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Protein-Sorption and the Hemostatic Properties of Composite Materials Based on Polyurethane Foam Filled with Silicon and Aluminum Oxides

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An effective hemostatic composite material was obtained due to the combination of water-absorption, protein-sorption, and hemostatic properties of highly dispersed oxides of SiO₂ and Al₂O₃ with the cellular structure of polyurethane foam. It was found that a sample with a silica content of 5 wt.% has the highest parameters of osmotic activity and water absorption. The protein-adsorption activity of the fillers in the composite is slightly reduced, but remains at a level sufficient for the manifestation of biological activity. The hemostatic effect of the composite materials was studied in a model of parenchymal bleeding in rats.

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