

Supplementary information: Ru-Ti Oxide Based Catalysts for HCl Oxidation: the Favorable Oxygen Species and Influence of Ce Additive

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Supplementary Information Caption:

Figure S1. XRD patterns of the self-made RuO₂ and the corresponding intensity line in red from PDF 65-2824.

Figure S2. H₂-TPR profiles of the pure TiO₂ in rutile and anatase.

Figure S3. XPS profiles of Ti 2p for RuO₂/TiO₂-r with 0.3, 0.5, and 1.0 wt% Ru.

Figure S4. XPS spectra of Ce 3d for Ru-Ce/Ti oxide catalysts.

Figure S5. XPS spectra of O 1s for the supported RuO₂ and Ru-Ce/Ti oxide catalysts.

Table S1. Chemisorbed oxygen (O_α) in the supported RuO₂ and Ru-Ce/Ti oxide catalysts.

Figure S6. Raman spectra of the supported RuO₂ and Ru-Ce/Ti oxide catalysts.

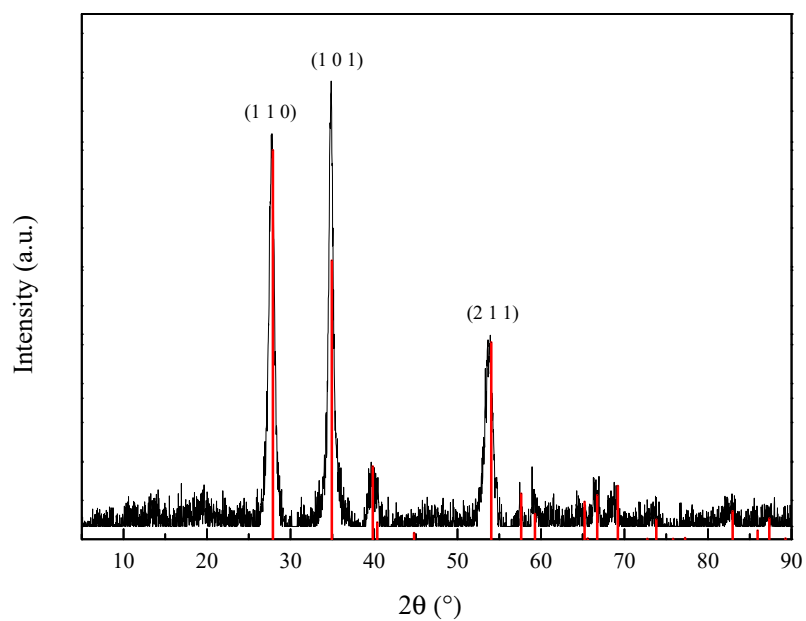


Figure S1. XRD patterns of the self-made RuO₂ and the corresponding intensity line in red from PDF 65-2824.

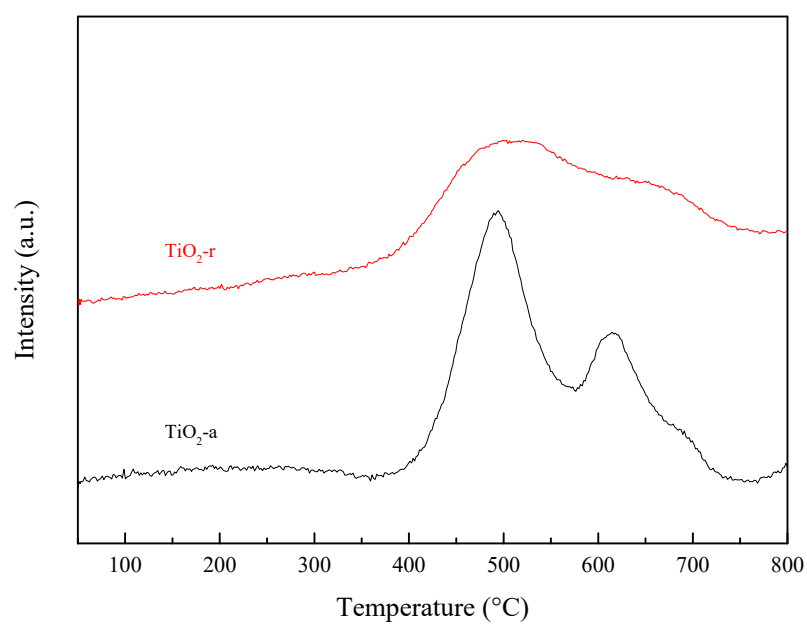


Figure S2. H₂-TPR profiles of the pure TiO₂ in rutile and anatase.

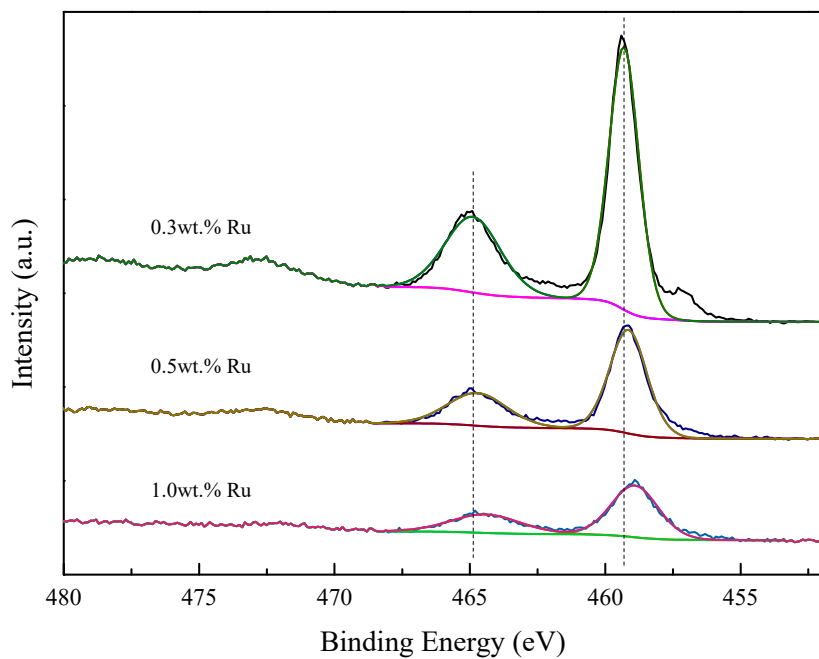


Figure S3. XPS profiles of Ti 2p for RuO₂/TiO₂-r with 0.3, 0.5, and 1.0 wt% Ru.

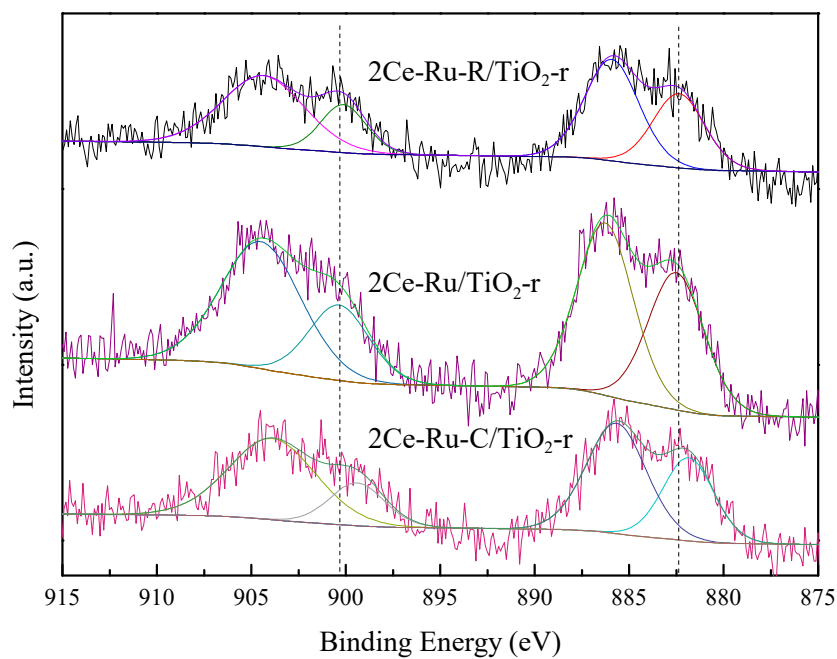


Figure S4. XPS spectra of Ce 3d for Ru-Ce/Ti oxide catalysts.

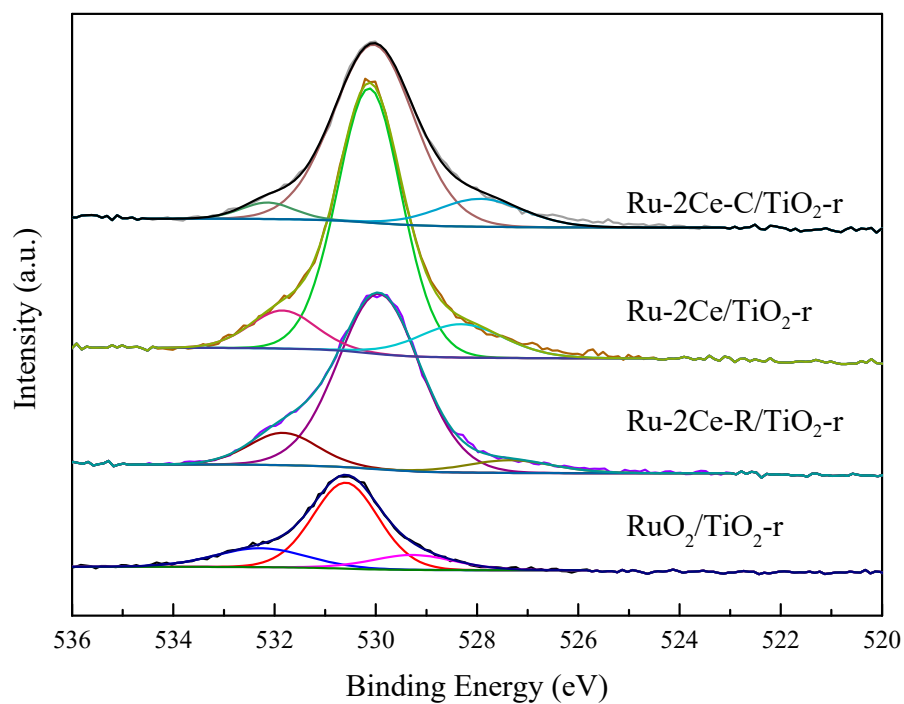


Figure S5. XPS spectra of O 1s for the supported RuO₂ and Ru-Ce/Ti oxide catalysts.

Table S1. Chemisorbed oxygen (O_α) in the supported RuO₂ and Ru-Ce/Ti oxide catalysts.

Sample	E _b of O _α (eV)	O _α /O _T (%)
RuO ₂ /TiO ₂ -r	532.27	20.12
Ru-2Ce-R/ TiO ₂ -r	531.83	12.57
Ru-2Ce/ TiO ₂ -r	531.84	11.13
Ru-2Ce-C/TiO ₂ -r	532.14	4.95

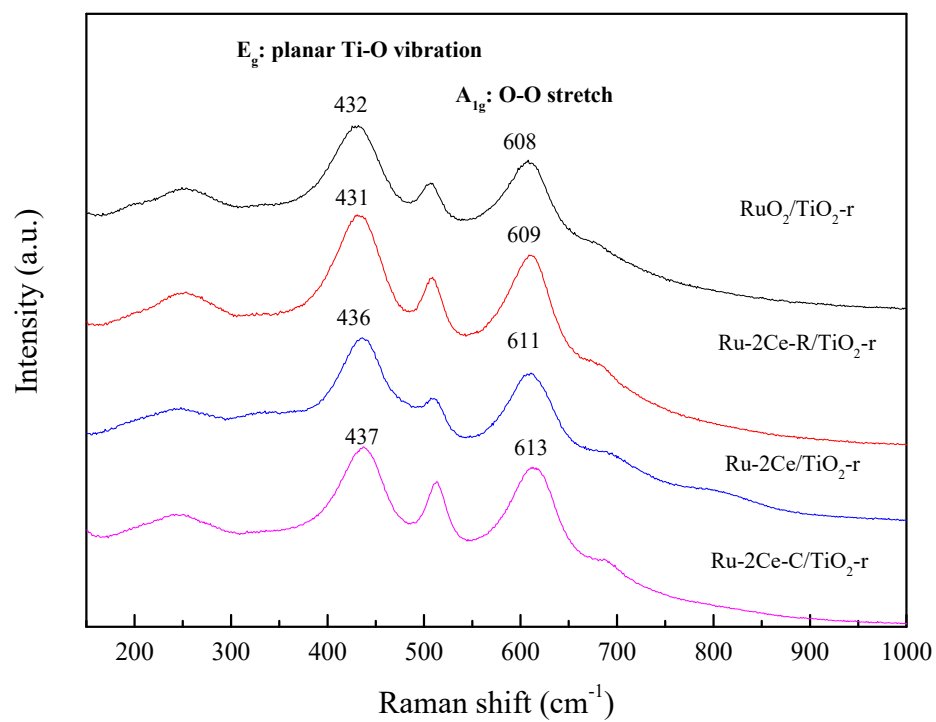


Figure S6. Raman spectra of the supported RuO_2 and Ru-Ce/Ti oxide catalysts.