

PROSPECTS OF PATENTOLOGICAL RESEARCH IN THE ASPECT OF STUDYING THE DISPOSAL OF HAZARDOUS INDUSTRIAL WASTES

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The intensive increase in industrial production, which allows a sharp reduction in energy and labor costs, has created a large number of complex environmental problems associated with industrial waste [1].

Industrial waste is often chemically heterogeneous, complex mixtures of substances that are toxic, chemical, biological, corrosive, flammable and explosive. They are usually classified on the basis of the main principles of waste separation: according to the industry principle (sources of education); states of aggregation; production cycles; directions of use [2].

Metallurgical enterprises emit hydrogen sulphide, carbon disulfide, chlorine, fluorine, carbon oxides, nitrogen oxides, phosphorus compounds, particles and a combinations of various metals, including mercury and arsenic, into the atmosphere. Metallurgical enterprises may contain oil products, acids, alkalis, scale in the waste water, particles of heavy metals, etc. In addition, the environment is still subject to increasing effects of thermal, radiation, electromagnetic and other types of radiation.

Modern technologies of industrial waste processing include: the use of waste to obtain raw materials for the production of building materials; the use of waste for the planning of territories, the pouring of roads, etc.; the use of waste in agriculture as fertilizers or reclamation means; complex processing of raw materials and waste as secondary resources for the production of new types of products on waste-free, environmentally friendly technologies; utilization of industrial wastes [3].

In developing technologies for the use of industrial waste, the degree of radioactivity of the waste is determined first. Then is determine their chemical, grain composition and volume. Further, the possible types of products from them and possible consumers are determined. Taking into account the prototype and analogue of the development of patents, the properties that the developed products should have are determined [4].

To achieve the required properties of products, methods and technologies of computer programs of artificial intelligence are used, build a mathematical model of waste elimination technology: calculate specific technological parameters, necessary equipment, determine the expected ecological and technical-economic effect, the place of introduction of technology and consumers of products. After that, they begin to make laboratory samples and determine their

properties, choosing the optimal technological parameters to achieve properties exceeding the patent level [5].

Patentology carries out analytical studies of new technologies and technical objects simultaneously considered as patent objects (methods, devices, utility models, etc.) [6]. In the literature is the general characteristics of the directions of patent studies in the field of engineering [7], production technologies [8] and technospheric safety [9]. In this case, the stages of a patent study on a particular topic under study include: a) preprocessing patent arrays on a given topic and forming a thematically limited locus of patent data; b) a patentological analysis of the results obtained; c) analysis of technologies from the point of view of their classification. The main information base for the formation of a patent locus is the initial search patent cluster, which includes a thematically limited search area of the patent space.

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