Związki alkoholanowe w syntezie nanomateriałów=The alkoxyde compounds in the synthesis of nanomaterials.

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Streszczenie

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Polynuclear metal alkoxides are nearly as common in today's chemistry as any other simple inorganic complexes and constitute an interesting family of species with a very broad structural diversity (Fig. 3 and Tab. 1) [14]. These compounds form structural motifs which range from simple bimetallic complexes to very spe-cific aggregates that result from the versatile coordinating abilities of an alkoxo and aryloxo ligands (Fig. 1).For the last few decades, there has been a growing interest in the development of the chemistry of metal alkoxides. such interest derives from their fascinating struc-tural chemistry, interesting catalytic properties, and a high potential for industrial utilization. The fact that most of them can generate highly pure and well-defined metal oxides (Table 4) has resulted in high research activity in chemistry of mate-rials. alkoxides and their derivatives, e.g. organometallics, are easily accessible and consist inexpensive compounds. Moreover, alkoxide ligands are easily removable during thermal treatment in a relatively low temperatures compare to conventio-nal methods involving inorganic salts. such compounds already have metal-oxygen bonds established on molecular structure. due to these, alkoxides can generate oxide ceramics in a single step – so-called single-source precursors (ssPs) [11]. ssPs deliver appropriate metal elements of a final oxide product(s) eliminating the need to match the reaction rates required from a multicomponent mixture. all of these features made the metal oxides derived from metal alkoxides highly pure products possessing specific properties, chemical and mechanical resistance, excellent func-tions and shapes.The aim of this article is to serve as a guide in understanding the principles in a one step strategy for oxide ceramics using metal alkoxide compounds. it includes synthesis of alkoxides and their derivatives, the concept of ssPs strategy and design of molecular precursors for oxide ceramic materials.