

**From Phosphors to Ceramic
Magnets**

**Stability, Crystal Chemistry and
Applications of Hexa-Aluminates
and –Ferrites**

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The groups of hexa-aluminates and –ferrites exhibit a wide range of applications. From lamp phosphors in the case of Ba-aluminates (Eu & Mn doped – green, Eu doped – blue luminescence) to ceramic magnets such as Sr-ferrites doped with Co and La a wide range of daily applications can be presented.

In the group of hexa-phases compounds exhibiting magnetoplumbite- and beta-alumina structures are stable. A wide crystal chemical variety gives rise to numerous properties with large potential for chemical fine tuning.

Phase relations and crystal chemical aspects like solid solution series in the multicomponent systems $\text{CaO/SrO/BaO/EuO/La}_2\text{O}_3 - \text{Al}_2\text{O}_3/\text{Fe}_2\text{O}_3 - \text{MgO/CoO}$ are presented and discussed. The crystal structures present can be explained as mixed layer structures. Starting from the spinel structural type modifications consisting of rock salt-units and perovskite-units build up the different hexa-phases.

Furthermore shaping aspects like ceramic foams consisting of Ca-aluminates aiming towards catalytic applications will be presented.