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ELECTROCHEMICAL FLUORINATION AS A ROUTE TO PERFLUOROCARBONS USEFUL FOR BLOOD SUBSTITUTION

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Perfluorocarbons (PFCs) useful for blood substitution have to meet the following requirements: very low toxicity, high oxygen solubility, good emulsifying properties, low vapour pressure, and high excretion rate. Therefore, a screening programme for new PFCs has to cover a great variety of candidates, very promising are those containing nitrogen. Among the methods for preparing selected PFCs, the electrochemical fluorination (ECF) plays the most important role. Very often ECF results in PFCs having the same carbon skeleton as the starting materials, especially in case of heteroatom containing substances. Charakteristically, there is a formation of splitting and rearrangement products as well, sometimes they become the only fluorination products. Examples are given for the ECF of heteroatom containing substrates together with an attempt to interpret the experimental data.