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SOURCES OF RAW MATERIALS FOR OBTAINING HIGH MOLECULAR WEIGHT COMPOUNDS

Norova Mavluda Sayfiddinovna
Bukhara State Technical University

Abstract
Today, without exaggeration, the importance of the chemical industry in the development of our country's economy is growing. One of the characteristic features of the modern chemical industry is the rapid growth of organic synthesis. One of the important tasks of the development of the chemical industry is the full use of the achievements of modern chemistry in all branches of industry and life, the production of new, more advanced and cheaper means of production and consumer goods.

Keywords: Natural gas, oil, coal, wood, agricultural waste, monomer production, development paths, raw material resources.

Introduction

One of the urgent problems of the chemicalization of the economy is the development of the production of natural and synthetic high-molecular compounds.

The rapid development of the production of synthetic polymers in recent years is due to the following reasons:

1). In the production of synthetic polymer materials and the production of products from them, labor costs are reduced compared to the processing of natural materials and the cost of the product is reduced.

For example, to obtain 100 thousand tons of natural rubber, 27 million rubber-bearing trees must be processed. The tree occupies an area of 120 thousand hectares. It takes 100 thousand people 5.5 years to obtain 100 thousand tons of natural rubber. To obtain such a quantity of synthetic rubber, 1,500 people must work for 1 year. In other words, in 5.5 years, 1 ton of natural rubber produces 360 tons of synthetic rubber.

The use of synthetic polymers in the production of building materials provides great economic efficiency. For example, wood-chip boards are widely used as high-quality materials in household and industrial construction, in furniture production. These boards are obtained by gluing wood waste with phenol-formaldehyde or urea-formaldehyde resins. 1 ton of resin can produce 16.7 M3 of boards. This saves 24.5 m3 of wood, reduces production costs by 22%, and reduces capital expenditure by 34%. Capital expenditure on the forestry industry and the production of wood (composite wood) materials is 1.5 times higher than the funds spent on creating synthetic resin and wood-chip board capacities.

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The use of plastics as structural materials in mechanical engineering is highly effective. Preliminary calculations show that the use of 1 t. of plastic in various areas of mechanical engineering reduces the cost of materials and their processing by an average of $ 0.5-0.6.

In the production of passenger cars, approximately 300 large, 900 medium and 2000 small stamps are used. 1 million hours are spent on their preparation. If complex stamps are made of plastic, it takes 2-3 times less time than making steel stamps, and 8-10 times less time for simpler stamps. In addition, making stamps from plastic also reduces the time it takes to produce machines from one brand to another.

2). The possibility of fully replacing rare and expensive natural materials, primarily non-ferrous metals, with synthetic polymer materials and using them as a structural material with their own unique properties.

In mechanical engineering, 1 t. of plastic allows replacing 3 t. of non-ferrous metals on average, which gives an economic effect of 0.5 million dollars.

3). The possibility of creating synthetic materials with predetermined and adjusted properties.

The development of motor transport, aviation, electrical engineering, mechanical engineering, radio engineering, electrical engineering and other sectors of the economy has created a need for new materials. These materials must meet specific requirements in terms of their properties. Due to the emergence of demand, new polymer materials with predetermined properties have been created and are widely used.

For example:

a). High-strength lightweight synthetic materials have been created (glass, plastics, carbon elastomers). Their relative strength is higher than that of many grades of steel, and these materials are used in aviation, shipbuilding, automotive engineering, construction institutes, and electrical engineering.

b). Light and medium-light polymer materials: foam polymers with a density of 15 kg/m3 and above, porous polymers. Properties such as low bulk density, thermal conductivity, and sound conductivity allow foam polymers to be used as insulating materials and structures based on them.

c). Plastics and chemical fibers exhibit high resistance to aggressive environments; they are anti-corrosion materials.

g). Electrical and radio materials with high dielectric properties and heat resistance. They are relatively easy to shape. These properties make them a high-quality electrical insulating material.

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