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DEVELOPMENT OF THE CHEMICAL INDUSTRY IN THE  
BULGARIAN PEOPLE'S REPUBLIC

By N. Videnov

- USSR -

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DEVELOPMENT OF THE CHEMICAL INDUSTRY IN THE  
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Following is the translation of an article by N. Videnov entitled "Razvitiye Khimicheskoy Promyshlennosti v Narodnoy Respublike Bolgarii" (English version above) in "Khimicheskaya Promyshlennost'" (Chemical Industry), Moscow, No. 7, October/November, 1959, pages 85-88.

On 9 September 1959 the Bulgarian people observed the 15th anniversary of their liberation from the monarchic-fascist yoke. The chemical industry and other branches of the national economy greeted this date with great successes. Realizing that modern chemistry has a paramount importance in increasing the standard of living of workers and in the development of a socialistic economy, the Bulgarian communist party and the government of the republic show a great interest toward the chemical industry. A grandiose program for its development during the next 6-7 years has been planned.

It is enough to compare the status of the chemical industry in Bulgaria up to September 1944 with its present level to understand at what a rapid pace, unthinkable under other conditions, proceeded its development during the last 15 years. During the 67 years of its rule the Bulgarian bourgeoisie was unable to create a single branch of chemical industry in the country. There were two small carbide plants, a plant producing caustic soda electrolytically at a rate of 150 tons a year, a small paint factory (41 tons a year), and two small oil refineries processing imported oil. Also there were a few small craftsmen undertakings and workshops producing soap, cosmetics and perfume products, volatile oils, matches, tartaric acid, acetic acid, etc. The absence of a raw material basis and foreign investments in the mining of the few available minerals put the chemical industry in complete dependence on the foreign capitalists. Thus, the foreign monopolies had the opportunity, through the agency of the corrupt Bulgarian bourgeoisie, to prevent any attempt of establishing any chemical enterprises that would jeopardize their interests. This, for example,

happened with the paint factory, which at once was sold to the German concern "I. G. Farbenindustrie", and was almost shut down.

After the country was liberated from the monarchic-fascism, economic and political premises for a vigorous rise and development of a native chemical industry were established. The people's government gave the chemical industry the urgent task to restore and to surpass the productivity of the chemical industry of the prewar years. Within an exceptionally short period, to 1947, this task was accomplished. The nationalization of industrial enterprises and banks at the end of 1947 created conditions favoring an increase in the pace of the development of the chemical industry. A series of small, unprofitable and badly equipped enterprises were reorganized into large factories, suitable for introduction of new, more perfect technology. Almost all of the enterprises became specialized in a definite line of production.

The restoration and reconstruction of the chemical industry and its further development would have been unthinkable without the manifold help of the Soviet Union and a profound study and use of its rich experience.

During the period 1949-1957 (this period includes the first and the second five-year plans) our chemical industry grew at an unprecedented pace. Geological surveying was carried out on a large scale, and the result was the discovery of huge reserves of coal, sulfur-containing ores, other ores, crude oil, natural gas, and others. Thus, the necessary raw material basis for the development of the chemical industry was laid as did the inclusion in this system of a series of large hydro- and thermo-electric power plants lay the energy basis.

Within an exceptionally short time a new high production potential of the chemical industry was put in operation. Thus, for example, in 1951 the ratio between the old and the new basic funds was 9:1, but in 1957 it amounted already to 0.8:9.2.

Among others, in 1951 the first sulfuric acid plant in the country began its operation, and its output during the same year amounted to more than 8000 tons of sulfuric acid. This year its output is expected to reach 100,000 tons of sulfuric acid. To fulfill the task additional production potentials were put in operation.

The party gave to the agriculture the important task to bring about a sharp increase in agricultural crops. To do this the necessary quantities of mineral-fertilizers had to be supplied. In 1951 in Dimitrovgrad the country's first nitrogen-fertilizer plant, the chemical combine

named after I. V. Stalin was built. Thanks to a more effective use of the equipment and an increase in the productivity of the plant, its planned capacity was considerably surpassed, and the output of mineral fertilizers increased from 58,000 tons in 1952 to 240,000 tons in 1959. In 1957 a superphosphate plant was put in operation and phosphate fertilizers needed by the agriculture were produced for the first time in the country. Its output in 1959 will amount to 160,000 tons. In contrast to the 1573 tons of mineral fertilizers imported into the country in 1939 the chemical industry in 1959 supplied the national economy with 400,000 tons of fertilizer.

To meet the agricultural requirements in poisonous chemicals the Agrija plant in Plovdiv was reconstructed and specialized, and a series of products are manufactured there from local raw materials and imported concentrates. An important contribution to the development of this branch of the chemical industry has been the construction of a copper sulfate plant at the metallurgical combine named after G. Damyanov with a capacity of 15,000 tons a year; this will enable to satisfy the requirements of the viticulture completely.

Another important branch of the chemical industry being developed at an accelerated pace is the soda production. In 1954 a soda plant named after Karl Marx was put in operation near Varna, working on the basis of a huge salt deposit. The products of this plant contribute to the development of a series of important branches of the industry (non-ferrous metallurgy, mountain-ore, glass, porcelain and faience, textile, foods and flavors, and others). It is interesting to note that in the period from 1952 to 1955, for example, 50,000 tons of soda ash and more than 16,000 tons of caustic soda were imported into the country; at the present, however, the output of the above plant not only completely satisfies the domestic needs, but part of it can be exported.

The production of aniline-dyes was sharply increased. Their output in 1958 was 1000 tons or almost 25 times higher than in 1939.

Based on waste products of the growing wood-processing and the paper and cellulose industry the production of rosin (colophony) and turpentine was organized. In 1958 the output of these products was 1500 tons. The production potential of the tannin extraction plant rose from 237 tons in 1951 to 1200 tons in 1959.

Using products and wastes of the new plants the industry learned to produce chemicals for which a sharp need was felt by the national economy and which earlier

had to be imported from abroad; these are aluminum sulfate, barium salts, sulfur compounds, calcium chloride, gaseous sulfur, sodium nitrite, ammonium bicarbonate, flotation oils, formalin, lacquers, and others.

In 1958 the total production volume of the chemical industry was 18 times higher than in 1939. Our country, which in the past imported chemicals, at the present time not only meets the greater part of its own requirements, but also exports to other countries more than 24 different products of the chemical industry.

The picture of progress in the field of chemical production will not be sufficiently complete if some characteristic moments in its development are not noted.

First of all it must be mentioned that the construction of the large chemical plants was carried out according to Soviet blueprints. Mechanization of time-consuming production processes, automation of individual units, adaptation of control and measuring instruments, and highly productive machines and equipment with which the new chemical plants are equipped enabled the carrying out of a radical reconstruction of the chemical industry. The productivity of the chemical enterprises increased considerably. In 1948 the average production value per worker was 55,840 levs, but in 1957 it reached 115,400 levs.

The production costs in the chemical industry decrease from year to year, and this largely is due to the establishment of strict production control and the observance of proper technological methods. Use of the new techniques necessitated the reorganization of operating and maintenance procedures for the equipment. Thus, for example, a preventive maintenance system assuring a rhythmic fulfillment of the production plan has been introduced at all chemical plants.

Highly qualified personnel has been evolved during the brisk development of the chemical industry in the last 15 years. Thousands of workers, and engineering and technical personnel learned much from the Soviet specialists who were helping in the construction of the new plants. It is sufficient to note that more than 400 Soviet specialists worked on the chemical plant named after I. V. Stalin, and thanks to them we were familiarized with the new techniques and complicated technological processes within a short time. It must be stressed that the successful training of chemical personnel is the result of aid given by the Soviet Union and the countries of the people's democracies.

Great successes were also attained by the chemical

science, for which a bright horizon opened after the 9 September 1944 victory. Before that time a chemistry department existed with the state university whose main objective was the training of secondary school teachers, and only a few tens of students were admitted to it. At the present time there is a higher learning institution for the chemical sciences, which in the present school year admitted 1000 students. A series of research institutes have been created under the Bulgarian Academy of Sciences and various service organizations, whose objective is to assist the development of a chemical industry based on native raw material resources and also to develop chemical science.

Serious and responsible assignments have been given to the Bulgarian research institutes by the communist party and the government of the EPR. To carry out these tasks a reorganization of the institutes was begun in order to achieve a closer relationship between the research work and the chemical industry. In the introduction of technical innovations in manufacture a fairly big role is played also by the laboratories and the research departments of the large chemical plants.

However great the successes of the chemical industry, it still does not meet the growing needs of the national economy. Regardless of the increased production of mineral-fertilizers there were only 80 kilograms of fertilizer available for each hectare of cultivated area, and this does not completely meet the agricultural requirements. The chemical industry at the present time supplies only 40-50 percent of the requirements in poisonous chemicals, 50 percent in dyes for the textile industry, 40 percent in flotation agents, 30 percent in tannin extracts, etc.

There is a considerable lag in the manufacture of organic-synthetics and macromolecular compounds, which in industrially developed countries have enjoyed wide distribution for some time past.

The central committee of the Bulgarian communist party at its January session this year drew up a grandiose program for the development of the chemical industry for the 1959-1962-1965 period. An enlargement of the existing mineral-fertilizer production capacity and the construction of a new nitrogen-fertilizer plant are included in the plan. The total volume of the mineral-fertilizer production in 1962 is to reach one million tons a year, but by 1965, 1,600,000 tons, which corresponds to 200 and 300 kilograms of fertilizer per hectare, respectively. Plants for manufacture of DDT preparates,

hexachloran, herbicides, etc. will be built. To satisfy the needs of agriculture and, mainly, to develop the livestock industry, the production of albuminous feeds must be organized in the years to come. Output of carbamide will grow from 3000 tons in 1959, to 20,000 tons in 1962, and to 50,000 tons in 1965; this will suffice to meet the requirements of the industry and set free 25-30,000 tons of carbamide for the livestock industry. By 1962 a factory for hydrolyzed yeasts will be built, thus laying a foundation for processing of agricultural wastes.

To satisfy completely the industrial requirements in sulfuric acid its production in 1962 will reach 280,000 tons and in 1965, 350,000 tons.

A considerable development in the next years will be enjoyed by the soda products industry. This year was begun the expansion of the soda plant named after Karl Marx, which by the end of 1962 will produce 240,000 tons and by 1965, 300,000 tons of soda ash. In addition (according to the plan of GDR) a foundation will be laid for a large-scale production of electrolytic caustic soda, and its output will rise from 15,000 tons in 1959 to 30,000 tons in 1962, and to 45,000 tons in 1965.

Alongside the development of the inorganic chemicals industry during the next 6 to 7 years a foundation will be laid for a heavy organic-synthesis industry. The development of this branch is based, on the one hand, on the production of the inorganic chemicals, and on the other hand, on the fact that the large new factories will secure the necessary raw materials for our organic-synthesis industry. Thus, for example, after the coal-tars chemicals plant with a potential of 700,000 tons of coke per year is put in operation, the chemical industry will receive a considerable quantity of benzene, toluene, the phenol-cresol fraction, etc. In addition, according to Soviet projects, an oil-refinery with a capacity of one million tons a year will be built, which when put in operation in 1963 will start processing imported oil, but later on native raw material. Based on use of wastes and reprocessing of parts of the oil fractions the production of plastics, synthetic fibers, synthetic rubber, organic solvents, synthetic detergents, and others will be founded. To meet the requirements of the electrical, the machine building, and the building industries, and to satisfy the demand of the population in consumer goods a polyvinyl chloride plant with a capacity of 12,000 tons will be put in operation, and taking into consideration the planned increase in the output of pheno-plastics

output will reach 16,000 tons by the end of 1962, and 30-40,000 tons by the end of 1965.

A great attention has been devoted to the development of production of synthetic and artificial fibers. At the end of 1962 the construction of a staple-fiber and artificial silk plant working on the basis of refined beech cellulose will be started. Its output at the end of 1965 is to reach 25,000 a year. Along with the building of these plants the construction of a polyamide and polyacrylonitrile synthetic fibers plant has been planned.

Developed at an accelerated pace will be our oil and lacquer industry, and the production of formaldehyde gums, the output of which will reach 25,000 tons by the end of 1962.

In the further development of the Bulgarian chemical industry a great role will be played by the invaluable and unselfish assistance rendered by the Soviet Union and the countries of the socialist camp. This assistance is manifested by long-term credits, designing of projects, supplying of equipment, aid in construction, installation and putting in operation of plants, and in training of specialists for the chemical industry.

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