

Electronic Supplementary Information

Design structure for CePr mixed oxide catalysts in soot combustion

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Nitrates and oxides were studied directly by means of TG to observe the change of states in the heating process. The DSC curves corresponding to any changes in the heat of different catalysts were shown in Fig. 1. A considerable amount of heat was absorbed during the sequential loss in both physical and hydrated water, as well as NO_3^- decomposition of the nitrates. Therefore, solid turns into liquid (“molten state”) when nitrates reach their melting points (96 °C for cerium nitrate and 56 °C for praseodymium nitrate) with increasing temperature. However, it could not occur when oxide as a precursor. It is verified that the existence of the molten state is important for Ce^{4+} and Pr^{4+} migration, which could be instead of grinding in this process.

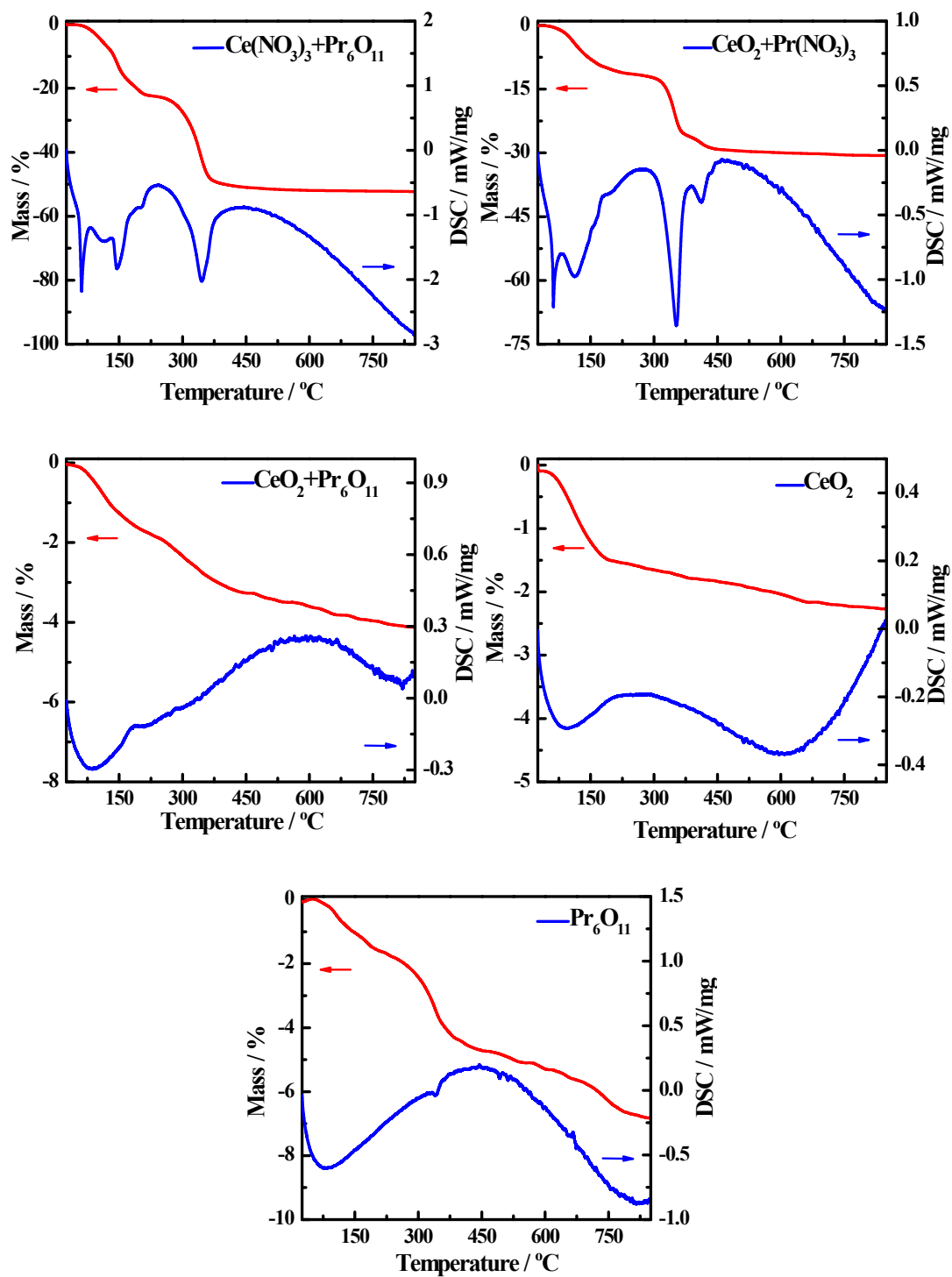


Fig. 1 TG and DSC curves of different catalysts