. With this new facility, Turkey is looking to join this list in two years.

This is part of a greater goal for the Turkish defense industry- to become more self-sufficient through increased indigenous production. This is why CMEC's promise to share know-how and technology is critical for Turkey. Currently, the rate at which the equipment needs of the Turkish Armed Forces are domestically produced is at 70%, with a declared a goal to become fully indigenous by 2023, the centennial of the Republic. (Also see: "Trends in the Turkish Military Industry," *OE Watch*, June 2017) **End OE Watch Commentary (Kaya)**

***“We want to make energy the new defense industry of Turkey...”***  
***- Energy and Natural Resources Minister of Turkey, Fatih Dönmez***

***“Boron carbide will be used mostly in military items such as tactical vehicles, helicopters, planes, artillery tubes, bullet-proof vests that require a high level of resistance and density.”***



## Continued: China to Build Boron Carbide Plant in Turkey to Boost Defense Industry

**Source:** “Bor Karbür Üretim Tesisi’nin temeli Bandırma’da atıldı (Construction Starts in Bandırma for Boron Carbide Production Plant),” *Petroturk.com.tr*, 25 October 2019. <http://petroturk.com/yenilenebilir/bor-karbur-uretim-tesisinin-temeli-bandirmada-atildi>

### ***Turkey breaks ground on first Boron Carbide Production Facility today at the town of Bandırma in the province of Balıkesir.***

*Turkey, which is home to 73% of the world’s boron reserves, is launching an important project to take the treasure it has and use it for value-added production. The groundbreaking ceremony for the Boron Carbide Production Facility took place today, with the attendance of Fatih Dönmez, Turkey’s Minister for Energy and Natural Resources. The facility will contribute to the defense industry once it starts production.*

*Dönmez... who spoke at the groundbreaking ceremony, highlighted that boron has a strategic place in the world market and is used in fields ranging from the defense industry to the glass sector, from ceramics to agriculture and cleaning materials, saying, “It is an area ripe for development and growth for us. With increased value-added production, we will use technology to solidify our leading place in the boron market. This is why indigenous production, which makes up one of the three pillars of our National Energy and Mineral Policy, is so important. We’ve taken important steps to create this indigenous transformation in energy technologies. We’ve built the cornerstones of our energy and mineral [policy] around national human resources, national technology and national products.*

*“National Energy will Strengthen National Security”*

*Minister Dönmez, who expressed that this was proof of what Turkey could accomplish when it uses its domestic resources to take advantage of the technological transformation taking place in the defense sector, said, “Today, we are demonstrating the best example of what we can achieve with domestic and national technology. Indigenous production in the defense industry has reached 70%. It has become an important export industry. We want to make energy Turkey’s new defense industry in technology.”*

*Dönmez, who said that the new facility was the first step in the production of advanced-technology boron production noted, “...The boron carbide that we will produce at our facility in Bandırma, with its low density and resilience to high temperatures, will greatly contribute to our level of indigenous production in our defense industry. Boron carbide will be used mostly in military items such as tactical vehicles, helicopters, planes, artillery tubes, bullet-proof vests that require a high level of hardness and density.”*

*Dönmez, who also noted that the boron carbide would be used in the production of heavy machinery and ceramic pieces along with nuclear applications, said “With this strategic transformation, the value-added to our country will be multiplied by 150 for products like boron carbide, by 500 for the production of armored vehicles and by 2000 in sectors like the nuclear sector.”*

*One Thousand Tons will be Produced Annually*

*According to data, there are between 12-15 thousand tons of boron carbide produced in the world [annually]. In this market, where China takes the lead as the main producer country, Germany, India, Japan, the US, Ukraine, South Korea and England also produce this mineral. Turkey is now joining this list, with the Bandırma Boron Carbide Facility, which will produce one thousand tons of boron carbide annually, worth some \$25-30 million. ...*

*A Chinese Company will Build It*

*The boron carbide production facility will be built by Chinese company China Machinery Engineering Corporation (CMEC) and will cost \$70 million. It is estimated that the facility will be complete within 24 months.*

*General Manager of Eti Maden, owner of a 33% stake in the project, Serkan Keleşer, also spoke at the groundbreaking ceremony, saying... “This facility is extremely important for our country. Boron carbide is the world’s hardest and most resilient substance after diamond.*

*Keleşer, also highlighted that CMEC, which Turkey will be collaborating in the fields of know-how and technology, would continue to invest in Turkey...*

*The facility is expected to be completed in 24 months. The facility will provide employment to 250 people and produce items that contain*

**Source:** “New boron carbide plant to strengthen Turkey’s defense industry: minister,” *Xinhuanet.com*, 25 October 2019. [http://www.xinhuanet.com/english/2019-10/25/c\\_138503382.htm](http://www.xinhuanet.com/english/2019-10/25/c_138503382.htm)

*Turkey is preparing to strengthen its national defense industry through a boron carbide plant to be built by a Chinese company and operational in 2021 in the northwestern province of Balıkesir, Turkish Minister of Energy and Natural Resources Fatih Donmez said Friday.*

*The groundbreaking ceremony of the plant, undertaken by China Machinery Engineering Corporation, was held in the district of Bandırma.*

*Speaking at the ceremony, Donmez said the plant would make Turkey’s defense sector more “powerful, dynamic and active” by increasing the ratio of the production of domestic goods.*

*“We will be able to use boron carbide in the production of military equipment, such as steel shells, protective vests, helicopters and tanks which require high hardness and strength,” said the minister.*

*He said Turkey has a total of 3.3 billion tons of boron, accounting for 73 percent of the world reserves and 59 percent of the world market.*

*... China Machinery Engineering Corporation and the TRBOR Boron Technologies Inc of Turkey signed a deal on the plant in June, which shall have an annual production capacity of 1,500 tons of boron carbide, one of the hardest synthetic substances known.*