

# Silicate-Analogous Borosulfates

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## 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  $K_5[B(SO_4)_4]$  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  $R_2[B_2(SO_4)_6]$  are discussed regarding synthesis (approx. 7:25), crystal structure and luminescence of  $Eu_2[B_2(SO_4)_6]$  (approx. 10:00),  $Ce_2[B_2(SO_4)_6]$  and  $Y_2[B_2(SO_4)_6]:Ce^{3+}$  (approx. 12:00); this chapter closes with thermometry on the example of  $Y_2[B_2(SO_4)_6]:Gd^{3+}$  (approx. 14:30). Finally the very recently found Lewis-Acid-Base adduct  $Mg_3[H_2O \rightarrow B(SO_4)_3]$  is presented in detail (approx. 19:10) starting from the synthesis via its crystal structure to calculations of Lewis and Brønsted acidities.