Ageing of solid oxide fuel cells based on zirconia or other oxide solid electrolytes

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This work concerns the consequence of the matter transport processes on the cationic sublattice which occur in oxides subjected to an oxygen chemical potential gradient . The principle of the kinetic demixing processes which then appear in the material is reviewed. Available experimental results concerning yttrium-doped zirconia and iono-covalent oxides are reported. These results are discussed in relation with the microstructure and composition changes near the electrolyte-electrode material interfaces.