

High extent is not the limit

Text: Anatoly Burov (Tomsk)
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Sibmetakhim mastered the production of new products



Sibmetakhim consistently ranks in the top three leaders of the Russian methanol production. Photo: Sibmetakhim

East of the Urals Tomsk Company became the first manufacturer of urea formaldehyde concentrate that is the base of bonding resin, which is used in the woodworking industry for the production of plywood, chipboard, hardboard and medium density fibreboard.

The new product is obtained due to modernization of Sibmetakhim, founded ten years ago in the structure of JSC Vostokgazprom and united the production of methanol, formalin and carba-resin. The construction of two new plants for production of urea-formaldehyde concentrate UFC-85 and low-methanol formalin of total capacity of 120 thousand tons per year became the part of the project of reconstruction and modernization.

UFC-85 is the basis for a wide range of low toxicity grades of resins, which are mixed with sawdust to form chipboard and modern fibreboard of E-1 emission class. In May this year, the pilot operation phase began, and in September Sibmetakhim received Rostekhnadzor

evaluation of completions compliance with rules and regulations. The first six months have shown that the product is in great demand on the market and will go like hot cakes virtually.

Reconstruction logic

Production of methanol and formalin in Tomsk began in the late 1970s and early 1980s of the last century. With the transition to Vostokgazprom the two assets, the property complex of factories for the production of methanol, formaldehyde and urea resins, have been merged into Sibmetakhim. The main advantage was the fundamental solution to the challenge of stable supply of raw materials, which were provided by Vostokgazprom, conducted gas production at the fields of the Tomsk region.

The union of process chain of natural gas transformations into useful products became logical. First, the methanol is produced, the formaldehyde is a product of second conversion stage, and the third stage products are urea-formaldehyde resin.

Now, the resin was replaced by concentrate. Every stage value of products is added, which increases the economic efficiency of large-scale chemical enterprise.

Investments in the reconstruction of formalin line of Sibmetahim, which was implemented during two and a half years, amounted to about one billion rubles. In recent years, few manufacturers dare to such large-scale capital investment. The enterprise is ready to reach full capacity by the beginning of 2017, which involves the release of not less than twenty thousand tons of formalin and fifty thousand tons of UFC-85 per year. The estimated payback of the project is three to four years.

The bulk of production is aimed at local consumers - Tomlesdrev (manufacturer of chipboard), Latat (manufacturer of fireboard) and the cluster of forest products, which is being produced in the town of Asino. However, if woodworkers need to increase the production of boards (as Tomsk manufacturers have such plans), Sibmetakhim is ready to increase the production of concentrate by launching another new UFC-85 production unit and integrating it into already prepared technical infrastructure.

Sibmetakhim consistently ranks in the top three leaders of the Russian methanol production. Commissioning of the new plant is a serious bid of Sibmetahim to strengthen its position on the market. Until now, Tomsk company was the only producer of methanol in the Urals. Now, formalin and UFC-85 consumers will be able to experience the benefits of logistics supplies in the eastern part of the country ahead of European.

Modernization of methanol production line has become the next step of renovation of the

enterprise. For one shutdown maintenance, the repair work was carried out to increase the plant capacity by 7.5 percent. The four-year program will allow Sibmetahim to increase the volume of production of methanol by a quarter - up to one million tons per year. First, it is necessary to develop enterprise's processing line.

- Modernization of formaldehyde production line is a qualitative leap forward a long time strong presence in the market. The use of modern technology will enable the company to reduce manufacturing costs, increase processing volume of methanol in value-added products, and increase productivity, - says General Director of Sibmetakhim Vasily Kurilo.

Industrial scale upgrade

Technological project of a new production line became the contribution of Sibmetahim in the All-Russian trend of import substitution. It was ordered to Safe Technologies, St. Petersburg, and is fully focused on the Russian equipment manufacturers. According to feedback of Tomsk residents and other giants of gas chemistry, St. Petersburg group today is not inferior to the world leaders - chemical production developers.

A clear illustration of this was the tour at the site of Sibmetahim where reconstruction completely changed it. Two technological systems and the necessary infrastructure for the new products was in place of the old capacities. Used equipment was completely dismantled and handed over to scrap - not anything handy at the site. A new equipment occupied up much less space.



Vasily Kurilo: Technical modernization of formalin production line is a qualitative leap forward a long time strong presence in the market. Photo: **Sibmetakhim**

Distillation unit, according to area occupied (about forty percent of the previously existing formalin production line), within the process chain was proved unnecessary. The height of the distillation column was raised up to 52 meters. The area of new production facility is three times less than the old one - six acres instead of eighteen, and labor productivity is higher. Several of the liberated 'football fields' are waiting for the next plans and projects of new production facilities for gas processing.

The catalyst of the chemical reaction for the production of formaldehyde was replaced on simpler and more efficient one. The old one was expensive due to silver content, and most importantly, it was required special consideration and hard modes of operation, with temperatures in the reactor of about 700 degrees C, the annual complex maintenance of the reactor tubes and the catalyst regeneration once every three months. The new iron-molybdenum catalyst requires not more than 300 degrees C temperature in the reactor and replacing once a year. It provides higher methanol conversion rates thus improving the quality of the final product. The effectiveness of energy resources is also higher at times.

Excursion in the territory was continued by acquaintance with the 'inner stuffing' where high quality of the finished product directly depends on the control and automation systems that combine the work of all the equipment in a seamless mechanism of fine-tuning. Especially since the chemical industry must be continuous, stopping for maintenance is held once a year, and needs to be short as possible.

Modern workstations displays reflect the process of conversion of methanol to formaldehyde, urea formaldehyde to concentrate. Before the reconstruction, the company released a resin, but now the furniture makers prefer to prepare it by themselves, as one binder composition is required for plywood, for particleboard - the other, for the fireboard - the third. UFC is versatile and environmentally friendly basis for resins with the minimum content of harmful substances. In addition, the concentrate is more stable, so it can be transported over long distances.

Quantity in quality

Methanol production in Russia today is oversaturated. Moreover, consumption is growing rapidly, as it directly depends on the activity in gas production and transportation, production of octane additives to motor fuels, formalin, chemical industry products.

The global methanol market is located in Finland. Therefore, pills produced in the US pharmaceutical plants can be found in the Tomsk pharmacies, but methanol for these pills is produced in Tomsk. The prices for methanol, unlike pills, in Russia and abroad are comparable, and to sell the methanol abroad is even less profitable than at home due to

transportation expenses.

- Last year we went out in leaders on sales of methanol for export, although it is in the worst traffic conditions in comparison with domestic competitors. But the effectiveness of our work lies in the fact that we are increasing production and intelligently managing our rolling stock, consistently gaining market share, increasing profitability of a product that meets all the highest international quality standards, - says the Deputy Director General, Chief Technologist of Sibmetakhim Alexander Vdovin.

However, like it or not, it is better to process methanol at home. Tomsk is now actively engaged in searching the same 'pills', which can be produced here, not to carry out over the sea. What can be made of high-quality methanol? Much. For example, New Zealand and Chinese experience shows that it is quite possible to convert it to gasoline, which is more environmentally friendly than petroleum. Nevertheless, there are risks that need to be evaluated, to make the right investment decision.