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Development of a process for obtaining aliphatic petroleum polymer resins

Annotation.

Aliphatic petroleum polymer resins (APPR) belong to a wide class of hydrocarbon resins and are low-molecular thermoplastic polymers obtained by oligomerization of C5 fractions of petroleum product pyrolysis. Currently, more than 2.8 million tons of petroleum polymer resins are produced in the world per year, and almost 48% of them are aliphatic petroleum polymer resins. There are no APPR production facilities in Russia, and the needs of the domestic industry are met through imports. In this regard, the task of creating our own APPR production is very urgent; it is formulated in the plan of import substitution measures in the chemical industry (Order of the Ministry of Industry and Trade of Russia No. 4743 dated November 15, 2022), as well as in the list of critical products in the chemical industry of the Russian Federation for 2024 and the planning period of 2025 and 2026.

The paper discloses 3 methods for producing APPR. The features of the processes are disclosed and the most suitable for obtaining solid resin samples is determined - catalytic. The optimal conditions for the process are determined: a catalyst and solvent are selected, the optimal temperature, contact time, and catalyst concentration are found. Based on the experiments, a route for the reaction is proposed and a basic technological scheme for industrial production of ANPS is proposed.