The press service of the FIC “Institute of Catalysis SB RAS” reported that scientists have developed a new material for capturing carbon dioxide. It is based on silica gel with the addition of ionic fluid based on glycinate. According to the institute, the material is able to absorb up to 100% CO2 under optimal conditions.

Ionic liquids are organic salts that remain liquid at a temperature below 100 ° C. They are used in various areas, from biology to rocket science. However, the high viscosity of such liquids slows down the process of gas absorption. Scientists solved this problem, applying liquid to porous silica gel, which significantly accelerated the reaction.

To improve the characteristics of the material, the researchers studied its micro -vanishness using the nuclear magnetic resonance method. It turned out that ionic liquids reduce the energy barrier of rotation of molecules, which increases the speed of absorption CO2.

According to the institute, new material requires 1.5 times less energy for regeneration compared to traditional aqueous amino solutions. This makes it promising for industrial use, where it is important to reduce energy costs when capturing carbon dioxide.