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Philip Netzsch, Matthias Hämmer, Peter Gross, Henning A. Höppe

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# Silicate-Analogous Borosulfates

Henning A. Höppe,\* Philip Netzsch, Peter Gross, Matthias Hämmer, and Erich  
Turgunbajew

*Universität Augsburg, Lehrstuhl für Festkörperchemie, Universitätsstr. 1, D-86159  
Augsburg, Germany, <https://www.ak-hoeppe.de>*

E-mail: [henning@ak-hoeppe.de](mailto:henning@ak-hoeppe.de)

## Abstract

The video attached to this contribution was recorded after some sound issues during the live presentation during the ACS Spring Meeting 2021. In my presentation a short history of borosulfates since their first mention in literature in 1962 is given where I embedded some crucial recent findings of our group. Firstly, the very first crystal structure determination of  $\text{K}_5[\text{B}(\text{SO}_4)_4]$  published in 2012 is presented (approx. 4:50), introducing both approaches based on which these compounds can be described as silicate-analogous. Then the rare-earth borosulfates  $\text{R}_2[\text{B}_2(\text{SO}_4)_6]$  are discussed regarding synthesis (approx. 7:25), crystal structure and luminescence of  $\text{Eu}_2[\text{B}_2(\text{SO}_4)_6]$  (approx. 10:00),  $\text{Ce}_2[\text{B}_2(\text{SO}_4)_6]$  and  $\text{Y}_2[\text{B}_2(\text{SO}_4)_6]:\text{Ce}^{3+}$  (approx. 12:00); this chapter closes with thermometry on the example of  $\text{Y}_2[\text{B}_2(\text{SO}_4)_6]:\text{Gd}^{3+}$  (approx. 14:30). Finally the very recently found Lewis-Acid-Base adduct  $\text{Mg}_3[\text{H}_2\text{O} \rightarrow \text{B}(\text{SO}_4)_3]$  is presented in detail (approx. 19:10) starting from the synthesis via its crystal structure to calculations of Lewis and Brønsted acidities.