



Схема алгоритма

**СНИЖЕНИЕ ШУМА ТЕХНОЛОГИЧЕСКОГО
ОБОРУДОВАНИЯ ПРИ ПРОИЗВОДСТВЕ
АСФАЛЬТОБЕТОННЫХ СМЕСЕЙ
НА АБЗ №4 «КАПОТНЯ»**

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Эффективность и качество дорожного строитель-
ства во многом зависит от надежной работы асфаль-
тобетонных заводов (АБЗ). В их состав входит боль-

шое количество сложных и дорогостоящих машин и
оборудования. Этот состав по своему назначению и
устройству чрезвычайно разнообразен и непрерывно
пополняется новыми прогрессивными конструкциями.

Производство асфальтобетонной смеси (АБС) –
это один из самых энергоемких процессов дорожного
строительства. При этом технологическое оборудова-
ние асфальтобетонного завода, например установки
по изготовлению АБС (АБСУ) и дробильно-сортиро-
вочные установки (ДСУ) генерирует достаточно высо-
кие уровни шума. В данной работе рассматриваются
вопросы снижения шума от указанного оборудования.

Борьба с шумом является комплексной проблемой, связанной с решением гигиенических, технических, управленческих и правовых задач. Проблема снижения шума на производстве включает две связанные между собой задачи: во-первых, снижение шума на рабочих местах, территории предприятия и прилегающей к нему селитебной территории, что является одной из задач производственной гигиены и санитарии, и, во-вторых, снижение шума машин и оборудования на предприятии, так как требования к их шумовым характеристикам обязательно содержатся в технических условиях и стандартах.

Для разработки рекомендаций по снижению шума АБСУ и ДСУ необходимо определить основные источники шума этих установок и оценить их вклад в общую шумовую экспозицию в различных точках рабочей зоны.

PROSPECTS OF THE COAL INDUSTRY IN KUZBASS

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Coal industry in Kuzbass today

According to the recent World Coal Institute reports coal share demands about 90% of energy potential of all organic minerals for working out in the world. At an existing consumption level the limiting exhaustion of world's oil and gas reserves will have been expected by 2035.

Apparently by 2015 the world needs for coal can have been doubly increased. In the third millenium coal will take the foreground position and become the major energy carrier.

Taking into account maintaining of power safety in Russia, coal should be extracted about 290-335 million tons – in 2010, and in 2020 – about 340-430 million tons, with the further increasing of extraction volumes. It will provide increasing coal share in FEB (Fuel Energetic Balance) to 25-30% instead of present 17%. No doubt, that the basic manufacturer of coal in Russia is the Kuznetsk Coal basin (Kuzbass).

Kuzbass reserves of coal (category A + B + C1) are estimated 57 billion tons, that makes 58,8% of Russian coals. Thus coking coal reserves make 30,1 billion tons, or 73% of all reserves in the country.

In fact, almost all the ranks of coals are extracted in Kuzbass. Kuznetsk coals are remarkable for high quality: ash content 8-22%, sulfur content – 0,3-0,6%, specific heat of combustion – 6000 – 8500 kcal/kg. The average depth of underground mining is 315 m. About 40% of extracted coal is consumed in the Kemerovo region and 60% are taken in other regions of the country and used for export.

Now 55,8% of extracted coals are in processing, with an output 44,2% of the concentrated ones and 11,6% of high-quality coal that gives additional profit of 10-15%. It should be noticed that a lot of concentrating plants become out-of-date. It causes low labour productivity – 500 tons a month per a worker. The increase in processing volumes of Kuznetsk coals will allow not only to receive the big profit in sale of the concentrated and high-quality coals at home market. It will give a great effect in macroeconomics because the ballast expenses will be lowered to 10-12% by rail transportation, and to 8-12% electric power and heat cost in the TPS (Thermal Power Station).

The further development of branch should be aimed at creation of the powerful extraction industry and deep coal processing in the country on the basis of: complex development of perspective deposits; economically and technically modernized mine designing and building; intensified technological processes in preparatory and clearing faces; development of technologies and building enterprises for coal processing; maintenance of technological and ecological safety system; creations of the information environ-

ment. Realization of all listed aspects of branch development will allow to provide powerful safety of the state, a stable growth of coal-mining regions, coal economy sector transfer from raw manufacture to industrial one and to the reception of wide scale of products (the electric power, heat, chemical products, motor fuel, etc.).

Coal processing

Today all over the world there is a steady development of coal processing and creation of new technologies. It must be said, that now only in the republic of South Africa complex coal processing is realized completely. But practically all the countries having coal reserves try to solve this problem. For example, China actively develops water-coal fuel manufacture and plans to extract 12 million t a year.

At the stage of mining re-structuring practical application of ideas of deep coal processing should be undertaken. One of the forms of practical realization of scientific and technical approach in this field was defined by the Siberian branch of the Russian Academy of Sciences to create on the basis of the state unitary enterprise «semicoking Factory» (Leninsk-Kuznetsk) research-and-production deep coal processing association. Such extraordinary association allows to connect in all available capacities and possibilities to approbations, and fast introduction in manufacture many successful scientific works of the Siberian Branch of the Russian Academy of Science in the field of coal-chemistry: manufacture of the activated coals, few-smoke fuel, sorbents, coal briquettes, liquid products of pyrolysis, etc.

It is necessary to remark, that such technologies as underground gasification of coals, extraction of methane from coal layers should be considered equally in the connection with technologies of coal extraction working out a coal deposit. Hydraulic coal mining, use of water coal suspensions can be regarded in focus of highly progressing up-and-coming technologies. There is a strong support to confirm that hydro extraction use at working out layers lying in especially difficult geographical conditions of the Prokopievsk and Kiselevsk regions in Kuzbass can inhale the second life in extracting coal deposit. Moreover it can be possible to produce valuable coking coals for low prime cost.

Making use of Water coal fuel reserves

Water coal fuel (WCF) «is well entered» in new perspective technology of using coal in thermo-energetic system – steam and gas construction on the coal, exceeding traditional technologies by EFFICIENCY on 4-5%, fuel giving in gasifier working under pressure thus becomes simpler. The technology with making use of WCF in gasifiers of steam and gas constructions is involved in a great number of projects of the highly-developed countries.

But in the thermo-energetic system WCF can replace liquid fuel and natural gas, and now it is quite competitive in comparison with fuel oil, including «small» energetic objects.

The substitution gas and fuel oil for water coal fuel allows to lower fuel expenses to 15%. In the conditions of a rise in prices policy for the basic energy carriers, this economy will continue increasing.

Results of economic estimations of the fuel component cost 1Gcal of the heat produced are presented below.

Calculations are resulted proceeding from following premises:

- Specific heat of coal combustion – 6500 kcal/kg
- Coal ash content – 16%
- Coal sludge ash content – 25%

Underground gasification coal

Coal underground gasification technology is an up-to date method of working out coal deposits. It finds out new possibilities in working off coal layers in difficult geological conditions of occurrence. This method combines extraction, concentration and coal processing. Coal underground gasification technology includes drill-