Supplementary Information

Dual catalyst system for selective vinyl chloride production *via* ethene oxychlorination

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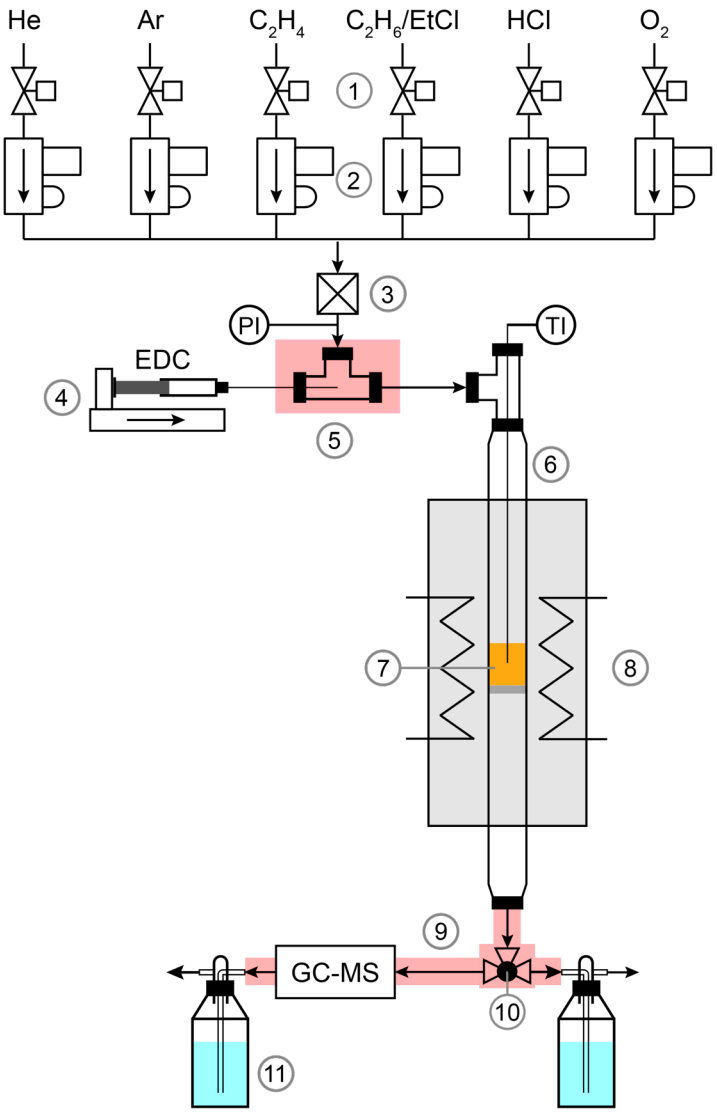

Scheme S1. Laboratory set-up used for catalytic studies. 1: on-off valves, 2: mass-flow controllers, 3: static mixer, 4: syringe pump, 5: vaporizer, 6: quartz reactor (10 mm inner diameter), 7: catalyst bed, 8: oven, 9: effluent stream heating, 10: three-way sampling valve, 11: NaOH scrubbers, PI: pressure indicator, and TI: temperature indicator.

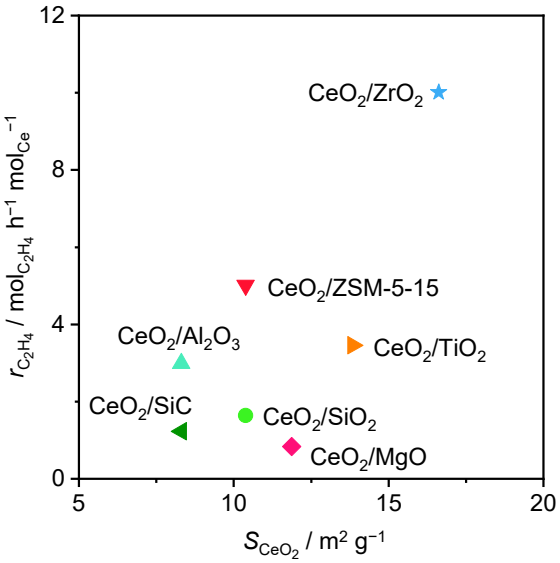

Fig. S1. Rate of ethene consumption over catalysts at 673 K as a function of the CeO_2 particle surface as estimated based on the average particle diameter determined by XRD (and microscopy in the case of CeO_2/ZrO_2) and the assumption of hemispherical shaped particles. Conditions are detailed in **Table 2**.

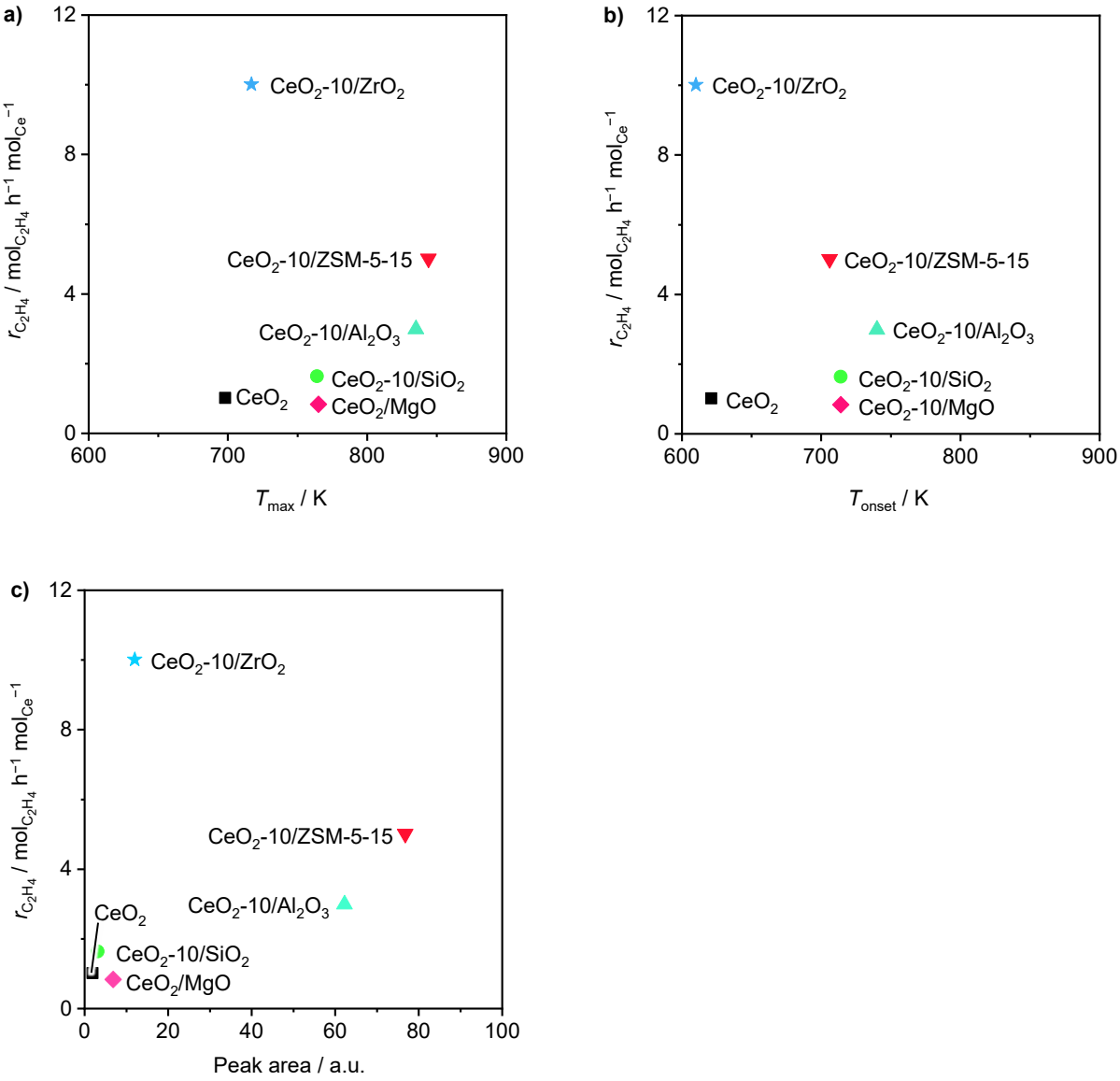

Fig. S2. Rate of ethene consumption over catalysts at 673 K as a function of a) the maximum temperature, b) the onset temperature, and c) peak area determined by H_2-TPR of used catalysts. Conditions are detailed in **Table 2**.

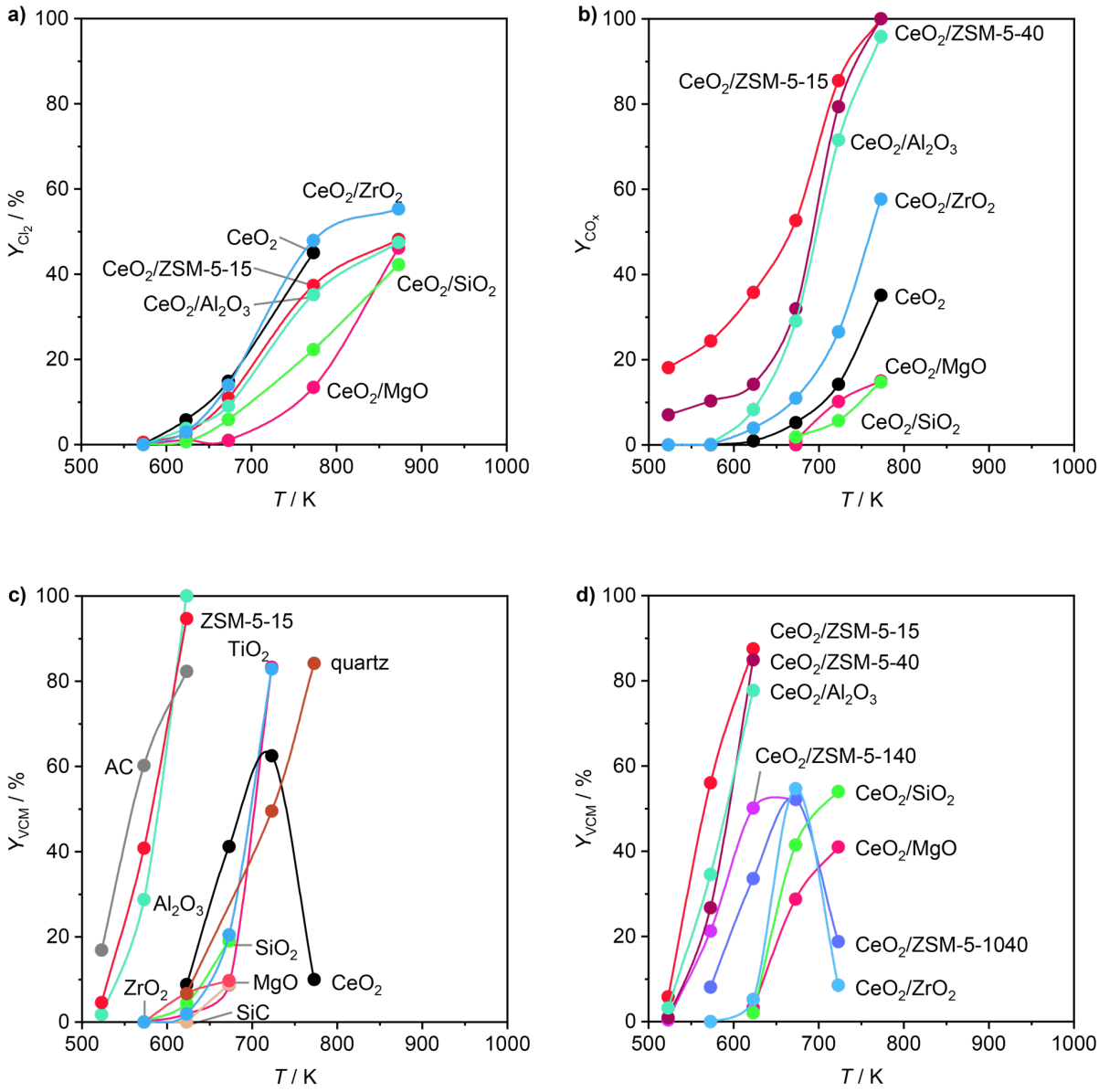

Fig. S3. a) Cl_2 yield in HCl oxidation, b) CO_x yield in VCM oxidation, and c,d) VCM yield in EDC dehydrochlorination as a function of temperature. Conditions are detailed in **Table 2** in the main manuscript.

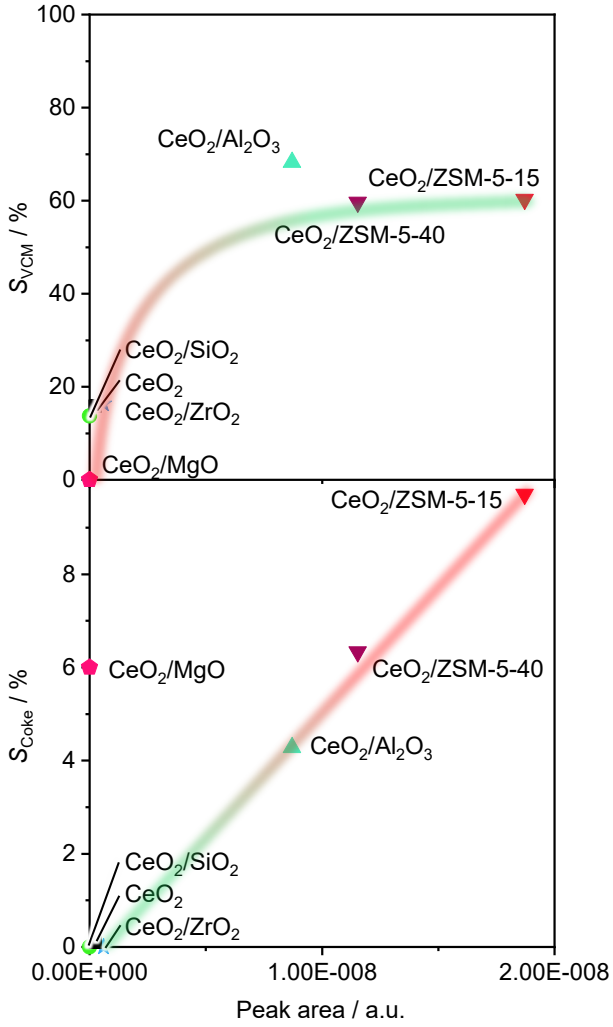

Fig. S4. Selectivity to VCM (top) and coke (bottom) in ethene oxychlorination at 673 K as a function of the peak area in NH_3-TPD of used catalysts. Conditions are detailed in **Table 2**.