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## Mullite-type materials: Introducing a new structure-type for the design of high-entropy oxides

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High-entropy oxides (HEO) are a new class of materials containing five or more metal cations in a single-phase solid solution. For the first time, we show that high-entropy versions of mullite-type materials can be synthesized exemplarily shown in the form of 5 new compounds e.g.  $\text{Bi}_2(\text{AlGaFeMn})\text{O}_9$  and  $(\text{Nd,Sm,Y,Er,Eu})_2\text{Mn}_4\text{O}_{10}$ . The crystallized products as well as their formation are characterized by a combination of scattering, spectroscopic and microscopic techniques.

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