Supporting Information

Secondary Alcohols as Rechargeable Electrofuels: Electrooxidation of Isopropyl Alcohol at Pt Electrodes

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Figure S1: Nanotubular platinum model catalysts; (a) schematic representation of the preparation procedure (b) EDX spectrum, (c) XRD analysis and SEM images (d) before preparation and (e) after EC measurements.
**Figure S2:** Hydrogen region of the cyclic voltammograms of Pt(111) in the absence and the presence of IPA (0.2 M) shown in Figure 1; CVs were recorded in 0.1 M HClO₄ with and scan rate of 50 mV s⁻¹.
Figure S3: Infrared spectra of IPA and acetone in the spectral region from 700 to 3200 cm$^{-1}$. Simulated spectra from PBE/def2-TZVP level of theory (black) and experimental (red) IR spectra (ATR) of IPA and acetone.
Figure S4: Visualization of the different vibrational modes and the corresponding band positions of the calculated spectra of IPA and acetone depicted in Figure S3. The vibrational modes are visualized using the program QVibeplot.¹
Figure S5: Cyclic voltammetry of IPA oxidation on polycrystalline Pt monitored by EC-RTMS using an SFC coupled with DART for upper potential limits of 1.0 and 1.5 V$_{\text{RHE}}$; (a) cyclic voltammogram and (b) the corresponding DART signal intensity for mass m/z = 59.1 ± 0.1 using a solution of 0.2 M IPA in 0.1 M HClO$_4$ with a flow rate of 0.5 mL·min$^{-1}$ and a scan rate of 10 mV·s$^{-1}$.

Reference