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THERMAL ANALYSIS AND IR SPECTROSCOPY USAGE TO DETERMINE THE DEGREE OF SULFONATION OF SPEEK

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As the use of ion exchange membranes increases, so does the need to improve them. SPEEK membranes are described using their sulfonation degree (DS) that is directly related to other membrane parameters. The degree of sulfonation is defined as the percentage of re-sulfonated SPEEK units. Therefore, it is necessary to find a cheap, easy-to-perform and accurate method for testing DS.

The examination of sulfonated polyether ether ketone membranes and ionic liquids was performed using thermogravimetry and Fourier transform infrared spectroscopy methods at the Institute of Solid Phase Physics. Previously formed membranes and ionic solutions were heated in the thermogravimeter LABSYS Evo. The evaporated portion released during the experiment was transferred to an infrared spectrophotometer for analysis using argon as a carrier gas.

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