

Brief information about the project

Name of the project	AP15473170 «Development of technology for producing activated carbons based on special coke obtained from coals of the Shubarkol deposit».
Relevance	<p>The priority direction for the development of science, technology and technologies of the fuel and energy complex of the Republic of Kazakhstan is to improve the consumer properties of coal products based on fundamentally new systems of technologies and devices for deep processing of coal. A promising direction is the thermal processing of coal to produce semi-coke and activated carbon.</p> <p>Project idea: development of a model to produce activated carbon based on substandard fines of special coke, considering the use of coke oven gas as an energy source.</p>
Purpose	Creation of environmentally friendly coal technologies, to produce activated carbons, which will reduce production costs, ensure flexibility and environmental safety of production, and create competition with analogues available on the market.
Objectives	<ol style="list-style-type: none"> 1) study of the structural, physical and chemical-analytical properties and parameters of the feedstock (special coke); 2) setting technological parameters for producing activated carbon from special coke with high adsorption activity; 3) determination of physicochemical and sorption characteristics of the obtained activated carbons. Production of a pilot batch of activated carbons, testing; 4) development of a feasibility study for the creation of pilot industrial production of activated carbons based on special coke; 5) preparation of design drawings for equipment with a layout for creating pilot industrial production of activated carbons based on special coke; 6) development of temporary technological production regulations.
Expected and achieved results	Work will be completed according to the calendar plan. Articles will be published in peer-reviewed scientific publications indexed in the Science Citation Index Expanded of the Web of Science database and (or) having a percentile ranking according to CiteScore in the Scopus database in accordance with the requirements of the competition documentation.
Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles	<p>1. Nechipurenko S.V., Candidate of Technical Sciences, Associate Professor, Head of the Laboratory of Composite Materials of the Center for Physical and Chemical Methods of Research and Analysis of al-Farabi Kazakh National University. Laureate of the State Prize named after. D.A. Kunaev for young scientists in the field of natural sciences (2006) and the State scientific scholarship for talented young scientists (2010-2012). More than 18 years of experience in the field of chemical technology. H-index 4 (Scopus Author ID: 56195843600, https://orcid.org/0000-0002-7463-1679, Researcher ID Web of Science A-4695-2015). Author of over 130 publications (thesis, articles, patents), including those included in the Scopus, Web of Science and Derwent Innovations Index databases.</p>

	<p>2. Scientific consultant of the project - Sergey Anatolyevich Efremov, academician of KazNAEN, Doctor of Chemical Sciences, professor, KazNU named after al-Farabi. Project manager and participant: ISTC 2009-2010. “Development of a comprehensive technology for processing shungite rocks, including the separation of rocks into carbon and mineral parts and their use in production processes”; World Development Bank grant 2011–2015 “Creation of pilot industrial production of nano-structured carbon-containing materials for chemical technological processes”; grant for commercialization projects of Science Foundation JSC 2018-2020 “Creation of pilot industrial production of special-purpose polyester resins”; grant for commercialization projects of Science Foundation JSC 2019-2021 “Creation of innovative pilot industrial production of natural cosmetic products using perfume and mineral compositions.” More than 25 years of experience in the field of chemical technology. H-index 4 (Scopus Author ID: 57349110200, https://orcid.org/0000-0002-3542-4140, Researcher ID Web of Science B-1178-2015). Author of over 150 publications (thesis, articles, patents), including those included in the Scopus, Web of Science and Derwent Innovations Index databases.</p>
List of publications with links to them	no
Patents	no