

АНАЛИТИЧЕСКИЙ ЖУРНАЛ • ИЗДАЕТСЯ С 1994 ГОДА

НЕФТЬ КАПИТАЛ



№ 4 (135)
апрель
2007

ИНДУСТРИЯ ГАЗПРОМ



▶ 22

Константин Пуликовский:

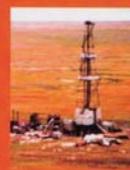
«Ростехнадзор может не нравиться, но на то и щука, чтобы карась не дремал»



14 ▶

СРОКА ДАВНОСТИ НЕ ИМЕЕТ

Юлии Тимошенко не позволяют забыть ее газовый бизнес в 90-х



79 ▶

ВОСТОЧНАЯ СИБИРЬ

ANALYTIC MAGAZINE
PUBLISHED SINCE 1994

Oil and Capital

April 2007

Rubber Valley

«Nizhnekamskneftekhim» builds up the modern rubber production

This February the Board of Directors of «Nizhnekamskneftekhim» had approved the Strategic Development Program of the enterprise for the period until 2012. The realization of rubber projects that are included into the Program will allow «Nizhnekamskneftekhim» to enlarge the line of its products with certain types of rubbers that are in demand on the market. By 2008 the total volume of their production will exceed 500 thousand tons a year, and by 2012 it will reach 900 thousand. The profit from the rubber sales will come to RUB 30.5bln and RUB 51.3bln correspondingly, which is approximately 35% of the total returns of the enterprise.

Evidently, the largest part of the most advanced Nizhnekamsk rubbers will be exported. Domestic consumers (first of all, tire producers) are still planning the modernization of their plants, which will result in the opportunity of new types of raw materials processing.

Not long ago, the main problem, restraining the rubber production (just like any other petrochemical products) at «Nizhnekamskneftekhim» was the impossibility to organize stable and sufficient delivery of basic hydrocarbon raw materials – straight-run gasoline and natural gas liquids. Nevertheless, guided by the optimistic prognosis, the administration of the company made their stake on the development of rubber industry. According to the chief engineer of «Nizhnekamskneftekhim» Khamit Gilmanov, the problem of liquid hydrocarbons supplies is not critical anymore and there are a number of new operating rubber productions as well as the units that are ready to be put into operation among the assets of the company.

The raw materials problem has been settled owing to the cooperation within the Republic, which by the order of Tatarstan Security Council presupposed the immediate supplying of local processing enterprises with hydrocarbon resources. At present, «Tatneft» permanently supplies Nizhnekamsk Crude Oil Primary Distillation Plant belonging to «TAIF» Public Stock

Corporation, the supervisory of «Nizhnekamskneftekhim» (see «TAIF settles the raw material problem» in «OaC» №6, 2006), with 7 mln tons of raw materials per year. Thus, the maximum loading of the «initial stage» is provided, and the demand of the ethylene complex of «Nizhnekamskneftekhim» in once-run gasoline is satisfied.

Besides, «Tatneft» supplies the petro-chemists with natural gas liquids from the complex oil-treatment units and the part of gas fractions from Minnibaevskiy GPP (Gas Processing Plant).

SKI-3 changes its source of raw materials

Four years ago «Nizhnekamskneftekhim» was producing only three types of synthetic rubbers, today there are five types, and by 2008 year it will be producing seven.

Nowadays the development of rubber industry at «Nizhnekamskneftekhim» (which is the largest manufacturer of rubbers in Russia) extends in the two directions: modernization of time-worn productions, as well as commissioning and development of new

capacities with maximum use of available raw material resources.

The main Nizhnekamsk rubber is isoprene rubber (SKI-3). It has been produced since 1970. SKI-3 is used for tyre production. It makes up 46% of the total volume of rubber output of «Nizhnekamskneftekhim». In 2005 «Nizhnekamskneftekhim» provided 43.8% of domestic production of SKI-3, 44.6% of its domestic market and 32.5% of the world market (75% was being exported).

It should seem that those were brilliant results. However, by the beginning of the current decade the isoprene rubber production has begun to rapidly lose its profitability – first of all due to the energy price increase. The situation was intensified by the deficiency of isopentane, the basic raw material, for it started to be used for the production of motor gasoline.

At the same time isobutene (also produced from natural gas liquids) may be used as a raw material for production of isoprene. In the beginning of 2006 the unit for production of isoprene from isobutene by one-stage synthesis method with the capacity of 130

thousand tons per year has been commissioned at «Nizhnekamskneftekhim». According to Gilmanov the advantages of the new technology over the previous double-stage one, are obvious, however, the effect can be reinforced. The discharge of raw materials intensity should be decreased by 20%, power consumption should be half-reduced, and the productive capacity of the unit is required to be increased up to 160 thousand tons per year.

At present both technologies operate simultaneously. The terms of full switch to isobutene monomer production depend on the future prospects of SKI-3 production, which in their turn depend on the demands of tire manufacturers. Theoretically, two options are considered. The first one supposes the growth of SKI-3 production capacities. In this case the technology of producing isoprene from isopentane will exist for no less than two years. The second one proposes the stabilization of production volumes at the present level, and in this case by 2008 the total isoprene rubber will be produced from isobutene only.

The choice of the first option may be influenced by the new projects aimed at building solid metalcord truck tyres production lines by the leading domestic manufacturers – «Nizhnekamskshina» and «SIBUR» (see, «KAMAZ stimulates the increase of competition» in «OaC» №11, 2006).

The 2012 Program of strategic development of «Nizhnekamskneftekhim» provides for the growth of SKI-3 output (up to 200 thousand tons per year by 2013, up to 350 thousand tons by 2012). In this case the construction of a new plant will be required.

The best – for export

Butyl rubber is the second by output at «Nizhnekamskneftekhim»; it takes 30% of the volume of its rubber production. This rub-



The advantages of the new technology over the previous one are obvious however, the effect can be reinforced. The new production line has been designed basing on the developments of «Nizhnekamskneftekhim»

ber also is used in tire production (for manufacturing of inner tubes, shaper-vulcanizes), as well as in production of general mechanical rubber goods of enhanced resistance. The butyl rubber has been produced in Nizhnekamsk since 1973. The technology of its production is constantly improving and all known types of this kind of rubber have been mastered by now.

At the same time, as it is seen from the practice, the manufacturers, selling butyl-and halobutyl rubbers are more successful on the market. The latter have high gas impermeability and capacity to be co-vulcanized with other kinds of rubber.

350 thousand tons of SKI-3 will be produced at «Nizhnekamskneftekhim» by 2012 according to the Development Program

These properties make them indispensable for production of hermetically sealed layers of modern tubeless tires. Besides, halobutyl rubbers are used for manufacturing of side strip, inner tubes of heat-resistant truck tire-covers,

as well as feed belts, operating at high temperatures. Production of halobutyl rubbers (chlorobutyl- and bromobutyl rubber) has also been put into operation in Nizhnekamsk in 2004 (by technology of Yaroslavskiy OJSC Scientific Research Institute «YarsynteZ»). This is the first and the only production of such kind in Russia (and, by the way, the third in the world in terms of productivity after the American Exxon and the German Lanxess, which had a complete control over the world halobutyl rubbers market up to 2004; «Nizhnekamskneftekhim» occupied about a quarter of the world market).

In 2006 the production came up to its full capacity – 30 thousand tons per year. Three brands of bromobutyl and two brands of chlorobutyl rubbers were mastered.

According to the Development Program, the total production capacity of butyl- and halobutyl rubbers will increase up to 120 thousand tons per year by 2008, and up to 200 thousand tons per year by 2012. The share of halobutyl rubbers in these output volumes should come to 40%.

In the framework of these plans realization, the second Welding

unit designed for separation and drying of butyl- and halobutyl rubbers was commissioned in January, 2007, permitting to double the output. It should be noted, that mastering the new products «Nizhnekamskneftekhim» has obviously left behind its prospective customers. Thus, according to Gilmanov, bromobutyl rubber is in demand by foreign producers only. Also one of two types of chlorobutyl rubbers is mainly exported: the Russian tire manufacturers still haven't mastered the formula of the hermetically sealed layer, obtained from chlorobutyl. At the same time French Michelin has already certified Nizhnekamsk halobutyl rubbers and is buying them for its own production.

Khamit Gilmanov thinks that the problem of rapid assimilation of new kinds of rubbers among the Russian consumers might be settled only if they are jointly applied in industry. However, domestic tire manufacturers have not responded to the proposals of «Nizhnekamskneftekhim» yet. That is why, the volumes of export (for halobutyl rubbers it is 95%) will soon be decreased.

For «green» tires

SKD-N is the third in terms of output volume. It is called «a rubber of the future» at the plant. It is used in production of so called «green» tires and is in high demand among foreign companies. The market of SKD-N is rapidly developing.

This type of rubber has been mastered in Nizhnekamsk in 2004. The capacity line of 40 thousand tons per year was bought at St. Petersburg FSUE SRRI (Federal State Unitary Enterprise Synthetic Rubber Research Institute). When it has come into full capacity in 2005, the share of the enterprise in the world market of SKD-N came up to 2.6%, and to 28.8% in the Russian market.

Currently the SKD-N Production Capacity Growth Project is being implemented in order to provide the growth of capacities up to 80 thousand tons per year in 2007, to 100 thousand tons in 2008, and up to 150 thousand in 2012.

The realization of these plans depends on the development of ethylene production at «Nizhnekamskneftekhim». The main raw material for SKD-N – divinyl (or butadiene) is obtained together with ethylene, propylene and benzene intra process from pyrolysis of once-run gasoline. Currently the olefin production modernization is taking place at «Nizhnekamskneftekhim». Ethylene output rate will reach 600 thousand tons, and the divinyl production will come to 85 thousand tons per year upon its completion in 2008.

Besides, there is a number of plants separating the divinyl from the supplied raw materials – butadiene-divinyl fraction and butane – with capacity of 50 thousand and 90 thousand tons per year.

Today all the divinyl, produced by «Nizhnekamskneftekhim» is forwarded to production of rubbers (lately a part of it has been sold). According to the Development plan the demand in this raw material will increase. Divinyl will be required not only for increasing the production capacities of SKD-N, but also for the new productions, for example, SKD-L rubbers (butadiene rubber on lithium catalyst) and DSSK (divinyl-styrene rubber), which will be commissioned this year.

Rubbers for plastics

The application of rubbers is not limited with tires and technical rubber products only. They are also widely used in production of polymers. Thus, for example, there are two crash-proof polystyrene production lines at «Nizhnekamskneftekhim» with total capacity of 100 thousand tons per year, its formulation requires 10% of polybutadiene rubber. This sort of rub-

ber is not produced in Russia, it is bought from Lanxess.

By the next year «Nizhnekamskneftekhim» will be able to declare these purchases off; and consequently will increase the production profitability of crash-proof polystyrene. It is connected with the start of SKD-L production. The estimated capacity of the plant, which is 75 thousand tons per year, will make it possible to meet not only the needs of the Nizhnekamsk enterprise, but also the demands of other domestic manufacturers of polymers.

As Khamit Gilmanov said to «OaC», the new production line designed on the basis of the Development Project of «Nizhnekamskneftekhim», might in case of necessity be reorganized for manufacture of other kinds of rubbers. In this case, the divinyl-styrene (DSSK) rubber, another new rubber for «Nizhnekamskneftekhim», will be produced on this line. The «solution-type» DSSK, mastered by the enterprise, is well-combined with other rubbers; it provides excellent adhesion with wet asphalt surface and decreased motion resistance for the tires. By 2012 the volume of production of DSSK in Nizhnekamsk should reach 75 thousand tons per year. The ethylene-propylene rubber (SKEPT), which has been produced by «Nizhnekamskneftekhim» since 1984, is also used for manufacturing of plastics. In 2006 Nizhnekamsk enterprises increased the production of these materials by 21.3%, which came up to 11.7 thousand tons per year. Today, the volume allows meeting the demands of the Russian consumers.

A demand for SKEPT continues to increase. That is why, the future plans of the company are to increase its output up to 40 thousand tons per year by 2012, to expand the range of products and to improve the quality, considering the requirements of the customers constantly growing.