

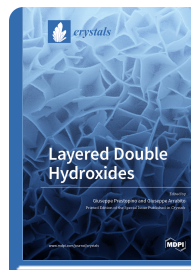
Special Issue Reprint

Layered Double Hydroxides

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Very few materials have attracted so much attention in recent years, both from researchers and industry, as layered double hydroxides (LDHs) have. LDHs, which are also referred to as anionic clays or hydrotalcites, are a wide class of inorganic ionic lamellar clay materials consisting of alternately stacked positively charged metal hydroxide layers with intercalated charge-balancing anions in hydrated interlayer regions. Their unique properties, such as their extremely high versatility in chemical composition and intercalation ability, extraordinary tuneability in composition as well as morphology, good biocompatibility and high anion exchangeability, have triggered immense interdisciplinary interest for their use in many different fields of chemistry, biology, medicine, and physics. Indeed, the applications of LDHs are constantly growing: LDHs, in the form of aggregated lamellar clusters, exfoliated single-layer nanosheets, or hierarchical films of interconnected nanoplatelets, can be effectively used as nanoscale vehicles in drug delivery, heterogeneous catalysts and supports for molecular catalysts, ion exchangers and adsorbents, solid electrolytes or fillers in electrochemistry, for the fabrication of superhydrophobic surfaces, water treatment and purification, and the synthesis of functional thin films. This book gathers the contributions to the Special Issue “Layered Double Hydroxides” of Crystals, which includes two review articles and seven research papers.

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