

## **Rare Earth Elements retention onto basaluminite: understanding sorption mechanisms**

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Rare Earth Elements (REE) comprises the group of lanthanides plus Yttrium and Scandium. Nowadays REE are considered Critical Raw Materials: whereas REE have become important for modern technologies, a high risk of supply exists. However, Acid Mine Drainage (AMD), which is an environmental concern, contains REE concentrations several orders of magnitude higher than the rest of natural waters [1]. AMD neutralization systems cause REE retention into basaluminite ( $Al_4SO_4OH_{10} \cdot 5H_2O$ ) at pH is higher than 5. Sorption mechanism is proposed as responsible for REE retention. Sorption experiments were carried out to know the maximum sorption capacity, and the variation with pH and sulfate concentration. A surface complexation model is proposed to understand the REE retention in basaluminite. The potential of this mineral as a source of REE and extraction procedures has been assessed.

[1] Ayora *et al.* (2016) Environ. Sci. Technol. **50**, 8255-8262.