

Combined use of in situ and operando-FTIR, TPR and FESEM techniques to investigate the surface species along the simultaneous abatement of N₂O and NO on Pt,Pd,Rh/TiO₂-ZrO₂ and Pt,Pd,Rh/TiO₂-ZrO₂-CeO₂ catalysts

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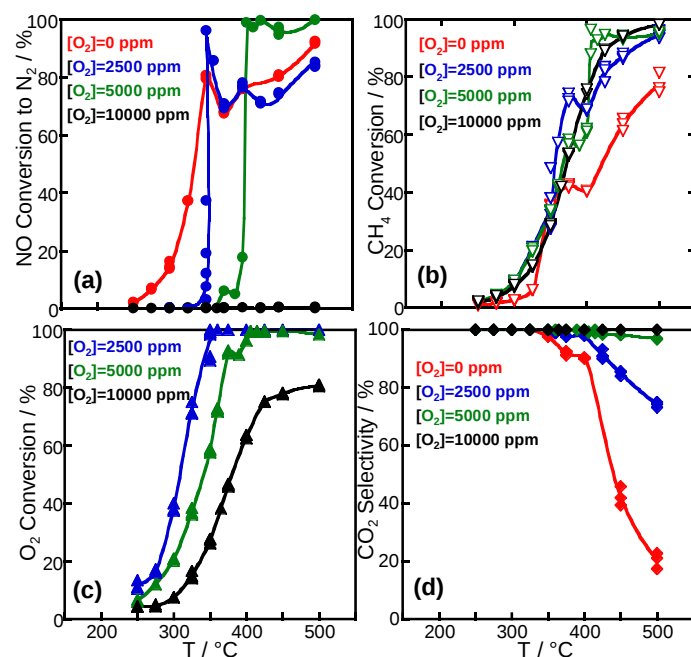
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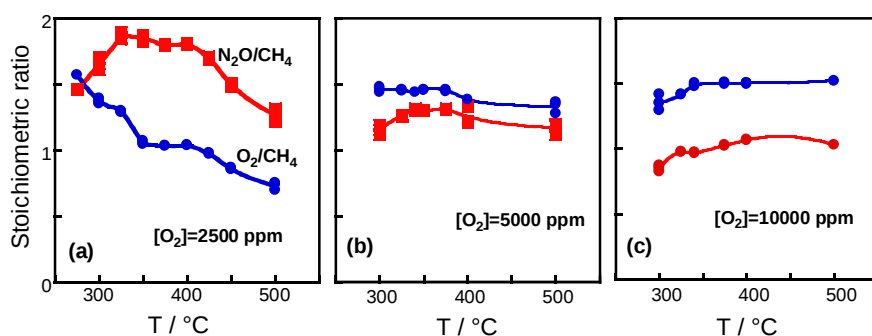
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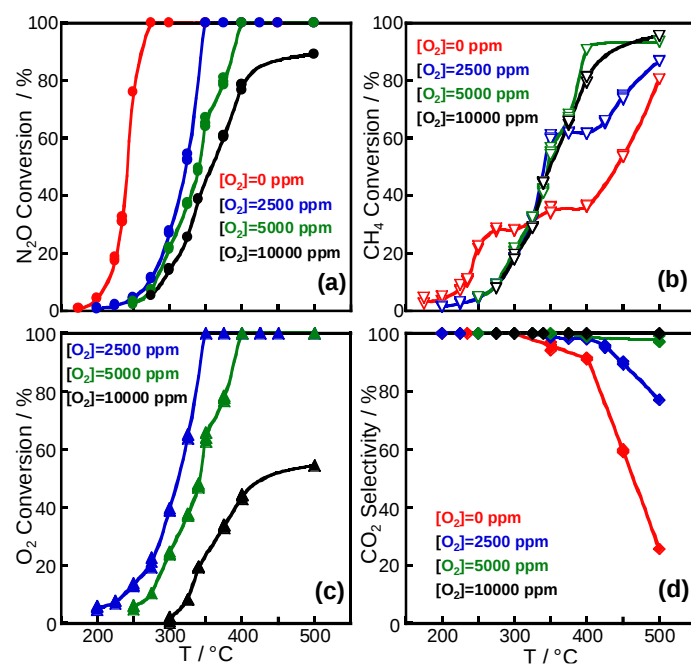
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Supplementary Fig. 1. Effect of O_2 on the NO abatement with CH_4 using gas mixtures with different O_2 amount in the feed, as indicated, on Pt,Pd,Rh/TiO₂-ZrO₂. NO conversion to N_2 (●) (Section a), CH_4 conversion (▽) (Section b), O_2 conversion (▲) (Section c) and CO_2 selectivity (◆) (Section d) as a function of temperature. Reactant mixtures: $[NO]=[CH_4]=4000$ ppm, $[O_2]=0 \div 10000$ ppm (total flow rate=100 cm³ STP/min, He balance).



Supplementary Fig. 2. N_2O/CH_4 and O_2/CH_4 ratios as a function of temperature for the SCR_{N_2O} reaction with different O_2 content, as indicated, on Pt,Pd,Rh/TiO₂-ZrO₂-CeO₂ catalyst. Reactant mixtures: $[NO]=[CH_4]=4000$ ppm, $[O_2]=2500 \div 10000$ ppm (total flow rate=100 cm³ STP/min, He balance).



Supplementary Fig. 3. Effect of O_2 on the N_2O abatement with CH_4 using gas mixtures with different O_2 amounts in the feed, as indicated, on Pt,Pd,Rh/TiO₂-ZrO₂. N_2O conversion ($\bullet$, Section a), CH_4 conversion (∇ , Section b), O_2 conversion ($\blacktriangle$, Section c) and CO_2 selectivity ($\blacklozenge$, Section d) as a function of temperature. Reactant mixtures: $[N_2O]=[CH_4]=4000$ ppm, $[O_2]=0 \div 10000$ ppm, (total flow rate=100 cm³ STP/min, He balance).