

## **Assessment of the prospects of the use of the carbonized wood waste food industry for the production of activated carbon**

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Today, active carbon is produced from materials that contain complex organic compounds, which under certain conditions can form solid carbon residue, wood - 36%; coal - 28%; brown coal - 14%; peat - 10%; coconut shells - 10%; other organic waste materials and -2%.

Due to the fact that only 2% organic material and waste used to produce activated carbon, are urgent search for alternative materials in existing technologies involving food processing, waste which can be used to produce adsorbents.

The most promising feedstock for the production of activated carbon is carbonated wood waste generated in the process of generating a mixture of air and smoke to smoking and smoke roasting food products (meat products, sausages, cheese, fish, etc.). The incomplete combustion of wood in the form of solid carbon residue.

The smoke-smoldering – the most common method of generating air-smoke mixture formed by flameless combustion thick layer of wood chips of the size fractions 6x12x3 mm at the initial 8-12% moisture, which additionally moistened to 35-65% and at a temperature pyrolysis of 300-500 °C during 0,5-48,0 h., when applying a small amount of air and constant stirring. During pyrolysis are liquid and gaseous substances from the exit rate of 60-70% and carbonated waste – 30-40%.

There are two ways to get active coal – by chemical or physical activation. Benefits chemical activation compared to the physical, one-step process; lower activation temperature; shorter activation time, large output; high values of specific surface area and a well-developed microporosity active carbon with controlled distribution of micropores in size. Chemical activation involves the use of a chemical agent which activates (ZnCl<sub>2</sub>, H<sub>3</sub>PO<sub>4</sub>, NaOH, KOH, etc.), which is mixed with solid carbon raw materials, raw materials and then subjected to carbonization – activation from temperatures in the atmosphere of inert gases or pyrolysis gases and their exposure at activation over time.

The paper assessed perspectives of carbonated wood waste for the production of activated carbon, so it can be concluded that the introduction of resource-saving and environmental technologies will lead to restored production in the food industry.

### **KEY WORDS**

Carbonized wood waste, pyrolysis, chemical activation, activated carbon

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