

ANALYSIS OF QUARTZITE MINING IN THE SUMY REGION

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There are 294 deposits of 21 minerals types in the Sumy region. The most important are the fuel, energy and oil resources, natural gas, condensate and peat. According to the statistics 21 oil fields with reserves of 34 million tons (almost a quarter of the reserves in Ukraine), 18 gas fields (reserves exceed 72 billion cu m.), 17 condensate fields, providing 35% of its production in Ukraine, 111 peat deposits with nearly 55 million tons are located on this territory.

Sumy region is rich enough with nonmetallic minerals: phosphorite, rock and potassium salts, sulfur, quartzite, chalk, gypsum, limestone, marl, sand glass, refractory and refractory clays, mineral paints, construction sand and stone.

One of the most valuable minerals that are mined in the Sumy region is Quartzite. Quartzite (from German Quarzit) is a hard, non-foliated metamorphic rock which was originally sandstone. Sandstone is converted into quartzite through heating and pressure usually related to tectonic compression within orogenic belts. Because of its hardness and angular shape, crushed quartzite is often used as railway ballast. Quartzite is a decorative stone and may be used to cover walls, as roofing tiles, as flooring, and stair steps. Crushed quartzite is sometimes used in road construction. High purity quartzite is used to produce ferrosilicon, industrial silica sand, silicon and silicon carbide. During the Stone Age quartzite was used as an inferior alternative to flint.

The main deposits of quartzite are situated in the Banychi village and Matskovo village. Also there are several fields of quartzitic sandstones in the areas, which are located near villages Budishche and Vyazenka. The deposits are situated not far from each other, and can be recognized as integer field of minerals with separated parts. Generally, only three such large-scale deposits of quartzite exist in the world - in Brazil, in Russia and in Banychi, Ukraine.

Nowadays the Banychi's deposit is developed by PJSC "Hlukhiv quarry of quartzite". Other deposits (Matskovo; Budishche; Vyazenka) are small to start mining there, but if it is needed this quarry can start develop those deposits. There are no other deposits of quartzite in the region, and there are no competitors too.

So, PJSC "Hlukhiv quarry of quartzite" is a single producer/distributor of quartzite at the region level. Main production of enterprise is quartzite in fraction 20-90 mm. Also, enterprise produces quartzite in fraction 5-20 mm and 0-5 mm. Quartzitic sandstones, mined from Banychi's deposit, are exceptional high-quality raw materials. This quartzite is suitable for manufacture of high-quality ferroalloys and crystal silicon. The enterprise is a supplier of raw materials for producing high quality silicon ferroalloy, and crystal silicon of high marks. Also the open-cast mine makes lumpy quartzite in fraction 0-5 mm, it is used for building.

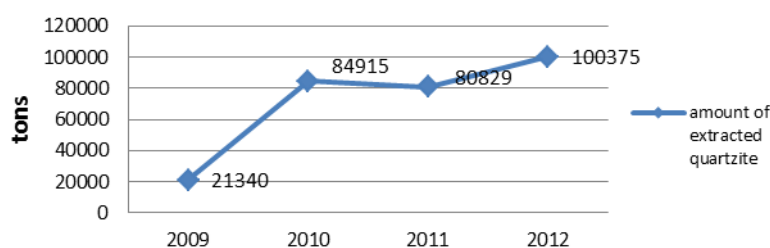
Silicon ferroalloy consumption is driven by cast iron and steel production, where silicon alloys are used as deoxidizers. Some silicon metal was also used as an alloying agent

with iron. On the basis of silicon content, net production of ferrosilicon and miscellaneous. It is widely used in the aerospace industry.

Crystal silicon is the base material of the electronic industry. It is perhaps the most important technological material of the last decades because its availability at reasonable prices was essential for the development of the electronic devices on which the modern electronic and informatics revolution is based.

At the current moment the major customers of enterprise are: PJSC “Chelyabinsk Electromechanical Plant”; “Urals Aluminium Smelter”; “Novolipetsk Steel” (NLMK).

Actual productivity of a quarry depends on finished goods market. Production capacity is 70-120 thousand tons / year of lumpy quartzite in fraction 20-90 mm. The annual profit is 18 million UAH. On the graph 1 dynamics of quartzite extracting for 4 years is presented. It shows increasing of quartzite mining.



Graph 1 - Dynamics of quartzite extracting

The low volume of output in 2009 was caused by world financial crisis.

The deposit consists of two parts: the South and the North East. At present time stocks of a southern side of a quarry are not used completely. They contain 4781.81 thousand tons of quartzitic sandstone. Stocks of a northeast side contain 7786.43 thousand tons of quartzitic sandstone. Using these stocks the quarry can work at full capacity for 35 years.

So, Sumy region is rich with nonmetallic minerals. One of the most valuable mineral is quartzite. In the region this direction of mining industry is actively developed by PJSC "Hlukhiv quarry of quartzite" and still has a potential for future growth. The quarry has a unique position in the region through the absence of competition. There are some unused deposits in Sumy region which create a platform for development.

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