

**APPLICATIONS OF PROTON CONDUCTING
PEROVSKITES**

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Proton conducting perovskites are unique oxide materials that transport protons at elevated temperatures (400 - 1000°C). The high operating temperature of these materials combined with their excellent selectivity for proton transport makes these oxides attractive candidates for use as hydrogen separation membranes. The critical factors that affect the application of these materials in separating the useful hydrogen fuel in fossil fuels from the waste carbon dioxide are discussed. Our studies reveal that only the zirconate-based perovskites have the necessary stability for this type of application and moreover the experimental data on 1 mm thick electrolyte discs indicates that thin film (<10µm) membrane reactors will have to be fabricated before practically useful fluxes of H₂ are achieved.