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DEVELOPMENT OF CHITOSAN-CONTAINING ION-EXCHANGE MATERIALS

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Solid granular materials containing ionogenic groups with mobile ions are called ion-exchange materials. Active groups can be acidic or alkaline, ampholytes are also used in industry. Granular ion-exchange materials have a wide range of applications – from nuclear fuel production and spent fuel reprocessing to radioactive isotopes purification, wastewater treatment, and water conditioning in nuclear reactors.

Currently, foreign ion exchange materials are difficult to procure for several reasons, making it imperative to develop ion-exchange materials synthesized from domestic raw materials. These raw materials can include natural polymers. The purpose of this study is to develop a method for producing granulated ion-exchange materials based on chitosan – an amino polysaccharide derived from crustacean shells or chitin of other origins.

The granules must comply with regulatory requirements for parameters such as:

- particle size distribution,
- residual moisture content.
- uniformity coefficient, etc.

The chitosan-based ion-exchange materials are expected to exhibit properties comparable to conventional analogues while being more cost-effective and easier to produce.

A review of Russian and foreign literature on chitosan dissolution and its derivatives for heavy metal sorption has been conducted. Promising solvents for further research have been identified.

REFERENCES

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