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Research Abstract

Development of Luminescent Metal-Organic Frameworks as Oxygen Sensors

Metal-organic frameworks (MOFs), porous materials composed of metal ions and organic linkers, have broad applications in separation, small molecule storage, and catalysis. Some of these materials have been shown to be luminescent and therefore have the potential to function as sensors for analytes that interact within the pores of the framework. In the current work, prototype oxygen sensors are being developed by incorporating luminescent transition metal complexes within the MOF. Systematic alterations are being made to the ligands and the central metal of the transition metal complexes in order to discern the impact on three-dimensional MOF structure and oxygen-sensing performance. Insights gained will be applied in the development of sensors for other analytes of environmental and clinical interest.